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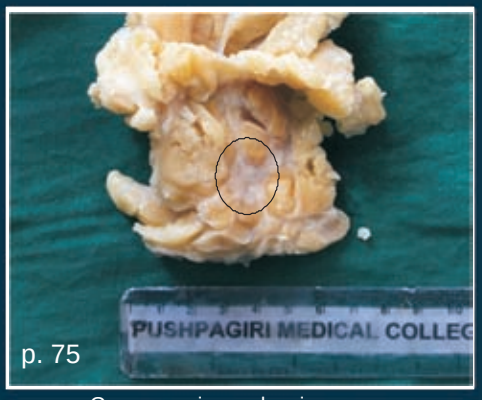

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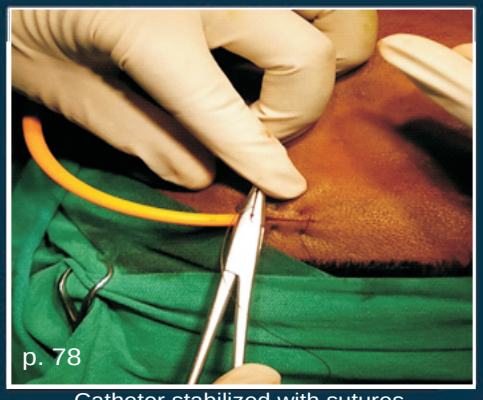
Gross specimen showing an irregular grey white growth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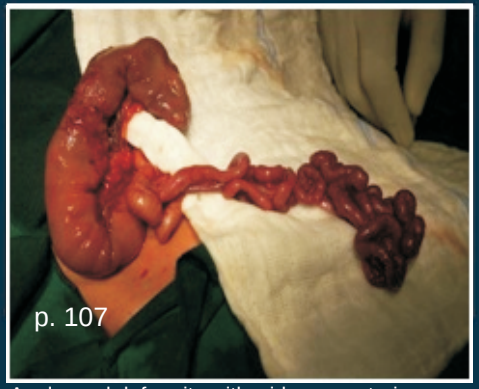
Catheter stabilized with sutures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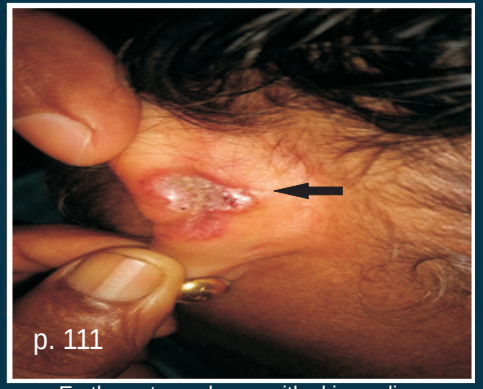
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Erythematous plaque with skin scaling on the posterior aspect of the left ear

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PUSHPAGIRI MEDICAL JOURNAL

✍ EDITORIAL

Random thoughts !

K George Thomas

From:
Pushpagiri Institute of
Medical Sciences
& Research Centre
Tiruvalla, India - 689 101

The state of Kerala was once hailed to be the role model for rest of India for healthcare, among other things. However, that rosy picture is taking on a different hue of late. We may be in the forefront in literacy, but somehow that does not seem to translate to utilizing our discretionary power effectively. The citizens, or should we say netizens, considering the high penetration internet in the state, still seem as gullible as any other illiterates or underprivileged.

I am referring to seemingly widespread dependence on unscientific, baseless or unproven treatment options and quick fix for various ailments that people go after. The scene is vitiated by self styled “experts” who wax eloquent about any health related topic. At times, they pop up from the esteemed medical fraternity as well. This has become a very common scenario in the media, be it print, visual or the internet. The social media especially is full of “authentic looking” (and sounding) data on many health care issues, often cleverly packaged as “health tips”. Sad because, this is a country where there are explicit laws prohibiting advertisements and propagation of drugs or practices with dubious medical benefits.

But obviously loop holes are aplenty. It is indeed appalling to see the gullible flocking to these centers of magic cure, whether they are of “alternative medicine', religious hogwash, life style modification training, advices on what and what not to eat and so on. Sexual wellness and mental health are some of the areas where the victims or their relatives do not come forward to complain, for obvious reasons. Kerala has been acclaimed the world over for propagating the age old science of Ayurveda. But very often the practice and the products marketed have nothing to do with the ethos of this unique form of medicine.

Cancer is another area where many are taken for a ride. The average man is indeed scared of the “c” word and it is indeed disheartening to see charlatans stepping in to capitalize on the fear and ignorance of the victims, offering cure or long term remissions. It is a fact that many patients lose their chance of getting a cure with these lopsided priorities in choosing treatment.[1] It is undeniably the duty of the enlightened medical fraternity to expose those involved in such reprehensible activities. That brings up the issue of the role of “social media.” Anyone can be an authority and upload data on the net, very convincingly. It is dismaying how the educated citizens, who should be using their discerning power to separate the grain from the chaff, are falling prey to these gimmicks. Somehow the current younger generation seem to trust the results they “googled” or received as forwards from friends than having a meaningful interaction with the medical professionals. Many jokes abound in the social medical fraternity how patients with half baked information gathered from “the net” confront their treating doctors. It is often a herculean task to undo some of these deep rooted baseless convictions and make them accept evidence based medicine. The digital revolution is here to stay and has become indispensable in all walks of life, especially that of medicine. More and more mind boggling innovations will continue to amaze us in the future. However, over-dependence, misuse and lack of discretion are leading to aggravation of many existing problems in mental and physical well being of our generation as a whole.

Recently there had been lot of discussions in various forums about the state of another life saving treatment modality, that of organ donation. Organ harvesting and transplantation in our country is at par with any other in the world. But the most important ingredient, the “organ”,is very hard to come by. This is partly due to the negative vibes regarding motives and “commercialization” of the transplant programs. There may be bad apples around, and the need of the hour is a concerted effort by the medical fraternity and government in educating the citizens and of course keeping everything above board.[2] In this context, it is worthwhile remembering that some of these entities needing organ donation and

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transplantation could have been prevented in the first place! Cirrhosis of liver and subsequent development of hepatocellular carcinoma is a case in point. Chronic liver disease due to Hepatitis B infection, alcohol abuse and of late NASH (Non alcoholic steato hepatitis) have been shown to progress to cirrhosis and later on to hepato cellular carcinoma, even though in a minority. Hence efforts at primary prevention of viral hepatitis, abstinence from alcohol or aggressive control of factors or modification of lifestyles that aggravate NASH could ultimately reduce the need for liver transplantation in the future!

Last but not least, the prime time news in medical field is increasing incidences of assault on doctors and hospitals in India by patients and their irate relatives.[3] This issue has gained world's attention after being brought up in “Lancet” and World medical association forums. There have been any number of discussions about the causes and standard operating procedures in preventing such attacks. Woefully, the sanctity of once venerated medical profession is being questioned.

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   https://www.cancer.org/cancer/cancer-basics/cancer-information-on-the-internet.html

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   http://thelancet.com/journals/lancet/article/PIIS0140-6736(17)31142-X/fulltext

✪ CASE SERIES ARTICLE

Unusuals in Breast Pathology

Part I: Invasive micropapillary carcinoma of breast

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Abstract

Invasive micropapillary carcinoma is recognized as a rare but distinctive variant of carcinoma in various anatomic sites, including breast, lung, ovary, endometrium, major salivary glands and urinary bladder[6]. It is characterized by epithelial tufts forming micropapillae without a fibrovascular core located within clear stromal spaces. They usually present as a solid mass with a very high frequency of metastasis to lymph nodes. We report a case of 61 year old woman with a breast lump which was initially diagnosed as a low grade malignancy on cytology and revealed features of invasive micropapillary carcinoma on histopathology.

Keywords: breast, micropapillary carcinoma, invasive

Introduction

The most common type of invasive breast carcinoma is ductal carcinoma of no special type(ductal NST). Pure micropapillary carcin-omas account for approximately 0.9-2% of invasive breast cancers which makes them a rare entity. The reported age at diagnosis ranges from 20 – 89 years. Patients mostly present with a palpable mass. They frequently present with lymphovascular invasion and lymph node metastasis. A high local recurrence is seen with a distinctly lower survival rate which signifies its aggressive clinical behavior. Invasive micropapillary carcinomas have also been reported in men.

Clinical Presentation

A 61 year old female, who is a known case of dyslipidemia, presented with complaints of a breast lump for 1 month which was detected on self examination. The lump was felt in the upper inner quadrant of the left breast measuring 2×2cm. Other breast was normal. No palpable axillary lymph nodes were present. Mammogram showed a hypoechoic lobulated lesion with ill defined margins and mild vascularity measuring 1.8 ×1.3cm at 10 – 11 O'clock position (– BIRADS IV B). Routine blood investigations were within normal limits. Fine needle aspiration cytology (FNAC) was done which revealed predominantly discohesive neoplastic epithelial cells with mild atypia along with occasional papillaroid cell clusters and few stripped nuclei [Fig.1a, 1b]. Hence we considered a diagnosis of a malignancy with a low nuclear grade. Later the patient underwent wide excision of left breast lump and left axillary dissection. Multiple nodes were seen at Level I and Level II.

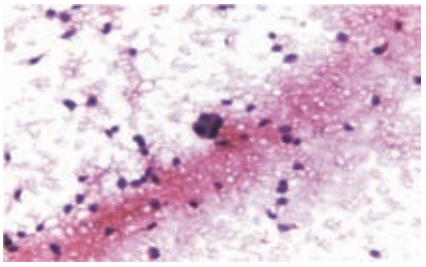

Figure a. Fine needle aspiration cytology from breast lump: predominantly discohesive neoplastic epithelial cells with mild atypia

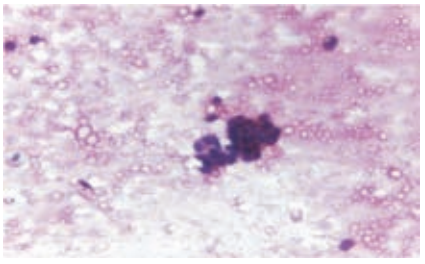

Figure 1b. Cohesive papillaroid clusters of ductal epithelial cells with minimal nuclear atypia

Grossly we received a fibro-fatty tissue, partially covered by skin, measuring 9×8×4cm. Cut section of the specimen showed a firm to hard, irregular grey white growth measuring 2.5×2×2cm[Fig 2].

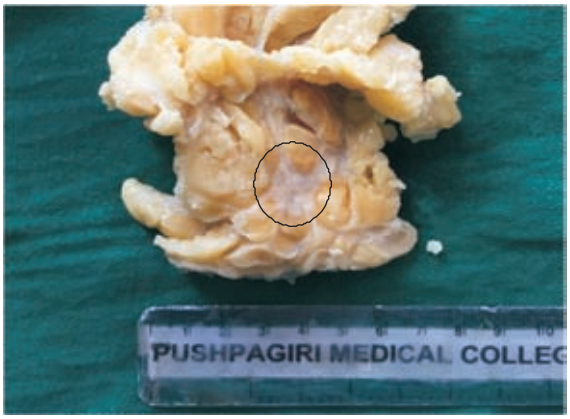

Figure 2. Gross specimen showing an irregular grey white growth

Histopathological examination of the breast lump showed an infiltrating neoplasm composed of cells arranged in micropapillary pattern, devoid of fibrovascular core and surrounded by empty clear spaces [Fig.3a]. The neoplastic cells were cuboidal to columnar cells with eosinophilic cytoplasm and vesicular pleomorphic nucleus showing reverse polarization and occasional pyknotic nuclei within the central spaces [Fig3b]. A mitotic index of 0-1/10HPF was noted. Surrounding stroma showed desmoplastic reaction. No lymphovascular emboli were noted. Only one of the Level I lymph nodes showed neoplastic infiltrate while the rest showed sinus histiocytosis. Level II lymph nodes showed only reactive change. Immunohistochemical examination showed positive staining for estrogen (ER) receptor and HER2neu but negative staining for progesterone (PR) receptor. A final diagnosis of invasive micropapillary carcinoma breast-modified Bloom Richardson grade I was made.

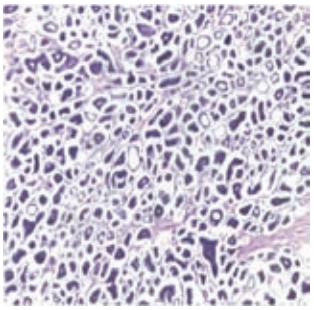

Figure 3a. Neoplastic cells arranged in micropapillary pattern surrounded by empty clear spaces

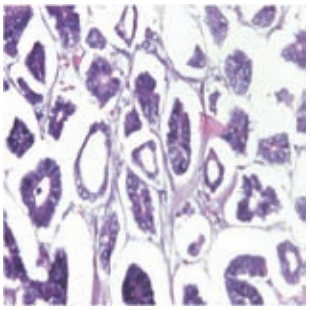

Figure 3b. Cuboidal to columnar cells showing reverse polarization and occasional pyknotic nuclei within central spaces

Discussion

Invasive micropapillary carcinoma is composed of cells arranged in hollow clusters which are surrounded by clear stromal spaces. Fisher et al first described invasive papillary cancers and recognized several subtypes in a review of 1603 patients from the National Surgical Adjuvant Breast Project[3]. Siriaunkgul and Tavassoli from Armed Forces Institute of Pathology described the first series of invasive micropapillary carcinoma in 1993[1]. A vast majority of these tumors present as a palpable mass. Tumors usually measure 1 to 3 cm in diameter. They usually reveal a dense irregular mass with microcalcifications and indistinct margins on mammography. On gross analysis, they do not have any specific features.

Micropapillary carcinomas are best characterized by morula like clusters of cuboidal to columnar neoplastic cells devoid of fibrovascular cores. They are surrounded by empty stromal spaces which are not lined by endothelial cells and are due to fixation artifact[8]. Neoplastic cells have eosinophilic cytoplasm, either dense or finely granular, and variable nuclear pleomorphism which is rarely pronounced. They have low mitotic activity and lack necrosis. A lymphocytic reaction is seldom seen. In the metastatic sites, the neoplastic cells maintain their architectural features[9]. Neoplastic cells characteristically display a reverse polarity (i.e. “inside out” pattern) where the apical pole of neoplastic cells faces the empty stromal spaces[2, 8]. This pattern is easily appreciated by immuno-histochemical analysis with MUC1 antibodies[8, 10].

In the past few years, certain studies[4, 5, 7] have illustrated few features of this tumor on aspiration cytology. FNA smears showed high cellularity with three dimensional clusters of cells forming rounded balls and micropapillary fragments without a stromal core. The cells showed basophilic cytoplasm, hyperchromatic nuclei with mild nuclear pleomorphism and prominent nucleoli. However, as the FNA smears in our case showed mainly discohesive cells with very occasional small papillaroid clusters, a definite diagnosis of micropapillary carcinoma could not be made. Hence we can infer that a differential diagnosis of micropapillary carcinoma should also be kept in mind when we encounter similar smear findings.

Invasive micropapillary carcinomas have a high percentage of estrogen receptor (61-100%) and progesterone receptor (46-83%) positivity[8]. On the other hand, only conflicting results have been reported regarding HER2 positivity. Micropapillary carcinomas can be classified as luminal A or B subtype on microarray gene expression profiling. Almost all tumors display chromosome 8 abnormalities consisting of recurrent gains of chromosome 8q, 17q and 20q along with deletions of chromosomes 6q and 13q[8]. Micropapillary carcinomas more frequently present with lymphovascular invasion and lymph node metastasis is the rule which shows that they have a poor clinical outcome. Most patients are treated by mastectomy and axillary dissection. In cases with axillary lymph node metastases and in the absence of lymph node metastases for tumors larger than 1cm, adjuvant chemotherapy is indicated.

Conclusion

Even though invasive micropapillary carcinoma is a rare variant, a high index of suspicion should be kept when the micropapillary features form even a small component of an invasive carcinoma. The aggressive clinical behavior seems independent of patient age, tumor size, location, histologic grade, and extent of micropapillary growth pattern.

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PUSHPAGIRI MEDICAL JOURNAL

✪ ORIGINAL ARTICLE

Stabilizing reduced zygomatic arch fracture with foley's catheter

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Abstract

Objective: To assess the efficacy of Foleys catheter in providing stability of reduced Zygomatic arch fracture by evaluating the following variables. Mouth opening, Contour symmetry of face, Radiographic outcomes. **Materials and Methods:** Patients of age group between 18-65 years with Zygomatic arch fracture following trauma admitted under the department of oral and maxillofacial surgery. **Results:** The results were made by preoperative and postoperative clinical assessments and radiographic assessments. **Conclusion:** To conclude, this technique should be considered as a simple and useful alternative procedures and Foleys catheter will have a significant effect in providing functional and cosmetic outcome in postoperative stability of fractured zygomatic arch case.

Key words: Zygomatic complex, Rowe's zygomatic elevator, Gillie's incision, occipitomental view (OMV)

Introduction

The zygoma plays an important role in facial contour since the shape of the face is influenced largely by the underlying osseous structure[7]. Disruption of the zygomatic position has a great functional significance as it creates impairment of ocular and mandibular function. Therefore, the zygomatic injuries have to be properly diagnosed and adequately treated for both cosmetic and functional reasons[2].

Most frequently fractures of the zygomatic arch are the result of fractures of the entire zygomatic complex (ZMC). However, isolated fractures of the arch without other injuries do occur when a force is applied directly from the lateral aspect of the midface. Though the incidence varies, zygomatic arch fractures constitute fewer than 10% of zygomatic injuries. The necessity for treatment of these injuries is based on clinical detection of cosmetic or functional disturbance.

The most commonly practiced surgical technique in fractured zygomatic arch is indirect reduction without fixation. The indirect reduction is done through various approaches like Gille's temporal approach, Bala Subrahmaniam upper buccal sulcus approach, Quinn approach and Keen's lateral coronoid approach .In most cases of zygomatic arch fracture the surgical reduction alone of the fracture is not enough as a definitive treatment[1].The need for stabilizing zygomatic arch fractures varies with the location of the injury, the number of fractures, and the displacement of the segments. The masseter muscle has often been implicated as the primary cause of post reduction displacement of fractured ZMC. It is assumed to be capable of exerting sufficient inferiorly directed force on the fractured zygoma to cause movement, even after surgical insertion of fixation device. Chin et al. have introduced the method of alloderm stabilisation for prevention of the re-depression. But it may have a risk of the limitation of the temporomandibular joint motion. So we will introduce the Foley catheter method as one of the alternatives of stabilising tool.

Materials and methods

We have repaired the zygomatic arch fracture using Foley catheter stabilisation after repositioning the fractured segment through the Gillies' temporal approach. The patient age

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was ranged between 18 years old and 61 years old. Patients for the procedure were selected based on inclusion and exclusion criterias.

Inclusion criteria

a. Any patient who require reduction of zygomatic complex fracture
b. Patients who have difficulty in function: mouth opening, mandibular movements
c. Patient who gave consent for the treatment and postoperative follow up

Exclusion criteria

i. Patients who didn't obtain clearance from anesthesia.
ii. Patient who didn't give consent for the procedure.
iii. Patient who couldn't who couldn't regularly attend the review
iv. Medically compromised patients with unfavorable outcome

Surgical Technique

Routine aseptic procedures are adopted prior to surgery under general anesthesia in all patients in the study. Temporal incision (Gilles technique) is made using number 15 Bard Parker blade. Reduction of the Zygomatic arch fracture was done by Gille's temporal approach using Rowe's Zygomatic elevator. The repositioned arch side was compared with normal side arch using fingers palpation on the skin. Foley's catheter was placed extraorally, over the temporo-zygomatic region and a marking was done on the Foley's catheter to know the depth of insertion. Now the catheter is inserted up to the marking through the temporal incision such that it lies below the reduced zygomatic arch in the temporal space. The catheter was inflated using 5 ml saline solution. The Foley's catheter was secured to the temporal region with sutures and an extra oral wound dressing was given. Immediate post operatively Occipitomental view 30^0 is taken to assess the stability of the arch. After 1 week, the catheter was deflated and removed. The temporal skin incision was closed using 4-0 nylon sutures.

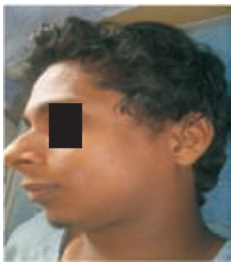


Fig. 1 Preoperative depression over the zygomatic arch

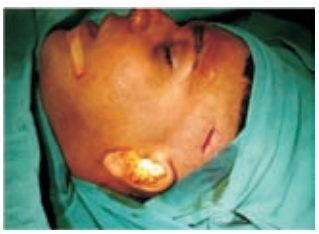


Fig 2 Gilles incision placed

Fig 3 Fractured zygoma reduced

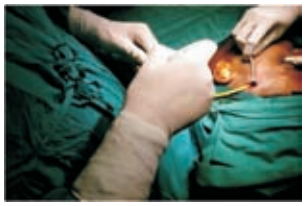


Fig 4. Insertion of Foley's catheter

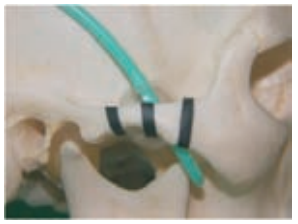


Fig. 5 Position of the ballooned Foley catheter and its relation to the zygomatic arch

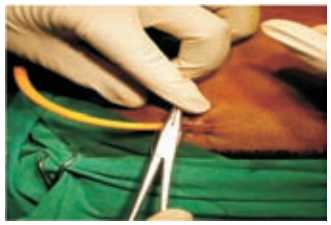


Fig 6 Catheter stabilized with sutures

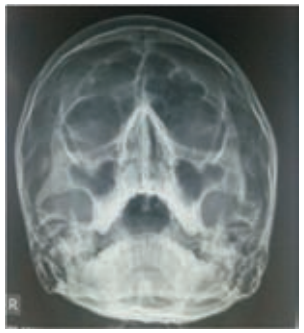


Fig 7 preoperative OMV

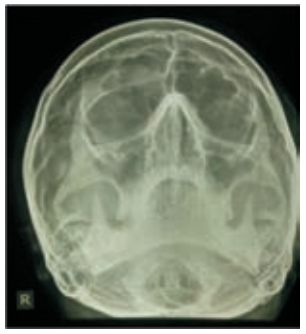
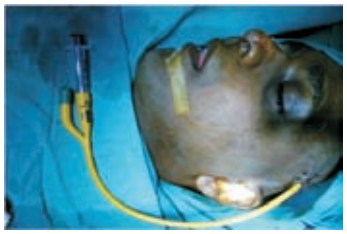


Fig 8 postoperative OMV



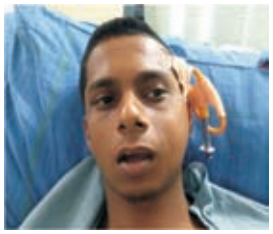


Fig 9 Immediate post op mouth opening

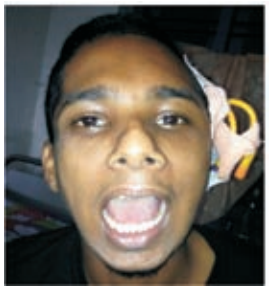


Fig 10 Five days mouth opening

Result

Every patient had no experience of complication such as infection or temporomandibular joint limitation. During the period of Foley catheter insertion, the patients have taken a food enough without limitation on mastication.

Discussion

The zygomatic arch fracture was easily approached and repaired via various methods including Gillies' temporal, Dingman's supraorbital, and Keen's transvestibular approaches. In the case of stable zygomatic arch fracture including intact periosteum, the repositioning procedure of the fractured segment via above mentioned approaches is enough for treatment. But it is true that there are so many cases of unstable and comminuted fracture with torn periosteum in the

zygomatic arch fracture. In these cases more attention must be paid on the prevention of the re-depression after repositioning of the fractured segment. Several researchers have previously made an effort to overcome the limitation of these methods. One of the alternatives was the external splinting method using an aluminum splint. Some researchers have used the Kirschner wire to fix the repositioned fractured segment. The methods using Kirschner wire is at risk of infection and scar around the entry site of the wire. Up to now several methods for internal support have been introduced. These include the using of an epistaxis balloon catheter or silicone nasogastric tube. Another method of using alloderm roll was introduced by Chin in 2006

Jarabak 1959 introduced foleys catheter through Oroantral approach for zygomatic bone reduction. Gutman et alreported the use for zygomatic bone reduction and found satisfactory stabilization. Maron and Glover reported the use of Foley's catheter in the treatment of tripod fractures. Anurag Shrivastav and Ridhima Sharma (2011)assessed the efficacy of closed reduction 31 patients with zygomatic arch fracture with the main emphasis on the postoperative stability achieved and improvement in the functional and esthetic restoration.

Cemal Fýrat and Ömer Elmas, 2012**,** of the 33 zygoma fractures, 14 were zygoma tripod, 17 were arch, and 2 were fragmented zygoma fractures. Zygomatic body displacement can also be supported by balloon treatment technique. Of the 15 fractures for which support with a Foley catheter was applied, 9 had quite successful results. Good stabilization was obtained with the Foley catheter.

Foleys catheter

The technique of stabilization of the reduced zygomatic arch using Foley's catheter was followed in this cases as it is simple and relatively easy with minimal or no complications. Also, the armamentarium required for this technique (Foley's catheter) are readily available and also the possibility of readjusting the volume of the balloon to maintain the appropriate position of the fractured segment. The only suspected complication in this technique is the chance of retrograde infection which can be avoided by following aseptic technique and use of good antibiotic regimen.

Conclusion

The need for stabilizing zygomatic arch fractures varies with the location of the injury, the number of fractures, and the displacement of the segments. The masseter muscle has often been implicated as the primary cause of post reduction displacement of fractured ZMC. In the case of unstable zygomatic arch fracture such as the fracture with comminution or old patient's fracture with torn periosteum, we think that the most important thing is internal support on the medial side of the zygomatic arch after reduction. The method using Foley catheter is very simple. It gives us a good result and we introduce this simple method as one of alternatives of internal support for stabilization of the fractured zygomatic arch after repositioning.

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✪ ORIGINAL ARTICLE

A Study on Prevalence of Pulmonary Tuberculosis among a Tribal Community in Sulthan Bathery, Wayanad

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Abstract

Background: Tuberculosis still remains one of the Public health menace both in the control and prevalence. Not much studies have been undertaken in the remote areas where the prevalence is estimated to be on the higher side. This is a prevalence study on the tribal population in Sultan Bathery, Wayanad the northern districts of Kerala. **Materials & methods:** A cross sectional study was conducted among people above 15 years of age residing in the villages of Sultan Battery and available at the house during the visit. Thirty houses were visited and a predesigned tuberculosis screening questionnaire was used. Sputum for AFB was done and data entered in laboratory register. **Results:** The study included ten paniyas and katunaikans from among the tribal colonies of Wayanad, Kerala. Of these respondents, 28 of them were found to be eligible for inclusion in the study. Of this 28, 17 were males (65.38%) and remaining females. Age of subjects ranged from 16 to 71 years. Out of the 26 sputa taken for AFB examination, four were newly positive in addition to one patient already on treatment. Of the four three were highly infectious and two were at a high risk of transmitting the infection. From the screening questionnaire it was noted that there was a direct relation between the symptoms of tuberculosis and smoking. It is seen that 69.2% persons with positive symptoms were chronic smokers with about 80% smear positivity among them. **Conclusions:** The study shows that there is a high prevalence of tuberculosis among the tribal population of Sultan battery, Wayanad. Adequete screening of the tribals especially the high risk population go a long way in curbing the infection in these remote areas

Key words: Tuberculosis, Prevalence, Tribal, Community.

Introduction

Tuberculosis remains a worldwide public health problem despite the fact that the causative organism was discovered more than 100 years ago and highly effective drugs and vaccine are available making tuberculosis a preventable and urable disease. Technologically advanced countries have achieved spectacular results in the control of tuberculosis.[1] During the year 2008, there were an estimated 9.4 million (in range of 8.9-9.9 million) incident cases of tuberculosis globally with 11.1 million (9.6-13.3) prevalent cases; 1.4 million cases of HIV associated with tuberculosis; and 1.8 million deaths. In the same year, there were an estimated 0.5 million cases of multidrug resistant tuberculosis and about 0.15 million deaths associated with MDR-TB and about 50000 cases of extensively drug resistant (XDR) tuberculosis with about 30000 deaths associated with XDR-TB. Drug resistant strains of tuberculosis including XDR- TB, have been found in every country where they have been sought. As in previous years, 85 per cent of all tuberculosis cases occur in WHO region of South-East Asia (34 per cent), Africa (31 per cent) and Western Pacific (20 per cent).[2]

The number of notified cases of tuberculosis in 2008 was 5.7 million. It gives a case detection rate of about 61 per cent. Among patients with smear positive tuberculosis in 2007 cohort, 86 per cent were successfully treated marking the first year in which the target of 85 per cent was exceeded at the global level.[3] Achievements made between 1995 and 2008 include curing 36 million patients, averting six million deaths using DOTS, when compared to non-DOTS treatment, reducing the case fatality rate from 7.6 per cent to 4 per cent and attaining the highest-ever

cure rate (87 per cent) during 2007-2008.[2] DOTS remains central to the public health approach to tuberculosis control, which is now presented as STOP TB STRATEGY. To be classified as DOTS, a country must have officially accepted and adopted the strategy by 2004 and must have implemented the four technical components of DOTS in at least part of the country. DOTS coverage is defined as the percentage of the national population living in areas where health services have adapted DOTS. "Areas" are the lowest administrative or management units in the country. In 2006, WHO launched the new Stop TB Strategy. The core of this strategy is DOTS. The strategy is to be implemented over the next 10 years as described in the Global Plan to Stop TB 2006-2015. The targets and indicators for TB control are as defined within the framework of MDGs. These will be used to measure the progress made under the stop TB strategy. It focuses on the five principal indicators that are used to measure the implementation and impact of TB control. They are: case detection, treatment success, incidence, prevalence and deaths. The global targets for case detection and treatment success have been set by WHO's World Health Assembly.[4] India is the highest TB burden country in the world and accounts for nearly one-fifth of (20 per cent) global burden of tuberculosis, 2/3rd cases in SEAR.[5] In India tuberculosis is mainly a disease of the poor. The majority of its victims are migrant labourers, slum dwellers, residents of backward areas and tribal pockets. Poor living conditions, malnutrition, shanty housing and overcrowding are the main reasons for the spread of the disease.[6] Tuberculosis is a social disease with medical aspects. It has also been described as a barometer of social welfare. The social factors include many non-medical factors such as poor quality of life, poor housing and overcrowding, population explosion, under nutrition, lack of education, large families, early marriage, lack of awareness of cause of illness, etc. All these factors are interrelated and contribute to the occurrence and spread of tuberculosis. In fact, tuberculosis began to decline in the western world long before the advent of chemotherapeutic drugs. This has been attributed to improvements in quality of life. Tribals constitute 8.2% of the country's population, which makes India the second largest concentration of tribal communities in the world.[7] There are around 698 clans in India, with the prominent tribal areas constituting about 15% of the total geographical area. They are illiterate, have traditional beliefs and constitute the poorest of the poor segment of the Indian population. Although scheduled tribes are accorded special status under the fifth/sixth schedules of the Indian Constitution, their status on the whole, especially their health still remains unsatisfactory. The remoteness of many tribal villages from the nearest Primary Health Centre/ General Hospital, inadequate accountability and monitoring of health service delivery to tribal populations, unhelpful attitudes of health service personnel, manpower at health facilities either not available or available only for a very small window of time, have been documented as constraints to the accessibility and utilization of health services in tribal areas.[8] Prevalence of disease or case rate is the percentage of individuals whose sputum is positive for tubercle bacilli on microscopic examination. It is the best available practical index to estimate the number of infectious case or "case load" in a community. Sputum smear examination is a laboratory technique to screen sputum for tuberculosis, where acid fast bacilli (AFB) are stained red by the Ziehl Neelsen method and then identified and counted using microscopy. The current study was undertaken to find the current prevalence of pulmonary tuberculosis among the settled tribal population of Sulthan Bathery, Wayanad, Kerala and to understand the association of addiction to smoking with the smear positive prevalence, if any.

Methodology

Study site and setting

Wayanad is one of the 14 districts of Kerala. It stands first with regard to its tribal population among other districts in the state. Sultan Bathery is amid sized town of this district. One of the most important characteristic of this picturesque land is its large tribal population consisting mainly of paniyas, kurumas, ooralis, kadans and kattunaikkans which are the different aboriginal tribes. Kottakkunnu, Kuppadi, Odapallam, Kalluvayalil, Kodappallam, Kalloorkkunnu, Cheyambam, Vadakkanadu, Manyamkodu villages have a large settler population (colonies) of mainly paniyas and kattunaikkans. The study was conducted among them due to easy accessibility.

They are mostly manual labourers living on daily wages. Though many facilities are provided to them by the government they do not make a considerable use of them. They live as a joint family. Overcrowding and addictions are major issues. Sulthan Battery Government Hospital has taken initiative to go to their colonies and detect tuberculosis, to start DOTS among them. Still most of them remain undetected.

Study Population

Persons more than 15 years of age residing in the above said villages and available at the house during the visit comprised the study population.

Persons having symptoms of cough, fever, chills and rigors, night sweats, chest pain, haemoptysis or any other respiratory symptoms for more than seven days during the last two months.

Sampling

Simple random sampling (SRS) was adopted for selection of houses. A total of 30 houses from 13 colonies were visited. Each house had a minimum population of 7 adults. At least one adult from each house was requested to participate in the survey. Two families had refused to cooperate.

Sample size

Sample size was originally calculated to be around 300 (due to uncertainty with regard to their cooperation). The total population expected to be living in the villages planned to be visited was around 1250. Of these 100

only could be enquired about the symptoms, of which 28 of them were found to be eligible. Among the eligible, 26 consented to give their sputa for sampling.

Data collection instruments

The following schedules were useful for data collection:-

1) Tuberculosis screening questionnaire
2) Individual card for each eligible person to record age, sex, symptom status, date of sputum collection, results of sputum smear.
3) Laboratory form for sputum examination
4) Laboratory register to record sputum specimen numbers and results of smear.

Field procedures

Field work was carried out during July-August 2012. A planning visit was made to the villages and help and support was sought from the senior treatment supervisor of the tuberculosis unit and the chief medical officer of tuberculosis unit, government hospital, Sultan Battery. A rough sketch of area map of each colony, showing approximate number of houses in each colony was drawn. Each household in the area was visited and the family members were requested to participate in the survey. Each eligible person (15 years or more in age and available at the time of visit) was registered into an individual card. Each eligible individual was then queried regarding presence of symptoms suggestive of pulmonary tuberculosis (cough of >7 days, fever, night sweats, chest pain and blood in sputum since last 2 months) and history of anti-tuberculosis therapy.

Individuals having pulmonary symptoms suggestive of pulmonary tuberculosis or a positive history of anti-tuberculosis therapy were considered eligible for sputum examination. A spot sputum specimen was collected into a pre-numbered sterilized screw capped sputum cup. The candidates were briefed on how to bring out a good sputum sample.

After a satisfactory extraction of spot specimen, a pre-numbered empty bottle was given for collecting another sample next morning. Sputum containing bottles marked with ID of each patient were transported in a sputum box on day of collection to the nearby laboratory for Ziehl Neelsen staining to detect acid fast bacilli, mycobacterium tuberculosis in this case.

Laboratory procedures

Sputum specimens were subjected to smear microscopy using Ziehl-Neelse staining acid fast bacilli (AFB), Mycobacterium tuberculosis in this case.

Two direct smears were made from each specimen on new labeled slides under aseptic conditions in a bio-safety cabinet. Each smear was stained using concentrated carbol fuchsin. It was then decolourised using 25% sulfuric acid. Methylene blue was used as the counter stain. This smear was air dried and then viewed under light microscope at a magnification of 100x.

After taking out the amount required for making smears, sodium hypochlorite was added for decontamination and the sputum cups and smears were discarded.

Table 1: Slide reporting (16)

No.of bacilli	Result reported
No AFB per 100 oil immersion fields	-
1-9 AFB per 100 oil immersion fields	Scanty
10-99 AFB per 100 oil immersion fields	+
1-10 AFB per oil immersion field	++

Statistical methods

Digitized data was verified and analysed using SPSS version 17.0 and Microsoft Office Excel 2007. The point prevalence was estimated by using the formula

$$P = \frac{\text{number of smear positive cases} \times 1000}{\text{Total population at that time}}$$

Ethical considerations

Survey was approved by the Institutional Ethics Committee. Informed consent for participation was sought from each individual, after explaining procedures of the survey and its benefits to the individual and community, through material printed in local language and also personally. No one was compelled to participate.

Results

The study included 100 paniyas and kattunaikkans from among the tribal colonies of Wayanad, Kerala. Of these respondents, 28 of them were found to be eligible for inclusion in the study. Of this 28, 17 were males (65.38%) and remaining females. Age of subjects ranged from 16 to 71 years.

Table 2: Age and sex distribution of participants and non participants

Age	No. registered	No. Partici-pated	No. not Partici-pated	Male	Female
15-25	8	8	0	4	4
26-35	3	3	0	2	1
36-45	11	9	2	6	5
46-55	4	4	0	3	1
56-65	1	1	0	1	0
66-75	1	1	0	1	0
Total	28	26	2	17	11

Among the total number of people registered for the survey, two did not provide their sputum samples. Out of the 26 sputa taken for AFB examination, 4 were newly positive in addition to one patient already on treatment. According to the formula for prevalence, P = (5÷100) × 1000 = 50 per 1000 population.

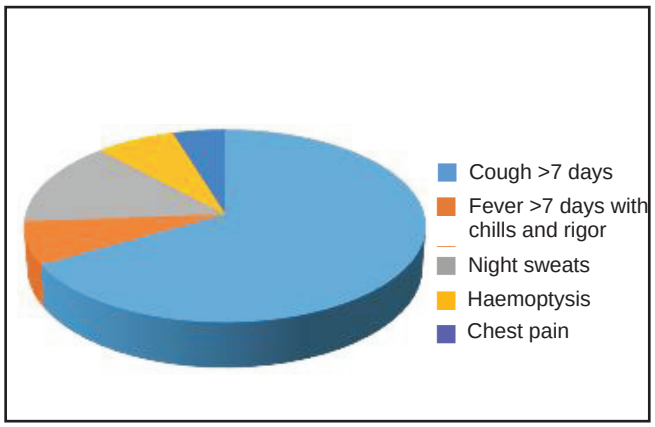

Figure 1: Frequency distribution of persons with different pulmonary symptoms

As shown in table 4, 3 out of them were highly infectious (3+) and 2 were (2+) indicating high transmission of TB in the community.

Table 3: Response to tuberculosis screening questionnaire

Item	Yes	No
Cough >7 days	28	-
Haemoptysis	3	25
Fever	3	25
Night sweats	6	22
Chest pain	2	26
Previously detected TB	1	27
Smoking	18	10
Alcoholism	18	10
TB death in family	1	27
Overcrowding	28	-

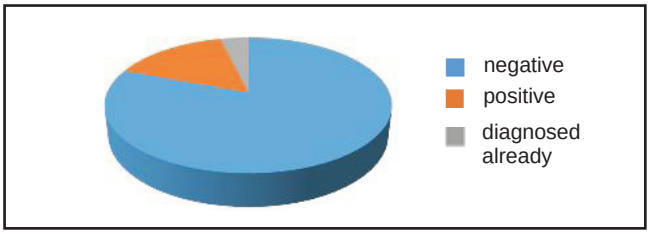

Figure 2: Smear positive status of the study population

As per figure 3, it can be seen that 69.2% of the symptom positive cases were chronic smokers, while 80% of smear positive were smokers.

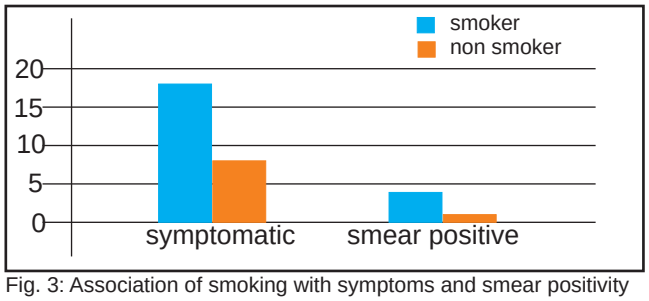

Fig. 3: Association of smoking with symptoms and smear positivity

Table 4: Acid fast bacilli positivity

RNTCP grade	No.of people	Percentage (%)
-	21	80.8
+	0	-
++	2	7.7
+++	3	11.5

Table 5: Cross tabulation of smoking status with RNTCP grade

		Smoke		
		Yes	No	Total
Grade	-ve	14	7	21
	++	2	0	2
	+++	2	1	3
Total		18	8	26

The highly infectious of the tuberculosis cases in the tribal population were smokers also.

Discussion

A number of surveys had earlier been carried out in different parts of India since midtwentieth century. The present survey showed a prevalence of 50 per 1000 study population. It is very high even when compared to what was the scenario in 1956 in a nation-wide survey. The 1956 survey using screening by mass miniature radiography followed by sputum examination by smear and culture among those with abnormal shadow on X-ray film revealed the prevalence of bacteriologically positive pulmonary tuberculosis at 400 per 100,000 population.[16] During subsequent surveys in different geographical locations at different points of time, prevalence of bacteriologically positive tuberculosis varied between 182- 1270 per 100,000.[17] These surveys, not strictly comparable due to variations in definition of symptoms, screening tools (symptoms and/or MMR), case definition and analytical methods, nonetheless revealed that tuberculosis continued to be a high burden disease in India. Male to female ratio in these surveys has been found to vary between 2:1 to 5:1.[17] It was 1.5:1 during present survey.

Studies conducted in Maharashtra and Madhya Pradesh have found that the prevalence and pattern of tuberculosis does not differ significantly from non-ST communities, but that tuberculosis control program for scheduled tribes, require special attention due to difficult terrain and limited drug supplies in many tribal areas.[11,12] In the present survey in Wayanad also, these difficulties were met with. It takes about half an hour to reach the nearby government hospital by walk. Even though the government officials have taken initiative to reach out to these colonies, the tribals are not compliant due to their lack of awareness and interest.

A research conducted by tuberculosis research centre, Tamilnadu found that it was feasible to train literate tribal youth volunteers within a short time to detect subjects with chest symptoms in the community and thereby cases of pulmonary tuberculosis. These

literate tribals could serve as an excellent model for community participation in difficult areas.[18] Such an initiative could be tried for in Wayanadu also.

A recent study conducted in a South African prison showed that a high level of overcrowding (230%) increased the risk of annual tuberculosis transmission upto 90% per annum.[14] Among the study population of this survey also a high level of overcrowding was noted.

In a research conducted by school of public health, university of California, the metaanalysis produced evidence that smoking is a risk factor for TB infection and TB disease. However, it is not clear that smoking causes additional mortality risk in persons who already have active TB. Tuberculosis control policies should in the future incorporate tobacco control as a preventive intervention.[15] In the present survey area also, a high rate of smoking was noted. 69.2% of the symptom positive cases were chronic smokers, while 80% of smear positive were smokers.

The limitations of the present study included inability to access the whole population and the use of a single diagnostic tool namely sputum microscopy.

Conclusions

The study concludes that the prevalence of pulmonary tuberculosis is 50 per 1000 among the tribal population of Sulthan Battery, Wayanadu.

69.2% of the symptom positive cases were chronic smokers, while 80% of smear positive were smokers.

Summary

A study was conducted in Sulthan Battery in Wayanadu district in Kerala state where in 100 individuals belonging to tribal communities from 100 households were surveyed. Of the 100 tribals who were enquired about the PTB symptoms, 26 were found eligible for sputa examination.

5 among them were found smear positive, including an already diagnosed person on ATT. 69.2% of the symptom positive cases were chronic smokers, while 80% of smear positive were smokers. Overcrowding was found to be very common in the surveyed houses.

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PUSHPAGIRI MEDICAL JOURNAL

✪ ORIGINAL ARTICLE

Comparison of concerns and coping mechanisms in depressed and non depressed palliative care cancer patients

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Abstract

Background: Quality of life is an area of immense interest and concern for medical professionals involved in the care of cancer patients. The occurrence of a number of concerns is likely to result in a poor quality of life which becomes poorer if the concerns remain unresolved. Concerns and coping mechanisms of palliative care cancer patients have been poorly researched in Indian setting. **Methods:** 200 palliative care cancer patients enrolled in the study were divided into two groups - Depressed and non-Depressed using DSM IV criteria for depression modified with Endicotts criteria. Both the groups' were assessed for their coping and concerns using concerns and coping checklist. **Results:** The most common concern among the depressed was 'current illness' and among non-depressed was 'pain'. Most Depressed patients adopted helplessness as the coping strategy while the non-depressed used spiritualism the most. **Conclusion:** Depressed palliative care patients had the least resolution of their concerns compared to the non-depressed. Helplessness as a coping strategy was found to ineffective.

Key Words Quality of life, Coping mechanisms, palliative care cancer patients

Introduction

A degree of psychological distress or disturbance occurs inevitably in patients with cancer. For most it is transient and resolves with time. This is considered normal. In others the distress becomes persistent, pervasive, distressing, inappropriate and incapacitating. This is considered abnormal and needs psychiatric help. The meaning attached to cancer can be summed up as 5 D's – Death, Disability, Disfigurement, Dependence and Disruption of relationships[1].

Butow *et al* (1986)[2] revealed the emotional feelings evoked in a person on hearing the diagnosis of cancer as follows: Shocked (54%), Frightened (49%), Accepting (40%), Sad (24%), not worried (15%). Derogates (1986)[3] stressed on the importance of psycho-social adjustment to illness and assessed it to be multi-dimensional. Concerns, coping and quality of life in a cancer patient are three areas which are interrelated. The nature of concerns may vary according to the type of cancer[4]. The relationship between the number of concerns and affective disorder has been earlierdocumented[5].

Patients using better coping strategies are found to have fewer affective disturbances[6]. Rapid resolution of concerns in cancer patients should be strived for and is aided by healthy coping mechanisms. Many studies have focussed on coping mechanisms in cancer patients [7]. Breast cancer patients have been the most extensively studied regarding their coping mechanisms[8]. Subjects using fatalism and helplessness had significantly higher probability of being depressed[4]. Denial is a complex and multifaceted coping strategy used by many subjects. Patients using denial as a coping mechanism are less depressed and coped well with their concerns[9]. A study in Indian oral cancer patients reveals poorer quality of life because of a number of concerns which remains unresolved due to poor coping mechanisms[4]. Hence the understanding of the concerns and coping mechanisms in cancer patients enables us to provide better quality of life for them[4]. Earlier Indian studies have shown religion to be the commonest coping strategy[10].

Materials and methods

The study was conducted at the Pain and Palliative care clinic at the

Medical College Calicut. The sample comprised of 200 cancer patients attending the clinic for the first time

Inclusion criteria

1. Cancer patients consenting for the study
2. Either sex
3. Age between 18 and 60 years
4. Definite diagnosis of cancer confirmed Histopathologically

Exclusioncriteria

1. Structural involvement of the central nervous system by the carcinomatous growth
2. Diagnosis of other major psychiatric disorders.
3. Alcohol or substance dependence
4. Other major medical illnesses like AIDS, Renal failure, Coronary artery disease etc.

Thepatients satisfying the selection criteria were diagnosed for depression using DSM IV modified using Endicotts criteria. The group was then divided into two groups – Depressed and the Non- depressed group. The concerns of the patient and the mechanisms used by the patient against these concerns and their effectiveness were assessed by the concerns and coping check list.

Results

The sample comprised of 200 cancer patients attending Pain and Palliative care centre at Calicut Medical College. Of the 200 patients 70(35.5%) patients were diagnosed to have depression using the DSM IV criteria modified with Endicotts criteria. 130 patients were found to be normal.

The concerns of the depressed and the non-depressed group were explored and graded as to the five most important ones. The number of patients in each group with the five most important concerns and the number with the most important concern (in brackets) are depicted in the table 1 below.

Distribution of concerns (TABLE 1)

Concerns	Depressed Group	Non Depressed Group
Current illness	49(30)	81(28)
Subjective physical health	44(4)	81(22)
Treatment	4(0)	7(4)
Feeling upset or depressed	27(5)	17(0)
Not being able to do things	12(3)	43(6)
The future	21(4)	19(2)
Job	15(2)	31(5)
Finance	25(3)	29(3)
Relationship with partner	5(2)	5(0)
Relationship with others	2(0)	1(0)
Body image or disfigurement	15(3)	28(3)
Support from family, others	4(0)	3(0)
Sexual role and performance	1(0)	3(0)
Interference in social activity	1(0)	17(2)
Self esteem	4(0)	12(0)
Energy vitality	9(0)	29(0)
Dependence on others	6(0)	13(1)
Pain	40(4)	91(32)
Cancer control	16(0)	21(2)
Recurrence or relapse	3(0)	12(0)
Sleep disturbance	15(1)	30(2)
Any other concern	32(10)	53(17)

32 (24.8%) of the non-depressed group gave pain as the most important concern while 30 (42.3%) of the depressed group gave current illness as the major concern. 5 depressed patients considered feeling upset or depressed as the most important concern while none from the non-depressed reported the same. 91(70.6%) patients considered pain amongst the 5 most important concerns in the non-depressed while only 40(56.3) depressed patients reported the same.

Distribution of coping mechanisms (table 2)

Coping mechanism	Depressed Group	Non Depressed Group
Helplessness	33	24
Fatalism and religion	28	44
Confidence in medical care	4	28
Talking to others (Professionals)	2	13
Situational avoidance	18	21
Constructive action	2	15
Temporary acceptance	14	33
Talking to family	1	30

103(51.5%) patients used a combination of coping mechanisms to counter the concerns. Helplessness (33 patients) was the commonest coping mechanism used by the depressed while religion was the commonest used by the non-depressed (44 patients). Talking to family was considered as the best coping mechanism by a majority of patients of both the groups who used the same.

Distribution of resolution of concerns (table 3)

Resolution	Depressed Group (%)	Non Depressed Group (%)
Complete	1(1.40)	28(21.7)
Partial	40(56.3)	88(68.2)
None	30(42.3)	13(10.1)

Only 1 depressed patient had his concerns completely resolved while 28 of the non-depressed patients were concern free after using the coping mechanisms. 30 depressed patients had no relief of their concerns compared to 13 patients in the non-depressed group.

Discussion

The present study explored in depth the concerns of the cancer patients and the degree of resolution of these concerns using the various coping mechanisms. This was done by a clinical interview using concerns and coping checklist. Very few studies have focused on the comparison of concerns and coping mechanisms amongst the depressed and the non-depressed cancer patients in a palliative care setting. Earlier studies have focused on the concerns of cancer patients as a whole or on a specific type of cancer[4].

The most important concern among the depressed group in the present study was regarding the current illness (42.3%) while pain was considered most important among non-depressed (24.8%). When the 5 major concerns were assessed, pain among non-depressed (70.6%) and current illness among the depressed (56.3%) remained prominent. Earlier study had found current illness is a common concern among head and neck cancer patients[4]. Many of the cancer

patients in this study reported future of their children (25.5%) as an important concern. This is not reported in western studies, because of the basic social framework in Indian society where one lays importance on one's family than on oneself.

The commonest coping mechanism among the depressed cancer patients was helplessness compared to religion among the non-depressed. This supports earlier findings that patients with hopeless-helpless strategies were more anxious and depressed[11]. Spiritual support improves the quality of life has been replicated in some studies[12]. Majority of the patients considered talking to family members as the best coping strategy. Only 1 patient (1.40%) had complete resolution of their concerns among the depressed group; compared to 28 patients (21.7%) in the non-depressed group. The concerns remained unresolved in most patients in the depressed group (42.3%) compared to the non-depressed (10.1%). Helplessness as a coping strategy was associated with the least resolution of the concerns.

Conclusion

Depressed cancer patients attending palliative care clinic reported current illness as their major concern whereas non-depressed patients reported pain. Depressed cancer patients were more likely to use helplessness as a coping mechanism compared to non-depressed cancer patient. Helplessness as a coping mechanism was in effective and associated with least resolution of concerns.

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✪ ORIGINAL ARTICLE

A study on spectrum of changes induced in placenta in toxemia of pregnancy and its effect on fetal outcome

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Abstract

Background: Pre-eclampsia and eclampsia is the leading cause of maternal and fetal morbidity and mortality. The incidence is found to be higher in developing and underdeveloped countries. **Objectives**: This study was done tocorrelate the gross and villous abnormalities of the placenta with the severity of toxemia of pregnancy and to assess the effect of these changes on the fetal outcomes. We also compared the incidence of villous abnormalities of placenta in the preeclampsia – eclampsia syndrome with that of normal pregnancies. Gross abnormalities noted were the placental infarcts, retroplacental hematoma, and calcification. **Results:** The striking villous abnormalities observed in the study group were increase in syncytial knots (90.%), villous stromal fibrosis (53%), fibrinoid necrosis (63%), endarteritis obliterans (36%), decreased villous vascularity, (53.65%).Fetal weight and APGAR score was also significantly reduced in study group and 73% of newborns required nursery admissions. **Conclusions:** The villous lesions and abnormalities in feta; parameters in the preeclampsia ($P < 0.001$) and eclampsia syndrome ($P < 0.05$) were significant.

Key words:Villous abnormalities, preeclampsia – eclampsia syndrome

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Introduction

Placenta is a unique and wonderful organ that arises de novo, directly related to the growth and development of the fetus in the uterus. And placenta appears to be the most accurate record of the infants experience in the womb[1]. If after delivery close examination of the placenta is done, it gives much information about the prenatal health of the baby and the mother.

Toxemias of pregnancy includes preeclampsia and eclampsia. It refers to a symptom complex characterized by hypertension, proteinuria, and edema (preeclampsia). When some of these patients develop convulsions, it is more severe form of toxemia termed eclampsia[2].

Hypertensive disorders complicating pregnancy is a common gestational morbidity afflicting 7-10% of all pregnancies and is a major cause of maternal and fetal morbidity and mortality[3,4]

In all earlier studies, gross abnormalities of placenta have received less attention and undeserved status. Recently, there is proved to be a relationship between the morphological changes in placental chorionic villi and fetal outcome[5].

This study was done to correlate the gross and villous abnormalities of the placenta with the severity of toxemia of pregnancy and to assess the effect of these changes on the fetal outcome. We also compared the incidence of villous abnormalities of placenta in the preeclampsia – eclampsia syndrome with that of normal pregnancies.

Materials and methods

The study comprised of 100 cases obtained from the Department of Obstetrics and Gynecology of our institution. Seventy placentas from uncomplicated full term deliveries formed the "control group." Thirty placentas from toxemia of pregnancies formed the "study group." Toxemia of pregnancies were divided into mild,

severe preeclampsia, and eclampsia based on the level of blood pressure >140/90 mmHg after 28 weeks of gestation, with or without edema, and/or proteinuria and convulsions.

The cases were divided into three groups, namely, control (group I), mild preeclampsia (group II), severe preeclampsia and eclampsia (group III).After delivery, all the placentas including those of the control group were collected, drained of blood, washed and weighed before formalin fixation and examined for gross pathological changes. The weight and diameter of the placenta were noted along with the number of cotyledons, condition of membranes, presence of infarction, calcification and insertion of umbilical cord and number of vessels in the umbilical cord. The gross abnormalities were quantified using semiquantitative methods as "absent" when no visible lesion was noticed, "+" when gross lesions were focally distributed, and "++" when the lesions were extensive. Tissue sections were taken from the following placental sites for histopathological examination :

1) Near the insertion of the umbilical cord
2) Margins
3) Centre of the placenta
4) Infarcted areas if any
5) Fibrotic areas if any
6) Umbilical cord
7) Membranes

Sections were stained with the hematoxylin and eosin (H and E) stain. One hundred villi were counted from each of the four sections obtained and histological changes expressed as percentage. In addition, depending on the need, special stains like periodic acid Schiff (PAS) was used to highlight the membrane abnormalities

The fetal outcomes of the toxemic patients were also recorded and correlated with the pathological features noted.

Statistical Analysis

The incidence of various gross and histological features and fetal parameters was compared with that of normal pregnancies by using the unpaired-type Student 't' test.

Observations

Out of the thirty Pregnancy induced hypertension (PIH) cases received majority belonged to the category of severe preeclampsia (17 cases). Only one case of eclampsia was received. All the others (12 cases) belonged to the category of mild preecla-mpsia. This study included women with an age group of 20-35 years. Both primigravida and multipara were considered for the study. The weight and diameter of the placenta were found to be significantly less in the mild and severe pre-eclamptic group compared to the control group.

Other gross findings like areas of infarction, calcification, retroplacental hematoma and the insertion of umbilical cord did not show any significant association with the toxemic group.

Table 1 : Gross Placental features in various groups

Parameter	Control Group	Mild Preeclampsia	Severe Preeclampsia
Weight of placenta (g)	482.83	395.83	336.76
Mean diameter (cms)	15.73	13.75	12.88
Infarction	23%	16%	35%
Calcification	4%	0%	17%
Retroplacental hematoma	27%	25%	22%
Insertion of UC			
Central	72%	91%	94%
Marginal	20%	8%	5.8%
Membranous	7%	0%	0%
No of vesels in UC			
2/3/4	2.8/97/0%	0/100/0%	11/83/5.5%

Decrease in villous vascularity , increase in syncytial knots and villous stromal fibrosis were found to be significantly associated in the toxemic group. Areas of infarction and endarteritis/ myointimal proliferation were also found to showing significant association in the pre-eclamptic group.

Table 2: Villous lesions in different groups

Parameter	Control Group	Mild Preeclampsia	Severe Preeclampsia
Villous vascularity			
N/decrease/increase	86/4.2/10 %	58/41/0 %	39/61/0 %
Cytotrophoblasticpro-iferation Absent/mild/mod	71/ 27/1.4 %	50/50/0 %	61/ 33/5 %
Basement membrane thickening			
+ / -	94/5.7 %	90/10 %	
Syntitial knots			
<30%/30-50%/>50%	67/31/1.4	8.3/41.6/50	11/44/44
Villous stromal fibrosis			
Nl/mild/mod	87/13/0	50/50/0	22/61/16.7
Fibrinoid necrosis			
Nl/mild/mod/severe	4.2/81/14/0	0/66.6/33.3/0	0/33.3/61/5.5
Hyalinisation/Calcification			
0/+/++/+++	45.7/48.6/4.2/1.4	33.3/66.6/0/0	0/33.3/61/5.5
Endarteritis/ Myointimal Proliferation			
+ / -	95.7/4.2	91.6/8.3	44.4/55.5

Photomicrograph of reduced villous vascularity(A) and increase in syncytial knots (B)(H&E 100X)

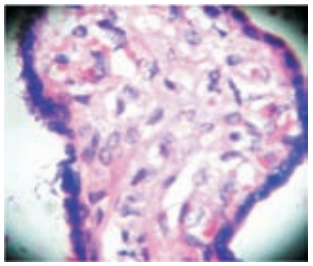

Fig A

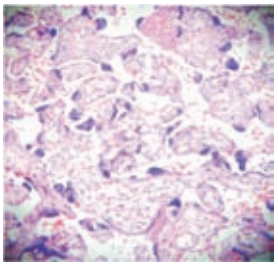

Fig B

Photomicrograph of villous stromal fibrosis (C) and endarteritis obliterans (D)(H&E 100X)

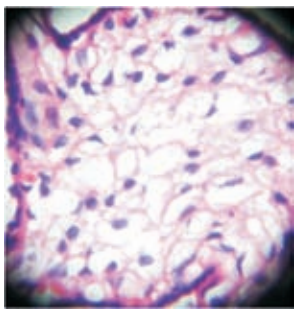

Fig C

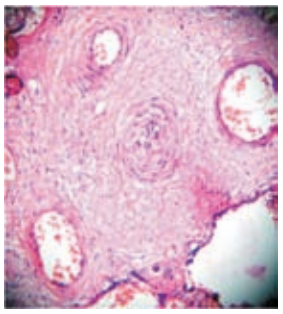

Fig D

A progressive decline in the mean fetal weight and Apgar score were also noted in the toxemic group. New borns of the pre-eclamptic group also required significant nursery admissions.

Table 3: Fetal parameters in various groups

Parameter	Control Group	Mild Preeclampsia	Severe Preeclampsia
Fetal weight (Kg)	2.17	2.117	1.63
Apgar at 1min			
2	0 %	4 %	
4	3	0	
6	2	3	
7	4	40	
8	54	23	
9	37	10	
Apgar at 5 min			
6	0	3	
7	1	7	
8	7	53	
9	92	37	
Nursery admissions			
-/+	88.5/11.4	33.3/66.6	22.2/77.7
Ventillatory support			
-/+	97/2.8	83.3/16.6	77.7/16.6

Statistical analysis done using the unpaired-type Student's t-test gave the following results:

a. Gross abnormalities in the study groups were statistically significant ($P < 0.001$) when compared to normal.
b. Villous abnormalities in the mild preeclampsia group (group II) when compared to the normal were not significant ($P > 0.01$) - this implies that there is no significant difference in villous lesions between the mild preeclampsia and normal group.
c. Villous abnormalities in the severe preeclampsia group (group III) when compared to the normal group were statistically significant ($P < 0.05$).
d. Fetal parameters and nursery admissions were statistically significant in the preeclampsia group when compared to the control group.

Discusion

One of the major cause of maternal and neonatal mortality and morbidity is preeclampsia. It is the second largest cause of maternal mortality worldwide and affects about 5% to 7% of pregnant women worldwide. In our study we had included thirty cases of preeclampsia which were again divided based on their severity into mild preeclampsia, severe preeclampsia and eclampsia. We have noticed that majority of the preeclampsia cases belong to the age group of 25 – 35 years. Only five cases are below 25 years. But literature says that maternal age below 20 or over 35 years to be one of the predisposing factor for preeclampsia[6]. This is contrary to what we have noticed in our study. This is because Kerala being a literate state with improved standard of living, most of the women get married after the age of 20 years and have their family completed by 35 years. And so among this group (between 20 and 35 years) those in the elder category ie; between 25 – 35 years are more prone for preeclampsia.

Gestational age of onset of preeclampsia is another important variable which we found to be associated with the severity of preeclampsia. Most of the cases of severe preeclampsia had an early onset of disease ie; before 34 weeks of gestation compared to the late onset of disease ie; after 34 weeks in mild preeclampsia cases. Early onset preeclampsia cases are also found to have considerably reduced fetal weight. Literature searches have shown that early onset type of preeclampsia comprises the most severe cases and is due to inadequate and incomplete trophoblastic invasion of the maternal spiral arteries and also due to changes in blood flow within placental bed spiral arteries and in the uterine arteries. Such cases also showed fetal growth restriction. Whereas late onset type of preeclampsia showed no signs of growth restriction, normal or slightly altered behavoiur of uterine spiral arteries and no changes in the blood flow of umbilical arteries[7].

Placental changes

Weight and diameter of placenta

There are several studies correlating the placental weight and diameter with the severity of preeclampsia. Studies by Udainia etal[8] have shown that there is significant reduction in the placental weight in pregnancy induced hypertension. They have also shown that placental weight decreases with increasing severity of hypertension. This is in confirmity with our study which shows significant reduction in the weight of placenta with the increasing severity of preeclampsia. Placentae weighing less than 250 grams are found only in pregnancy induced hypertension. As severity of hypertension increases, placental weight decreases as confirmed by minimum placental weight of 250 grams in mild hypertension and 175 grams in severe hypertension. Aparna Narasimha etal[5] also showed similar findings in their studies..

Infarction and Calcification

The gross anatomical features of placentae like infarcted areas and calcifications did not show any significant relation to pregnancy induced hypertension in our study. This is in contrast to the study done by Majumdar S etal[9] who showed that there was significant increase in the infarcted and calcified areas in preeclamptic patients when compared to the control group. The studies of Fox and Udainia etal[8] also

observed increase in incidence of placental infarction with severity of toxemia. Aparna etal's[5] study showed infarction in 41% of cases. But in their study the incidence of calcification was not found to be significant as the control group showed more calcified areas when compared to the study group Eventhough few infarcted areas are seen in our study group, this did not amount to be pathologically significant. Whereas calcification which is considered as evidence of placental senescence or degeneration is seen in minor amounts in all mature placentas and is not of much significance.

Retroplacental Hematoma, Insertion of Umbilical cord and Number of vessels in Umbilical cord.

Twenty seven percent cases of control group show retroplacental hematomas compared to 23% of preeclampsia cases. So there was no significance associated with this parameter in our study. Study by Aparna *etal*[5] showed an incidence of 11.1% in the study group and it was not considered a significant lesion.

The commonest mode of insertion of umbilical cord into the placenta are central, followed by marginal insertion and membranous insertion. Both marginal and membranous insertion are more in the control group and so it is not considered significant. Studies by Aparna *etal*[5] had noted similar findings. But Majumdar S *etal*[9] showed a significant increase in the value for marginal insertion of umbilical cord in the preeclampsia group when compared to that of the control group..

The number of vessels in the umbilical cord did not prove to be of any importance in our study. In literature also no such studies are quoted.

Villous Vascularity

Reduction in villous vascularity is well established in relation with preeclampsia and numerous studies have proved this. Studies by Jerzy Stanek[10], James.M.Robert *etal*[11], Aparna etal[5] all have quoted that preeclampsia being a hypoxic state show hypovascular villi. This is in accordance with our study group which shows decrease in villous vascularity with increase in severity of preeclampsia. 53% of preeclampsia cases show significant reduction in vascularity in the placenta.

Cytotrophoblastic proliferation and Basement membrane thickening

Cytotrophoblastic proliferation is seen beneath the syncytiotrophoblast and external to the basement membrane as a single layer of lightly stained nuclei. Many of the studies showing prominent cytotrophoblastic proliferation in preeclampsia cases have spotted the cause for this to be the response to hypoxia seen in conditions of reduced blood flow. Arnholdt H *etal*[12], HinaNafees *etal*[13], Majumdar *etal*[9], and PasrichaNavbir *etal*[14] all have show significant correlation of cytotrophoblastic proliferation and severity of preeclampsia. But our study failed to prove this association. It may be due the limited sample size.

Basement membrane thickening is a sequelae of cytotrophoblastic cell hyperplasia as the basement membrane protein is secreted by these cells. Since there is no significantcy to trophoblastic proliferation in our cases, basement membrane proliferation is also not significantly increased in our preeclampsia cases.

Syncytial Knots, Villous Stromal Fibrosis and Fibrinoid Necrosis

The syncytiotrophoblast contains aggregates of nuclei termed syncytial knots. Increased numbers of syncytial knots have been reported in placentae of pregnancies complicated by pre-eclampsia and fetal growth restriction . As oxidative stress has been implicated in the pathophysiology of these disorders, its hypothesised that the formation of syncytial knots may be induced by exposure to hypoxia, hyperoxia or reactive oxygen species .Marked increase in the number of syncytial knots is noted with the increasing severity of preeclampsia in this study. 90% of the preeclampsia cases show increased syncytial knots. Recent studies by Heazell *etal*[15] and RohiniMotwani *etal*[16] have proved that syncytial knots are increased in pregnancies complicated by preeclampsia when compared to normal term deliveries.

Villous stromal fibrosis in preeclampsia cases, as shown by Majumdar *etal*[9], PasrichaNavbir *etal*[14] and RohiniMotwani *etal*[17] was also spotted as a significant parameter in our study.

Fibrinoid necrosis is seen as a nodular mass of homogenous acidophilic material in the villi. Fibrinoid necrosis has been considered as a hallmark of an immunological reactions within the trophoblastic tissue. In this study fibrinoid necrosis per 100 villi were studied and is found to be significant in preeclampsia cases in comparison to the control group which corresponds with the study of earlier researchers . Fibrinoid necrosis may be a manifestation of endothelial damage in the placenta which may lead to increased coagulation tendency .

Hyalinisation / Calcification and Endarteritis Obliterans / Myointimal Proliferation

There is no significant increase in hyalinization or calcification in placentae of preeclampsia group. Calcification is regarded as a sign of placental senescence or degeneration and is commonly seen in term placentas. The present study thus shows no correlation between calcification and severity of maternal disease, which is also documented by the study of Aparna *et al*[5].

Obliterative endarteritis of the fetal stem arteries is characterized by swelling and proliferation of intimal cells, together with thickening and reduplication of the basement membrane. In the present study, medial coat proliferation of foetal blood vessels are also increased in preeclampsia group which corresponds with the study of Rohini Motwanil[16] and Aparna *et al*[5].

Fetal parameters

Fetal Weight and Apgar Score

Significant reduction is noted in the mean fetal weights with the increasing severity of preeclampsia as noted by the studies done by Udainia *etal*[8]and RedaAwadallah *etal*[3].. This is also confirmed by the

present study. Not much studies comparing the Apgar score of the newborn with placental changes have been done. In our study a notable reduction in the Apgar score at 1 minute and 5 minutes is seen in preeclmpsia group. This can be attributed to the vascular changes seen in placenta which is inversely related to fetal weight and Apgar score.

Nursery Admissions and Ventillatory Support

Most of the babies born to preeclamptic mothers had nursery admissions and few of them received ventillatory support. Both these parameters are found to be significant. It is seen that the babies born to the patients whose placentae showed decreased vascularity, increased syncytial knot formation and moderate amount of fibrinoid necrosis show nursery admissions and neonatal asphyxia requiring ventillatory support. PasrichaNavbir *etal*[14] in their study showed that hypertensive pregnancies with excess syncytial knot formation was associated with neonatal asphyxia.

Conclusion

The following conclusions are derived from our study-

- Early onset preeclampsia cases show considerable reduction in the fetal weight, compared to late onset preeclampsia. So careful screening of all pregnant women for early detection of preeclampsia and starting appropriate therapy to maintain efficient blood flow to the fetus may help in obtaining an improved fetal outcome.
- There is significant reduction in the size of placenta (both weight and diameter) in preeclampsia cases and notable reduction is seen with increasing severity of preeclampsia.
- Reduction in villous vascularity, increase in syncytial knots, villous stromal fibrosis, fibrinoid necrosis and endarteritis obliterans are the microscopic parameters which show significant association with preeclampsia cases. All these changes are found to be increasing with increasing severity of preeclampsia, and these are changes due to compromised blood supply to the placenta, which occur in hypertensive states. So early detection of hypertension during pregnancy and prompt therapy can prevent these changes in placenta and hence improve the fetal outcome.
- Fetal weight and Apgar score also showed marked reduction in preeclampsia cases suggesting the after effects of decreased blood flow and vascular changes recorded in the placenta.
- Most of the newborns of preeclamptic mothers required nursery admissions either due to reduced fetal weight or poor Apgar score. It is also noted that babies of mothers whose placenta showed significantly reduced vascularity, increased syncytial knots and moderate amounts of fibrinoid necrosis also required ventillatory support in view of neonatal asphyxia.
- Many of the gross morphological features like areas of infarction and calcification, retroplacental hematomas, insertion of umbilical cord and number of vessels in umbilical cord show no significant difference in the normal population and preeclampsia group.

So by early detection of preeclampsia with regular antenatal checkups and with proper control of hypertension these gross and microscopic changes in the placenta can be reduced or prevented and an improved neonatal outcome can be obtained. A larger sample group study with more number of preeclampsia cases will give more confirmatory results of these placental changes in preeclampsia.

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✪ ORIGINAL ARTICLE

Effectiveness of microteaching as a tool to improve teaching skills, among postgraduate medical students

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Abstract

Introduction: Microteaching an innovative method to improve the teaching skill, refers to a scaled down teaching encounter designed to develop new teaching skills and refined old ones .It requires a teacher trainee to teach a single concept of content using a specified teaching skill for a short time to a very small number of pupils .**Materials and methods:** Five post graduate students of Pushpagiri Medical College, Thiruvalla were selected for the study. A pretest was conducted to assess the knowledge of microteaching. Later they were explained in detail about the concept and purpose of microteaching and six core skills involved .Each participants were asked to plan and teach a "micro lesson" before a "micro group" of skilled supervisors and peer group .Evaluation and feedback was given, and the participants were asked to re teach after one week. Three such "micro lesson" were conducted by each by each participant .A post test was conducted to assess whether the learning objectives were satisfied. **Results:** Significantly higher scores were obtained by the postgraduate students in each consecutive session when evaluated by the skilled supervisors (p-0.007) and peer group (p-0.007). The postgraduate students scored significantly higher scores in the post test, when compared to the pre-test (p-0.008). **Conclusion:** All participants showed significant improvement in teaching skills over the period of study.

Key Words: Microteaching, micro lesson core skills

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Background

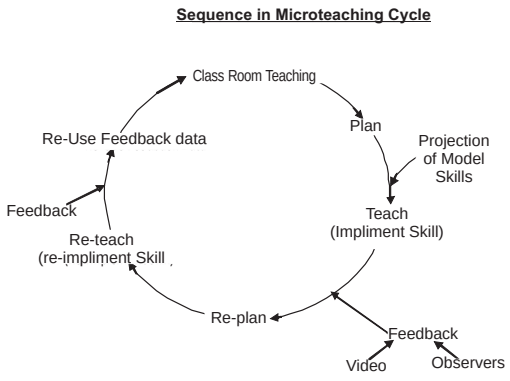
Teaching learning methods does not receive the attention it actually requires in medical colleges of India, with even the most qualified doctors struggling to teach medical students in an effective manner [1]. This is a grave danger, as the quality of teaching is directly proportional to the knowledge imparted to the students and this is quintessential to pass on the medical skills to the future generation[2].To improve the quality of teaching and to make the medical professionals understand the nuances of teaching learning methods, training in pedagogic technique is required. The medical teachers should be made to understand that teaching is a complex process that facilitates and influences the process of learning [3] .The fact that teaching is not merely sharing of information, but a complex art in which students assimilate skills and information, should be understood by all the levels of medical teachers[4].

In India, medical professionals do not require any training in education technologies before being inducted into medical colleges. Under this situation, a medical teacher learns to teach by imitating other teachers or by the process of trial and error. Both these methods are not desirable, when observed in the point of view of a student or an education technologist. The method of imitating teachers is essentially passive and learning by trial & error is a time consuming process [5] Also, it is suicidal to use the classroom to acquire the essential teaching skills required of a medical teacher[2,5].

An innovative method called 'microteaching' was evolved by Dwight W Allen and his coworkers in 1961 at Stand ford University, USA to improve the teaching skills in prospective teachers. In the process of micro-teaching, the teacher is figuratively put under a microscope so that all his/her inherent draw backs are brought into perspective for giving him a constructive feedback. In micro-teaching, the prospective teacher is asked to teach in front of a peer group

for a short period of time, and constructive suggestions are given by the observers. It eliminates some of the complexities of learning to teach in the class room situations such as pressure of the length of lecture, the content to be conveyed, duration of time, and face large number of students. The process of teaching and constructive suggestions can be repeated for any number of times, till the teaching skills of the prospective teacher is polished[5].The highlight of microteaching is that the learning process of the prospective teacher takes place in a supportive environment in which they can practice their instructional skills, receive feedback and use this information to improve their teaching[6].

Microteaching cycle



Microteaching focusses on improving the teaching skills of the teachers and provides a controlled environment to learn those skills. It can be useful for novices to acquire teaching skills, while experts can use it to refine their already acquired skills. It has been found to be useful in pre-service as well as in-service training of teachers [7]. In this study, we have tried to find out whether microteaching can be a useful aid in imparting necessary teaching skills for the medical postgraduates, who will graduate as medical teachers in a few years' time.

Materials and Methods

A research study was undertaken to find out the feasibility and effectiveness of Microteaching as a tool to improve the teaching skills of post graduate medical students of Pushpagiri Medical College Thiruvalla. An interventional study was planned and done on first and second year postgraduate students from the nonclinical departments of the medical college after obtaining necessary sanctions from the institutional scientific and ethics committees. Five post graduate students were selected as one group, one male and others female. Their informed consent was taken and confidentiality was maintained. The sessions started with an icebreaking activity and a pretest was conducted to know their basic knowledge regarding the concept and purpose of microteaching. The study conducted at the department of Forensic Medicine where all teaching facilities were available. Skilled supervisors were senior professors of Pushpagiri medical college who all had successfully completed MCI approved Basic course training in medical education Technologies. Then the Postgraduate students were taught about the concept and purpose of microteaching and their roles. They were allowed to clear their doubts. After that the students were asked to plan a small lesson at their choice for a period of 15-20 minutes concentrating on six core teaching skills such as 1.Set-induction 2. Planning, 3. Presentation, 4.Pupils participation, 5. Use of AV aids 6.Closure. Each skill was again divided as sub skills for evaluation. (See Annexure) Each skill was discussed in detail. The effectiveness of the lesson as a whole was also considered. Their teachings were observed and evaluated by three skilled supervisors and peer group with a checklist. Immediately after the presentation, each one was given constructive feedback .The supervisors highlighted the trainee's best practices /best used skills along with areas that need to be improved. In the second week they were asked to re teach another lesson keeping in mind the feedback given. Evaluation done and deficiencies pointed out immediately. During the third session all five trainees were again asked to take a lesson, based on the feedback given in the past two sessions. Finally, a post test was conducted to find out changes in knowledge regarding the concept of microteaching.

All the data was entered using Microsoft Excel and analyzed using SPSS 17.0. The pre and post test marks were scored and presented as descriptive statistics (mean, standard deviation, minimum and maximum) to test whether the score is improved significantly in the post test as compared to pre test, a paired test was done. The checklist is filled up for evaluation by skilled supervisors /peers were scored for each skill/sub skills as zero for No, one for somewhat and two for Yes. The total for each cycle were calculated and compared using repeated measures of ANOVA .p-value of less than 0.05 could be considered as statistically significant.

Results

All the three sessions were conducted at one week interval. At the first session, of the five students two used blackboard as the only AV aid and others used LCD projectors. None of them used Overhead projectors, in spite of it being made available to them. For the second session, two students used blackboards and LCD projectors simultaneously and others stuck to either of the two AV aids. During the third session, all the students used multiple AV aids simultaneously.

A pre-test and post-test was conducted during the course of the research study, to assess the knowledge of postgraduate students regarding concept and purpose of microteaching. The mean(SD) pretest score was 4.35(1.78) and the mean(SD) post-test score was 8.5(1.22). This shows that the knowledge of basic concepts of micro-teaching among postgraduates improved significantly during the course of the study. (p-0.008)

Table 1: Changes in knowledge regarding concept and purpose of microteaching

Postgraduate student ID	Pre-test score	Post-test score
PG I	6	10
PG II	3.5	9.5
PG III	2	8
PG IV	6.25	8
PG V	4	7

The evaluation of the teaching sessions were done by three skilled supervisors, who also gave constructive suggestions to the postgraduate students at the end of each session. All the postgraduate students showed improvement in evaluation scores by the skilled supervisors, in consecutive microteaching sessions. There is statistically significant improvement in scores of all post graduate students in the three consecutive microteaching sessions (P=0.007)

Table 2: Marks scored by postgraduates in each microteaching session, when evaluated by supervisors

Postgraduate student ID	Section I	Section II	Section III
PG I	30	50	73
PG II	22	59	76
PG III	20	67	78
PG IV	39	72	81
PG V	33	68	79

The evaluation of the teaching sessions were also done by the peers, who were also the part of the study. Each session by the postgraduate student was evaluated by the other 4 students, who were attending the session. All the postgraduate students showed improvement in evaluation scores by peers, in consecutive microteaching sessions. The mean (SD) score was 70.2 (11.9) in the first session, which went up to 95.6 (6.7) in the second session and 105 (4.7) in the third session. This increase in scores are statistically significant when evaluated using Kruskal Wallis test (P=0.007)

Table 3: Marks obtained by postgraduates in each microteaching session, when evaluated by peers

Postgraduate student ID	Section I	Section II	Section III
PG I	74	98	105
PG II	50	96	112
PG III	73	101	103
PG IV	72	72	106
PG V	82	84	99

Discussion

In our study it was found that microteaching improved the teaching skills of the medical postgraduates, as assessed by a panel of expert observers and also by peers. These results are similar to many other studies reported in literature. A landmark research study reported that beginning teachers highly valued microteaching as an effective pedagogical tool that enhances their teaching competency and confidence[8]. In another study, it was revealed that microteaching technique helped the students in improving their presentation skills also, with 30% improvement in their presentation scores in seminars [9]. In yet another study on microteaching, it was revealed that microteaching has a significant positive impact in alleviating the difficulties of traditional class room teachings [10].

In a study to ascertain whether the class room performance of student teachers differs significantly according to whether or not exposed microteaching, found that while there was no significant difference between the performances of the two groups on the pre- microteaching observations scores, there was a significant difference between them on the post micro teaching observation scores, microteaching observations scores, in favor of the microteaching group[11]. In its almost 50 years of existence, microteaching is still regarded as one of the best method of teacher training available currently, especially for training the prospective teachers in specific teaching skills [12].

Here in this study five post graduate students who were not exposed to microteaching classes before selected from the first and second year postgraduate course, concentrating on six core teaching skills .Three teaching sessions were conducted. All five students showed marked improvement s in their teaching skills as evidenced on statistical analysis of p vale 0.007 (both evaluation of skilled supervisors and peer groups)And their basic knowledge in microteaching and level of confidence in teaching has also increased in post test as the p value = 0.008.

This study is fully consistent with earlier findings in this regard that micro teaching is an important tool to improve the teaching skills of novices.

Conclusion

Microteaching is an effective technique to improve the teaching skills among postgraduate medical students, of a tertiary level teaching hospital in South Kerala. From the results of this study, we recommend that the efficacy of microteaching should be evaluated further in the medical education context and that it should be a part of postgraduate medical training in the years to come.

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✪ ORIGINAL ARTICLE

Cytological scoring of breast lesions and comparison with histopathological findings.

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Abstract

Background- Cytological assessment using various morphological parameters helps to segregate breast lesions in FNAC into different categories. The prognosis and the line of management of each category differ accordingly. **Aim**- The present study aims at assessing the validity of Modified Masood's Scoring Index (MMSI) by the evaluation of cytomorphological features of various breast lesions compared with histopathological findings. **Methods**- This was a cross sectional study done in 65 female patients with palpable or non palpable breast lesions, undergoing FNAC and biopsy over a period of eighteen months from 1S1 December 2012 to 31s1 May 2014. Modified Masood 's Scoring Index (MMSI) categorizes breast lesions, based on six cytological parameters into different categories such as Non proliferative breast disease (NPBD), Proliferative breast disease (PBD) without atypia, PBD with atypia and malignancy. The findings are compared with the gold standard histopathological diagnosis. **Results -** Of the total 65 cases, all cases in MMSI category I and IV showed good histopathological correlation. The agreement between MMSI and histopathology was 93.8% which is more, as compared to 72.3% agreement between cytology without scoring and histopathology. MMSI has increased the diagnostic accuracy of FNAC to 93.8% from 80%. **Conclusion**-Though the number of cases in category II and III were few, majority of them were found to be malignant, on histology. Therefore it is important to identify these categories and refer them for excision biopsy at the right time. The advantages of scoring include increased diagnostic accuracy and no false positive cases of malignancy.

Key Words: FNAC, Breast lesions, MMSI

Introduction

FNAC technique presently has gained wide recognition, as a simple diagnostic procedure, that has largely replaced open biopsy and especially frozen section techniques, so that in many cases, definitive treatment can be planned in advance, preoperatively.

FNAC of breast lesions began as a screening procedure to distinguish benign from malignant conditions. For a breast FNA to be successful, it is important that the rates of equivocal and inadequate cytological diagnoses are low. The "gray zone" in breast FNAC includes a broad spectrum ranging from proliferative fibrocystic disease to sclerosingadenosis to malignancy.[1] Previous studies have reported a gray zone incidence of 6.9%-20%.[2] All equivocal cases undergo excision biopsy, hence diagnosing a gray zone pathology by FNAC as atypical causes no delay in the treatment.

Cytological assessment helps to segregate those cases where excision biopsy and detailed histological study are indicated and avoid unnecessary biopsy in majority of cases. A single morphological feature cannot be relied upon to distinguish malignant cells from benign, be it at any site.[1] So Masood introduced a scoring index that categorises breast lesions, based on six various cytological parameters into different groups such as Category 1- Non proliferative breast disease (NPBO), Category 1- Proliferative breast disease(PBO) without atypia , Category 111- PBO with atypia and Category IV- malignancy. [3]This Masood's Scoring Index has a role in the diagnosis of palpable breast lesions in the initial method of pathological assessment.

Nandini *et al* [4]made an attempt to modify it, by rearranging scores of category I and II allowing more precise

diagnosis, as the prognosis of both the categories differs significantly. This modified scoring system is named as Modified Masood's Scoring Index.

The present study aims at assessing the validity of Modified Masood's Scoring Index (MMSI) by the evaluation of cytomorphological features of various breast lesions compared with histopathological findings. It is presumed that this scoring will help to increase diagnostic accuracy. Fast and accurate preoperative diagnosis is essential asthe treatment strategies and prognosis of individual patients can be decided accordingly.

Material and Methods

This is a cross sectional study done over a period of eighteen months from 1st December 2012 to 31st May 2014,in the cytology and radiology departments of Pushpagiri Medical College. All patients who underwent FNAC for palpable or non-palpable breast lumps, followed by biopsy either trucut or excisional surgery, depending on the diagnosis at aspiration cytology and those aspirates with adequate material were included in the present study based on inclusion and exclusion criteria.

An informed and written consent is obtained from all study subjects. FNAC is performed by following standard technique from all palpable lesions, using 23G needle, fixed to a 10 ml syringe. For non-palpable lesions FNA was performed with ultrasound guidance, in conjunction with the expertise of radiologists.

The aspirate was expressed on 2-3 clean dry glass slides and smeared using a coverslip. Smears were immediately fixed in 80% isopropyl alcohol (fixative) in a coplin jar. 'Toluidine blue' stain was used to confirm the adequacy of the sample. FNAC is repeated one more time, if smears are inadequate. The slides were subsequently stained with Papanicolaou (Pap) stain as routine.

Criteria for adequacy is the presence of 4 or 5 clusters of ductal epithelial cells, each made up of five to six cells with presence of bare nuclei in the background. The smears are scored based on Modified Masood's Scoring Index which include six different cytological parameters namely cellular arrangement, cellular pleomorphism, presence of myoepithelial cells, nucleoli, anisonucleosis and pattern of chromatin. Values ranging from 1 to 4 are assigned to each of the parameters and lesions are scored by adding up the values. Based on the scores, breast lesions are grouped into four categories as given in Table 1.

The minimum score is 6. Scores ranging from 6-8 is given a cytologic diagnosis of NPBD. Proliferative disease without atypia is diagnosed with a total score ranging from 9-14. Proliferative breast disease with atypia is reported when the total score ranges from 15-18. A cytologic diagnosis of malignancy is made when the total score ranges from 19-24.

Table 1:Modified Masood's Scoring Index

Cellular Arrange-ment	Cellular pleomo-rphism	Myoepith elial cells	Aniso-nucleosis	Nucleoli	Chromatin clumping	Values
Monolayer	Absent	Many	Absent	Absent	Absent	1
Nuclear overlapping	Mild	Moderate	Mild	Micro-nucleoli	Rare	2
Clustering	Moderate	Few	Moderate	Micro and/or rare macronucleoli	Occasional	3
Loss of cohesion	Conspicuous	Absent	Conspicuous	Predomine-ntly macronucleoli	Frequent	4

MMSI category	**Total score**
I - Nonproliferative breast disease	6 - 8
II-Proliferative breast disease without atypia	9 - 14
III-Proliferative breast disease with atypia	15 - 18
IV-Carcinoma insitu and invasive cancer	19 - 24

Statistical Analysis:

The data were entered in Microsoft Excel programme and analyzed. The categorical data were analyzed and presented as frequencies and percentages. Age and total score are presented as mean and standard deviation. The findings of MMSI, cytology and histopathology are compared using percentage of agreement, Kappa statistics and Chi-square test. The findings of MMSI, Cytology and histopathology are grouped as malignant versus non-malignant and sensitivity, specificity, predictive values and diagnostic accuracy were found for MMSI and cytology using histopathological diagnosis as gold standard.

Results

A total number of 136 patients underwent FNAC during the study period of 18 months. 65 cases eligible according to the inclusion and exclusion criteria were selected for the study.

The study subjects were females in the age range of 16 -93 years with mean age 47.91 years [standard deviation (SD) 17.53]. The maximum number of cases (35%) was in the age group of 41-60 years. The majority of the patients presented with a palpable lump in the breast.

Most of the breast lumps were right sided (58.6%). Unilateral breast lumps were noted in majority of the cases (93.8%). Only 9.2% of patients presented with multiple breast lumps. Irrespective of side, the maximum number of lumps palpated in one particular quadrant was in superior lateral quadrant (49.3%). Majority of the breast lumps requested for FNAC were <3 cm in size (72.3%), non-tender (92.3%) and were firm in consistency (69.2%).

Only 7.7 % of cases included in the study were ultrasound guided. Modified Masood Scoring Index was done for all the cytology cases based on 6 parameters. Total score ranging from 6 to 23 are obtained during the study with mean 13.06 (standard deviation - 6.10).The frequency of cases in each MMSI category is represented in Table 2

Table 2: MMSI

Catogery	Frequency	Percentage
1	31	47.7
2	2	4.6
3	2	3.1
4	29	44.6

The categories of MMSI were compared with histopathological diagnosis which is the gold standard and is given in Table 3. Category I has maximum number of cases (47.7%).

Table 3: Comparison of MMSI Vs Histopathological diagnosis

Histopathological diagnosis	MMSI			
	1	2	3	4
CA	0	2	2	29
NPBD	31	0	0	0
PBD w/o atypia	0	1	0	0

p=0.000

The agreement between MMSI and histopathological diagnosis was 93.8 %. Kappa could not be done as there was no histopathology case corresponding to category 3 of MMSI. The agreement between MMSI and cytology was 76.9%. Kappa =0.65 which indicated good agreement between MMSI and cytology. The cytology diagnosis without scoring was also compared with histopathology .The agreement between cytology and histopathology diagnosis was 72.3%. Kappa could not be done due to lack of category 3 case in histopathology.

The percentage of agreement for cytology alone (72.3%) is less compared to MMSI (93.8%). The overall results of 65 FNAC cases included in the study are shown in Table 4.

Table 4:Comparison of MMSI with cytological and histopathological diagnosis

Catogery	MMSI	Cytology	Hystopathology
NPBD	31	26	31
PBD w/o atypia	3	18	1
PBD with atypia	2	1	0
CA	29	20	33

Out of 33 carcinoma cases, MMSI could correctly diagnose 29 cases. The overall sensitivity, specificity, diagnostic accuracy, PPV and NPV of MMSI were 87.9%, 100%, 93.8%, 100% and 88.8% respectively. For cytology diagnosis without scoring, the corresponding values were 60.6 %, 100%, 80%, 100% and 71%. MMSI has increased the diagnostic accuracy of FNAC to 93.8% from 80%.

Discussion

The reliability of FNAC in separating benign from malignant lesions are well established. However there is limited data regarding its ability to demarcate proliferative lesions with and without atypia and DCIS by morphology alone. It is reported that non proliferative breast disease carries no increased risk of carcinoma breast in future. The risk is 1.5-2 fold in women with proliferative lesions without atypia, 4-5 fold in women with proliferative lesions with atypia, and 8-10 fold in women with ductal carcinoma in situ.[5-7] Therefore, it is necessary that an accurate diagnosis should be made on cytology.

Masood's Cytology Index (MCI)[3] categorises all breast lesions into 4 categories namely nonproliferative breast disease(NPBD), proliferative breast disease (PBD) without atypia, PBD with atypia and carcinoma. The Modified Masood's scoring Index (MMSI)[4] further increased the diagnostic accuracy by rearranging scores of category I and II.

Among the 71 cases excluded from the study, cytology smears were inadequate in 35 cases and 16 of them were cystic lesions. The Inadequate sample rate in this study is 30 %. This falls within the upper aspect of a very wide range of non-diagnostic rates (1 -32 %). [8-10] Inadequate FNA is likely related to lesion characteristics especially low cellularity and marked fibrosis or due to technical issues. So the aspirator experience, USG guidance and immediate cytological assessment with additional repeated aspirates attempted are needed to reduce the percentage of inadequate samples.

Inflammatory lesions (nine cases) were excluded from the study since the nuclear atypia falsely raises the score as reported in similar previous studies.[4]Therefore 65 female patients who underwent FNAC for breast lumps, followed by biopsy either trucut or excisional surgery, depending on the diagnosis at aspiration cytology were included in the present study based on inclusion and exclusion criteria.

All the FNAC lesions included in the study are grouped into 4 categories based on MMSI are as follows

Nonproliferative breast disease (category I)

Cytological features of this group include monolayering of uniform sized cells, absent/ mild pleomorphism of cells and presence of numerous myoepithelial cells. Nuclear features include absence of anisonucleosis, nucleoli and chromatin clumping (Fig.1). In most of the cases, fibromyxoidstroma is seen in the background.

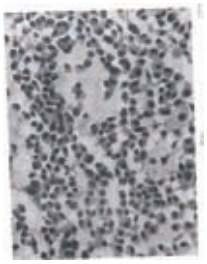

Fig 1.Nonproliferative breast disease (MMSI category I)
Smear shows cohesive sheet of uniform population of benign ductal epithelial cells in a background of scattered myoepithelial cells (Pap, x400)

31 cases (47.7%) in the present study belong to this category. Majority of them are fibroadenomas (29 cases) and 2 reported as phyllodes tumour. 4 had

associated fibrocystic change. So all cases correlated with histopathological diagnosis. This confirms the accuracy of MMSI by Nandini et al[4] who modified the NPBD score as 6-8 instead of 6-10.

Proliferative breast disease without atypia (category II)

Cytological features in this group include moderate cellularity, mild cellular pleomorphism and moderate number of myoepithelial cells(Fig.2). Mild nuclear overlapping with occasional micronucleoli and chromatin clumping.

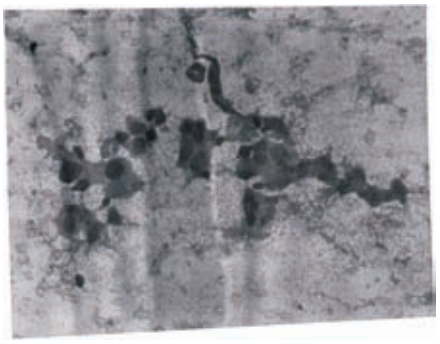

Fig 2.Proliferative breast disease without atypia (MMSI category II) Smear shows sheets of ductal epithelial cells with nuclear overlapping, mild cellular pleomorphism and mild anisonucleosis. Background shows scattered myoepithelial cells (Pap,x400)

Three cases (4.6%) diagnosed by scoring are included in this category, of which one was epithelial proliferative lesion and the other two were carcinomas on histopathology. This finding is in contrast to other studies by Nandini et al and ShahlaMasood et al [11] as no case of carcinoma was reported in this category on histopathology follow up in their studies.

Proliferative breast disease with atypia (category III)

This group had the least number of cases (3.1 %) and had cytomorphologicfeatures that overlap with carcinoma. The cytological features include moderate to high cellularity, moderate degree of cellular pleomorphismand anisonucleosis, occasional macronucleoli and frequent chromatin clumping (Fig 3). Both cases were signed out as low grade Infiltrating duct carcinoma in histopathology.

Fig 3. Proliferative breast disease with atypia (MMSI category III) Smear shows loosely cohesive clusters of ductal epithelial cells, moderate cellular pleomorphism and anisonucleosis (Pap, x400)

Though the numbers of cases in this category were very few in our study, there are greater chances of them found to be malignant on histopathology follow-up. Previous studies have also reported that about 30-45 % of breast FNA cases diagnosed as atypical turn out to be malignant on surgical follow-up.[12-15] Therefore it is important to identify this category and refer them for excision biopsy. Zhao et al[16J observed that 37 % of the cases diagnosed cytologically as PBD with atypia, turned out to be malignant on histopathology. He suggested that the cytological features were not enough to be diagnosed as malignancy including low cellularity, mild atypia and obvious myoepithelial cells in the background, as in our case.

Carcinoma in situ and invasive cancer (category IV)

This group is characterized by loss of cohesiveness, high cellularity, conspicuous nuclear pleomorphism, chromatin clumping with macronucleoli and absence of myoepithelial cells. (Fig 4)

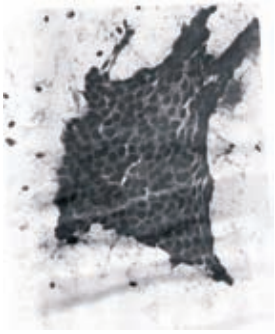

Fig 4.MMSI category IV Cellular smear showing discohesive cells with moderate pleomorphism and absent myoepithelial cells (Pap, x400)

Cases diagnosed by scoring in this category were 29(44.6%). All the cases correlated with histopathology. The concordance rate is similar compared to previous study by Nandini et al.'"

Out of 14 ultrasound guided FNAC cases during the period, only 5 were included for analysis. A high degree of concordance is noted between MMSI scoring and histopathology in all these cases. Inadequate aspirate was obtained in 6 of the cases.

Inadequacy rate for USG guided FNAC is 42.8 %. This can be attributed partly to technical issues as the procedure is routinely performed in our institution by a radiologist rather than a cytopathologist. The intrinsic nature of the lump (smaller size/slippery) also contributes. Perry et al[17] recommended a minimum standard of<25% insufficient result, in image guided FNAC procedures.

Diagnostic Accuracy of MMSI

Of the 33 histologically confirmed carcinoma in the study, 29 belong to MMSI category IV, 2 cases scored as category III and another 2 cases as category II. The overall diagnostic accuracy, sensitivity and specificity of MMSI in diagnosing malignant breast lesions is determined to be 93.8%, 87.9%& 100 % respectively. Their comparison with cytological diagnosis is given in Table 5

Shahla Masood *etal*[11] evaluated Masood Cytology Index (MCI), in FNB of non-palpable breast lesions obtained by standard needle localization under mammographic guidance. Sufficient aspirated material was obtained in 91% which is superior to our technique. There were no false positive diagnosis of malignancy and 3.3% of false negative cases included carcinoma insitu. The overall diagnostic accuracy is similar to our study.

There were no false positive [FP]cases in the study. Only 4 cases were false negative [FN] by scoring. All of them were low grade breast carcinomas [one case of papillary ca, another case of intraductalca with mucinous differentiation and 2 cases of Infiltrating duct ca, BRG-1]. They are scored as category 2 or 3 because of low cellularity, cohesiveness, mild -moderate atypia and bare nuclei in the background In papillary lesions with moderate cytological atypia, excision is advised since the findings are insufficient for a conclusive diagnosis of malignancy. Similarly in a study comparing USG and FNAC by Takhellambum et al[18] one case of "papillary lesion" reported by cytopathologist turned out to be ductal carcinoma in situ with solid and micropapillary patterns on histology. In such situations it is safer for the patient to undergo further workup by CNB, excision biopsy or even frozen section biopsy rather than giving a false negative diagnosis.

According to the UK-NHSBSP[19], the suggested thresholds for cytology performance (where therapy is partially based on FNAC) are the following: absolute sensitivity (C5 only) >70%, specificity >65%, PPV>99%, FN <4%, FP<0.5%, inadequate rate< 15%, inadequate rate from cancers <5% and suspicious rate <15%. Thus with MMSI, the sensitivity of breast FNA(87.9%) could be raised to the recommended UK NHSBSP guidelines, thereby allowing therapy based on FNAC. However the FN rate (12.1% against <4%) and inadequacy rate (30% against <15%) are higher.

The higher percentage of malignancy on follow up histopathology (100%) for atypical category in MMSI when compared to previous studies could be explained by the limited number of cases (3.1 %) in that category. The present study showed 100% histopathology correlation in category I and IV.

A 100% cyto-histopathological correlation was observed with cytology alone in other studies by Panjvani *et al*[20], Zhang Qin *et al*[21], A Z Mohammad et al[221, Tiwari *et al*[23]. In contrast, our study showed a FN rate of 12.1 % for malignant cases with scoring which is comparatively less than for cytology alone (FN-39.3%). This is because of greater proportion of low grade malignancy in our study population.

A recent study[24] proposing expansion of Masood's Cytologic Index (MCI) for carcinoma group into further subtypes based on selected cytological features, had 86 % concordance with histopathological (Bloom Richardson) grading. They observed that features like anisonucleosis, nucleoli and chromatin pattern had significant role in further grading Category IV by scoring. Thus the expanded MCI will help the cytologist to classify benign breast lesions into different categories as well as grade malignant breast lesions.

All cases in MMSI category I and IV showed good histopathological correlation. Though the number of cases in category II and III were few, majority of them were found to be malignant, on histology. Therefore it is important to identify these categories and refer them for excision biopsy at the right time. The agreement between MMSI and histopathology was 93.8% which is more as compared to 72.3 % agreement between cytology without scoring and histopathology. MMSI has increased the diagnostic accuracy of FNAC to 93.8% from 80% with cytology alone. The scoring system is easily reproducible, less time consuming, simple and reliable. The advantages of scoring include increased diagnostic accuracy and no false positive cases of malignancy. The importance of breast FNAC has been upgraded as a diagnostic, therapeutic and prognostic procedure. It is suggested to perform further subtyping of category IV similar to Modified Bloom Richardson grading in histopathology. This early detection and preoperative grading of carcinoma helps surgeons to select! decide on neoadjuvant chemotherapy, with a minimally invasive procedure. Thus providing better treatment options to the patient.

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✪ CASE REPORT

White eyed blow out fracture- diagnostic and treatment challenges

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Abstract

Orbital floor blowout fracture is a common traumatic lesion of the craniofacial complex, but rarely in children population, consequently representing challenge in surgical treatment. The aetiology, clinical presentation, and timing of operation all differ from those of adults. The presence of occulocardio reflex with or without clinical signs is highly suggestive of a trapdoor injury. Unsatisfactory functional and aesthetic results occur due to delayed treatment of blow out fractures in childrens..

Keywords: Blow out fracture, Trap door fracture, White eyed orbital blow out

Introduction

Fracture of floor of the orbit with herniation of the orbital contents into the maxillary sinus is referred as an orbital blow out fracture. An orbital wall fracture can occur in the medial and lateral walls as well. Pure and impure forms of blow out fractures have been described. The orbital rim and other walls remain intact after the injury in pure form of fracture. In impure form there is concomitant injury of rim and other walls. Two theories predominate to explain the occurrence of orbital "blowout" fractures. In the "hydraulic" theory, the eyeball itself is struck directly from an object such as a fist or a baseball. The eyeball is thrust posteriorly, transiently raising the pressure within the orbit. As the intra-orbital pressure increases suddenly, the floor of the orbit "blows out" inferiorly at the point of greatest weakness. The increased orbital pressure simultaneously fractures the bony floor and pushes the bone fragment downward, displacing the bone into the maxillary sinus, along with soft tissue from the orbit. In the "buckling" theory, blunt trauma to the face (such as a punch to the cheek) transmits a pressure wave posteriorly, acutely compressing the bones of the orbit in the anterior-posterior direction. This increase in bony pressure causes the weakest point in the orbit to "buckle" and crack, with the bone fragment thus created to be pushed inferiorly. Periorbital ecchymosis is the most common sign of a blow out fracture.

When repairing an orbital fracture, the inferior orbital floor needs to be exposed. For that exposure, either a transcutaneous or a trans-conjunctival approach can be taken.

The aetiology and clinical presentations of orbital floor fractures differ in children's and adults. The most common etiology in younger children is accidents or sports injury, whereas in adults and older children interpersonal violence and motor vehicle accidents are the common causes[8].

Jordan et al[9] introduced the term "white eyed blow out" in patients with few or no clinical signs of orbital injury but may have diplopia , pain and ocular motility restriction.

It is thought that due to the trapdoor fracture configuration which causes entrapment of soft tissue or muscle, or both, diplopia and ocular restriction is more common in children than in adults.[5,6,10-12] Diplopia is often related to dysfunction of the extra-ocular muscle, which is commonly related to entrapment of the muscle.

We report a blow out fracture of the pure kind which manifested without majority of the usual symptoms and its subsequent treatment.

CASE REPORT

A 17 year old boy reported to the department of maxillofacial surgery with a complaint of double vision .He gave the history of bumping against the side of a door about three days back. Except for mild pain in the left eye and

his chief complaint, he had no other associated symptoms. He was taken to a nearby hospital after the incident, where a CT was taken. Apart from slight mucosal thickening in the left maxillary sinus, no other significant findings were reported. The patient had double vision on upward and inward movements of the eyeball. On upward gaze a limited motility of the left eye was noticed while comparing it with the right eye. (Figure 1)

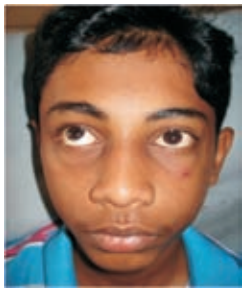


Fig. 1

The CT was reevaluated and the mucosal thickening initially reported was found to be a herniation of orbital contents into the maxillary sinus following. The force duction test was positive for the left eye. The patient was diagnosed with a pure blow out fracture of the left orbital floor causing herniation of orbital contents into the left maxillary sinus with entrapment of inferior rectus muscle resulting in diplopia.

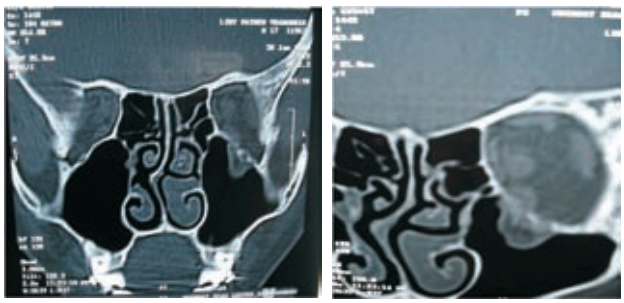
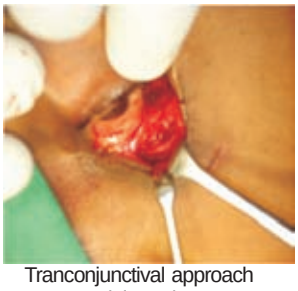
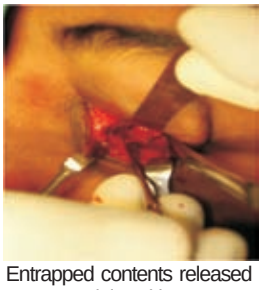


Fig. 2

It was decided to operate upon the patient since resolution of double vision was considered unlikely on waiting. He was taken up for surgery under general anesthesia. A preseptal transconjunctival incision was used to access the floor of the orbit. The herniated and entrapped contents were released.The trap door of bony fragments snapped back into position. Since the reduced segments were holding under pressure reconstruction of the orbital floor was deemed unnecessary (figure 3 a & b).



Tranconjunctival approach
(Fig 3 a)



Entrapped contents released
(Fig 3 b)

The closure of the incision was done with 5-0 vicryl sutures. Post op recovery was uneventful. The patient regained the complete motility of the eyeball and there was no diplopia in any of the gaze positions (Figure 4)

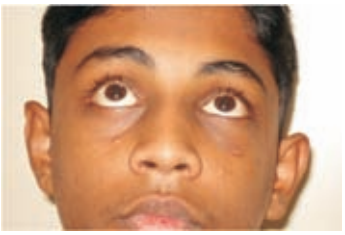


Fig. 4

Discussion

Pure-type orbital floor fracture, or blow-out fracture, was first described by Lang.[5] There are 2 competing theories about the mechanism by which blowout fracture is caused. In one theory, known as the buckling theory, a blowout fracture occurs through the transmission of forces from the infraorbital rim to the orbital floor. The other, theory now more widely accepted hydraulic theory, states that hydraulic pressure due to direct injury to the globe is transmitted to the bony orbit and causes a fracture in the thin orbital floor.[6] This mechanism tends to produce larger, more posterior fractures in both the floor and the medial wall, with frequent herniation and a higher likelihood of enophthalmos. Anatomically the inclined plane of the orbital floor which is also the thinnest, helps the resultant force vector to travel in downward and medial direction. However, in practice the orbital floor undergoes fracture in posteromedial part since the tubular architecture of the canal provides some mechanical strength to the floor. The outcome of this type of fracture depends upon proper diagnosis, timing of surgery, appropriate surgical approach and selection of suitable graft material. There are varied opinions regarding the indication of repair of orbital floor. According to some authors, diplopia alone is not an indication for surgical repair[2]. A few workers opine that if the Lockwood's suspensor ligament is intact there is no substantive reason to reconstruct the orbital floor[4]. Some authors suggest that the reconstruction may be dispensed if the defect is less than 0.5 cm[5]. Therefore, to ascertain the location and extent of the defect proper investigations viz X-rays, CT are mandatory. In our case, coronal view CT scan and PNS view X-rays were carried out to plan the surgery. Some authors suggest that surgical exploration can be obviated in case of diplopia which resolves within 14 days unless extensive bony wall defect is detected[6]. Another school advocates waiting period of 4-6 months prior to undertaking surgical exploration while others recommend early surgical intervention[7].

The commonly used surgical approaches to reconstruct the floor of the orbit are transconjunctival,

subciliary and infraorbital. The basic objective of reconstruction of orbital defect is to restore orbital volume, function and aesthetics [5,7].

The incidence of trapdoor fractures is more common than open fractures of the orbit. The previous reports regarding the physiology of the orbital floor shows us why trapdoor fractures are sustained in younger population.[6,10,12,13]

The bone being less mineralized in younger children tends to buckle leading to a linear hinge like fracture in the weak orbital floor can cause entrapment of periorbital soft tissue or extraocular muscle, or both.[13] Necrosis and ischemia occours if not treated promptly and later fibrosis and scarring of the tissue which is responsible for persistent diplopia, even after operation.[15]

Long term and immediate sequelae occurs following pediatric orbital blow out fractures. Restricted motility and diplopic are the long term complications[2,3]. Pain, nausea, vomiting diplopia and ocular restrictions are the immediate sequelae. Rarely a triad of syncope, bradycardia and nausea/ vomiting known as occulocardiac reflex occurs.[2,5]

Immediate pediatric orbital surgery with a positive force duction test was first advised by De Man *et al.*[9] The "white eyed blow out" fracture characterized by restricted superior and inferior motility despite minimal soft tissue damage, enophthalmos and floor displacement was reported in 1998, Jordan *et al*. This was termed as "white eyed" as there was no subconjunctival ecchymosis. To avoid permanent restriction of extraocular movements, Jordan recomended early intervention after injury.[7]

The time for surgical intervention for the blow out fractures varies according to various authors. A study conducted by Grant *et a*l. state that patients with symptoms of entrapment with a trapdoor fracture should have surgical intervention as soon as the diagnosis is made, unless contraindicated by the patient's health or ocular injuries that may benefit from a delayed intervention[3]

In the review of literature published by Wei and Durairaja using data from 25 studies came to a conclusion that children who exhibit diplopia with positive forced duction tests, soft tissue entrapment on CT, and/or trapdoor fractures with restricted ocular motility, have surgery within 48 h.[2]

In conclusion, after reviewing the literature early surgical intervention for children with trapdoor orbital floor fractures with signs and symptoms of entrapment is recommended by many authors. Trapdoor orbital fractures in pediatric patients with signs and symptoms of entrapment should have undergo early surgical intervention to prevent ischemia, necrosis and later fibrosis of the entrapped muscle and soft tissue, so that there is an increase chances of a positive outcome in eliminating diplopia and regaining full ocular motility.

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PUSHPAGIRI MEDICAL JOURNAL

✪ CASE REPORT

Apple peel deformity with multiple intestinal atresia – an extremly rare entity

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Abstract

We report a rare case of apple peel deformity with type IV intestinal atresia. The baby underwent exploratory laparotomy and was found to have high jejunal atresia, distal bowel loop with multiple atresias and apple peel deformity. Baby was successfully managed with resection and anastomosis without the support of total parenteral nutrition (TPN) in the post-operative period.

Keywords: Apple peel deformity intestinal atresia tapering entroplasty, Type IIIb and Type IV association.

Introduction

Apple Peel deformity (Type III b) is a rare form of intestinal atresia with poor outcome due to associated anomalies, prematurity, low birth weight and post-operative complications. It is characterised by jejunal atresia near the ligament of Treitz, foreshortened bowel, large mesenteric gap and retrograde distal blood supply [1]. Lee *et al.* reported 12.1% incidence rate of complex jejunoileal atresia among those with the small intestinal atresias who also suffered increased morbidity and mortality rates. None had a combination of Type III b and Type IV [2]. Federici *et al.*[3]and *Rich et al.*[4] have reported cases of this extremely rare association.

We report a similar case to highlight this rare combination of congenital anomalies and possibility of its successful management without TPN support in the post-operative period.

Case Report

A female baby was delivered by emergency caesarean section due to foetal distress at 36 + 3 weeks gestation to a G2P1L1 mother with birth weight of 2.6 kg. Repeated antenatal ultrasound confirmed polyhydramnios and 'distal bowel obstruction'. At birth, baby had bilious nasogastric (NG) aspirate of 200ml, mild respiratory distress with distended and tense abdomen.

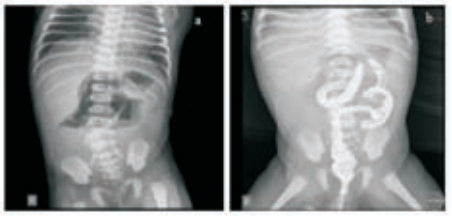

Fig. 1 (a) Fig. 1 (b)

Abdominal radiographs [Figure 1a] revealed marked distension of proximal intestinal loops with gasless distal bowel and colon. USG abdomen showed distended hypoperistaltic, featureless bowel loops and another featureless atretic segment. Barium enema study showed the characteristic appearance of an unused micro colon [Figure 1b], suggestive of congenital small bowel obstruction. After a detailed preoperative workup, baby was taken up for laparotomy which showed massively dilated blind ending jejunum at ligament of Treitz and apple peel deformity of the distal bowel loop with wide mesenteric gap showing retrograde blood supply [Figure 2]. Assessment for patency of distal bowel revealed three atretic sites. Atretic segment in distal bowel loop of length 40cm was excised and patency of distal loop was reassured. 8cm of dilated and hypertrophic end of proximal loop resected and end to oblique anastomosis was done after tapering. Post-operatively, the baby was managed NPO with IV fluids, antibiotics and other supportive measures.

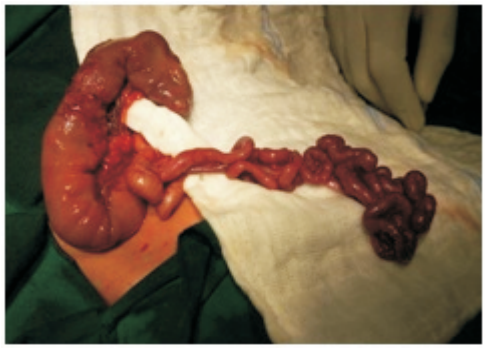

Fig. 2 Apple peel deformity with wide mesenteric space

On third post-operative day, baby developed left sided pneumonia and was managed appropriately. Bilious aspirate reduced drastically with surgery and baby passed small quantity of stools on the fourth post-operative day. Small quantity NG feeds were started on 7th post-operative day with an Initial increase in the bilious aspirate proportionate to increase in NG feeds. The quantity of NG feeds was steadily decreased to be immediately increased later, which was not associated with an increase in the NG aspirate. Baby was having small quantity bilious vomiting, but we continued the NG feeds. Baby was initiated on direct breast feeding on 31st post-operative day and observed a gradual weight gain in the following days. Baby was discharged after 35 days of hospital stay and is on follow up.

Discussion

Intestinal atresia is not an uncommon anomaly in the neonatal population. Neonates with common types of intestinal atresia (Type I, Type II and Type IIIa) have low mortality rates and show good prognosis after definitive operative repair [5]. Lee *et al* described 11 patients with complex intestinal atresia with higher mortality rate (45.5% v/s 7.5%, p=0.0032) in these patients compared to simple atresias[2]. Patients with such complex anomalies require multidisciplinary management and additional operative procedures with long term follow up for chronic sequelae. Phelps and co-workers reported that only 35 of 220 (16%) gastrointestinal malformations observed at birth were detected by prenatal ultrasound studies[6].

Of the intestinal atresias, apple peel atresia (type III b) is the least frequently encountered subtype accounting for 10% of all atresias[5]. Although there has been significant improvement in surgical outcome of other subtypes, apple peel atresia continue to have poor prognosis of significant morbidity and mortality [4, 7]. Festen *et al*. in their study of 15 patients with apple peel deformity reported normal bowel function with adequate growth and development in those patients who survive the initial operative and post-operative period[7].

We report a case of mixed type III b and IV intestinal atresia successfully treated with resection of the atretic loop and end to oblique anastomosis with tapering of the jejunum. There are references to the practice of multiple end-to-end anastomosis, jejunostomy and silicone stenting for the same and their associated complications [3, 8]. Our patient received resection of the blind end of the jejunum and the atretic segments of distal apple peel loop, followed by end to oblique anastomosis after tapering of proximal jejunum (tapering enteroplasty). This patient had a significant length of small bowel even after the resection and would tolerate the primary repair. We have noted that end to oblique anastomosis with tapering eneteroplasty is superior to enterostomy from our past experiences with respect to its complications and management. This patient therefore only required one operation. Considering the high risk of sepsis, electrolyte imbalance, hepatic failure and other known complications of TPN, this patient was managed without TPN post operatively. She was discharged home tolerating breastfeeds and was reviewed at 6 months of age and found to have normal growth and development.

Conclusion

The rare association of Type III b and Type IV atresia can occur, which can be successfully managed with resection of the multiple atretic segments and end to oblique tapering enterostomy. Prenatal ultrasonography has a poor predictive value and remains an unreliable method to detect gastrointestinal malformations. To the best of our knowledge, this is the first case of its kind reported from India. Our patient did not receive TPN post operatively and required only one operation.

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✪ CASE REPORT

Verrucous hemangioma: A rare congenital malformation

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Abstract

*Verrucous hemangioma is a rare congenital vascular malformation. They a*lmost invariably present at birth, are typically unilateral and involve the lower extremities. We report a case of verrucous hemangioma with bilateral involvement of lower limbs in an adult. Verrucous hemangioma should be considered in the differential diagnosis of verrucous or vascular lesions of the lower limb.

Keywords: verrucous hemangioma, bilateral, adult

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Introduction

Verrucous hemangioma is a rare congenital vascular malformation[1]. It begins as a bluish macule that gradually evolves into a verrucous lesion ,usually on the leg. The lesion tends to be unilateral, grouped, discrete to confluent, verrucous papules or plaques, and may have a linear distribution[2]. We report this case due to its rarity and unusual presentation.

Case Report

A 27 year old male presented with multiple hyperpigmented, pruriticlesions on both the lower legs for the past 4 years. The lesions gradually increased in size to reach the present size. He had sought treatment from multiple centres for this with no relief. His past history was unremarkable except for atopic dermatitis since childhood. General physical examination was within normal limits. On dermatological examination, there were multiple bluish-black to hyperpigmented verrucous papules and plaques over both the lower legs, more on the lateral aspect, extending from above the ankle upto the knee joint. Some areas of depigmention were seen in between these lesions due to severe scratching.(Fig. 1)

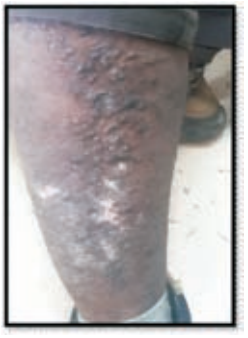

Fig. 1:Hyperpigmented verrucous papules and plaques on both legs

Systemic examination was normal and routine laboratory tests also did not reveal any abnormality. Hence, a differential diagnosis of hypertrophic lichen planus, prurigonodularis, angiokeratoma and Kyrle's disease were considered, in view of the hyperpigmented verrucous papules and plaques.

A 4mm punch biopsy was taken from the lesion and sent for histopathological examination. On Hematoxylin and eosin stained section, the epidermis showed hyperkeratosis, parakeratosis and acanthosis (fig.2, fig.3), the dermis showed dilated and congested capillaries and veins(fig.4) and the subcutaneous tissue also showed dilated large thick walled blood vessels(fig.5). A diagnosis of verrucous hemangioma was made on histopathology. Since the patient had extensive lesions excision was not feasible. He was treated symptomatically with emolients and antihistamines.

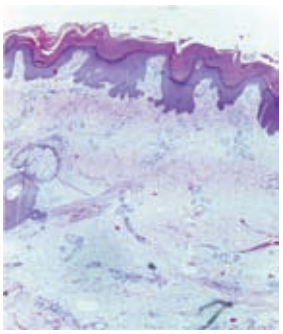

Fig 2:H and E stain, scanner view

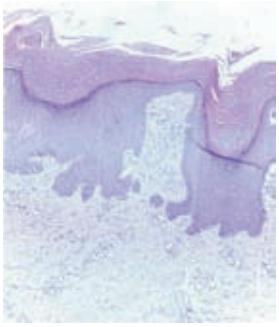

Fig 3:Low power view(10x) Epidermis: hyperkeratosis, papillomatosis, acanthosis

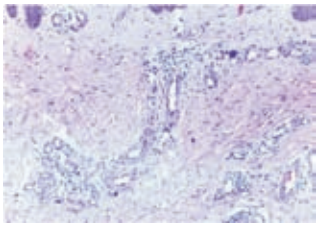

Fig 4: Dermis - dilated and congested capillaries and veins

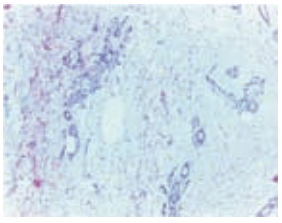

Fig 5: Subcutaneous fat-dilated large thick walled blood vessels

Discussion

Verrucous hemangiomas are usually present at birth, are unilateral, and lower extremities are commonly affected[1]. Recurrent episodes of bleeding and infection over years finally results in a bluish-black colour with a hyperkeratotic verrucous surface[3] Lesions are single or grouped, and may have a linear or serpiginous arrangement or may occur in a more disseminated distribution, without evidence of the systemic lesions[2].Unlike other angiomatous nevi, they do not involute spontaneously [4].

According to the International Society for the study of vascular anomalies, categorization of verrucous hemangioma as a neoplasm or malformation cannot be established definitely. Its classification is still unclear because it exhibits clinical features similar to those seen in vascular malformations, but expresses an immunoprofile similar to vascular neoplasms[5].

Clinical findings alone or an inadequate (superficial) specimen can be misleading[6]. A deep biopsy is required to confirm the diagnosis and the histologic appearance closely resembles an angiokeratoma, but with the subtle difference of deeper extension into subcutaneous tissue in case of verrucous hemangioma[3]. Currently, no specific immunohisto- chemical marker exists to diagnose verrucous hemangioma. Deep surgical excision, performedas early as possible before the verrucous lesion beginsto expand, is the treatment of choice for verrucous hemangioma. Accurate diagnosis is important when planning therapy, because incomplete excision leads to persistence and continued enlargement of the lesion. Even after excision, because of the deeper vascular infiltration, the recurrence rate is 33%[7].

Our patient presented in adulthood and had involvement of both the lower limbs. There is only a single case of bilateral involvement of verrucous hemangioma in a child, reported in literature[8]. This is the first report of bilateral involvement of verrucous hemangioma in an adult. Verrucous hemangioma should be considered in the differential diagnosis of verrucous or vascular lesions of the lower limb.

Conflict of interest - nil

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PUSHPAGIRI MEDICAL JOURNAL

✪ CASE REPORT

Cutaneous Chromoblastomycosis – An under diagnosed rarity in Clinical Practice

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Abstract

Cutaneous chromoblastomycosis has been often under diagnosed despite the prevalent tropical climatic conditions favouring their occurrence. We report two cases of cutaneous chromoblastomycosis that have been effectively managed with a high index of clinical suspicion backed by coordinated histopathological and mycological evidences.

Keywords: Chromoblastomycosis, Dematiaceous Fungi, Sclerotic bodies, Kerala

Introduction

"Chromoblastomycosis" (chromo= coloured, blasto= budding, mycosis= fungal infection)(CBM) is a progressive chronic subcutaneous dematiaceous fungal skin infection. It is prevalent in tropical or subtropical nations such as Madagascar in southern Africa, Latin America (Mexico, Brazil, and Venezuela), East Asia and Australia[1]. Despite occasional case reports from various parts of India[2, 3], this disease is often a rarity in clinical practice posing a diagnostic and therapeutic challenge for the clinicians due to its recalcitrant nature.

We report two cases of cutaneous chromoblastomycosis which were effectively treated following a coordinated clinico-mycological and histopathological intervention.

Case History

Case 1

A 64 year old male agricultural worker presented to the Dermatology outpatient department of a tertiary health care hospital with a solitary pruritic lesion over his left ankle following a trivial trauma. Despite seeking treatment form the local hospitals for about 2 years, the pruritus worsened, the lesion increased in size with brownish discoloration and hyperpigmentation of skin. Dermatological examination revealed a single well defined, non-tender, 8×5 cm sized erythematous plaque with central clearing and peripheral raised border showing crusting and hyperpigmentation over the anterior aspect of left ankle.(Figure -1). A punch biopsy of the lesion was sent for histopathology examination, aerobic bacterial, fungal and mycobacterial cultures.

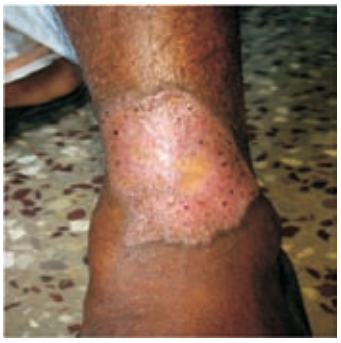

Figure 1: Case 1-Erythematous plaque with crusting and hyperpigmentation on the anterior aspect of the left ankle

Case 2

A 57 year old housewife, known diabetic since 17 years, presented with a single small reddish pruritic raised lesion on the posterior aspect of the left ear. She had also taken a course of antibiotics 6 months back at a local hospital followed by excision of lesion. Dermatological examination revealed a single well defined non tender erythematous plaque of size 3×2 cm with fine scaling and raised border present on posterior aspect of left ear. Multiple well defined hyper pigmented papules and plaques of varying size were present over face and neck. (Figure -2). A punch biopsy from the hyperpigmented plaque was sent for histopathology and fungal culture.

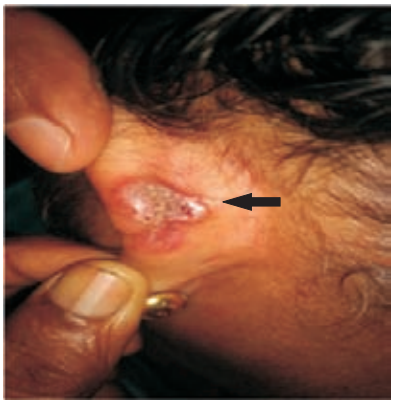

Figure 2- Case 2- Erythematous plaque with skin scaling on the posterior aspect of the left ear

Laboratory Investigations

For the first case,histopathological examination of the biopsied tissue showed marked pseudo epitheliomatous hyperplasia with multiple indistinct and coalescent suppurative granulomas composed of epithelioid cells, neutrophils, lymphocytes and multinucleate foreign body type of giant cells on haematoxylin and eosin [H and E] stain. The centre of many granulomas showed the characteristic small thick walled brown sclerotic/ medlar bodies(Figure -3).

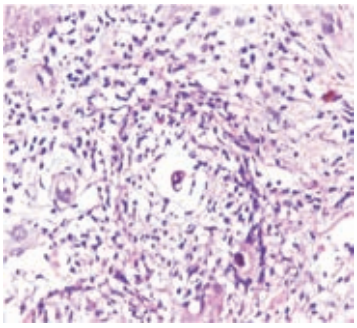

Figure 3: Haematoxylin &Eosin stain smear showing Sclerotic bodies

Mid dermis and deeper dermis revealed per adnexal lymphocytic infiltrates. The blood culture investigation isolated the skin commensal *Coagulase negatives taphylococcus*(CONS) while mycobacterial culture was negative for acid fast bacilli (AFB).

For the second case, histopathological examination showed epidermis with hyperkeratosis, acanthosis and papillomatosis along with collections of neutrophils within the papillae. Dermis showed dense lymphoplasmacytic and neutrophilic infiltrate with many foreign body giant cells showing sclerotic bodies and russell bodies.

In both cases, the tissue biopsy material was inoculated on Saboraud's Dextrose Agar without Actidione and Saboraud's Dextrose Agar with Actidione at 37ºC and 28ºC respectively for fungal culture. Slow growing, suede- like, greyish black heaped colonies with reverse black pigmentation were observed at 28ºC after 10 days(Figure-4).Microscopic Lacto phenol cotton blue tease mount staining of the colonies showed brown septate, branched hyphae.

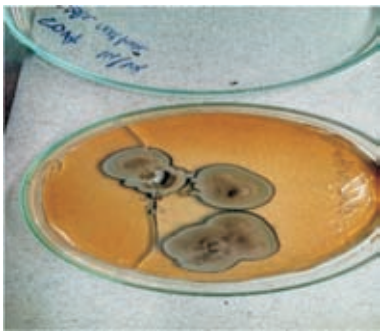

Figure 4: Colony Morphology of *Fonsecaeapedrosoi* on Saboraud's Dextrose Agar with Actidione at 28ºC

Riedel's slide culture technique, done to visualize the intact morphology of the fungus further revealed melanised erect conidiophores with blunt scattered denticles bearing pale brown smooth walled ellipsoidal conidia singly or in short chains with further branching.(Figure-5).The colony morphology and microscopy were consistent with *Fonsecaea pedrosoi*.

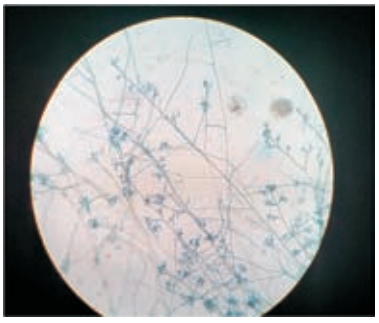

Figure 5: Lactophenol cotton blue mount of*Fonsecaeapedrosoi* under high power microscope (X400)

Both the patients were treated with local heat therapy and oral Itraconazole 200mg daily for 6 months with gradual healing of the lesions.

Discussion

Chromoblastomycosis(CBM)is a subcutaneous mycoses that was first reported in 1914 by Max Rudolph in Brazil[1]. In India, Thomas et.al first reported two cases from Assam in 1957.[2]Since then several case reports have been documented, particularly from sub–Himalayan belt, Western and Eastern coasts, Jammu and Kashmir, Bihar, Assam and South India.[3, 4] A recent study from Kerala[2], has reported a series of 35 cases of chromoblastomycosis with Fonsacaea pedrosoi as commonest isolated pathogen similar to our case reports. Five species of saprophytic fungi found in soil, water and decomposing organic matter namely Fonsecae pedrosoi, Phialophora verrucosa, Cladophialophora carrionii, Exophiala jeanselmei and Rhinocladiella aquaspersaare the etiological agents of chromoblastomycosis. Recently, de Hoog et al [5]identified two new species of Fonsecaea complex, *F.monophora* and *F.nubica* apart from *F.pedrosoi* based on the ITS sequencing data

although they are morphologically indistinguishable. Specific environment may favour specific agents that may correlate with the geographic distribution of the disease.

Globally, CBM affects approximately 70% of the rural male agricultural workers aged between 30-50 years following trivial trauma[6]. Though usually noticed in exposed parts of the body without age and sex predilections, there are case reports involving other unusual body sites such as face, eyes, breast penile shaft, vulva, tonsil, pleural cavity, ileocecal region, laryngotracheal area.[4]Carrion et al classified its cutaneous manifestations as nodular, plaque type, tumoral, cicatricial and verrucous lesions.[7]In both our cases, erythematous plaque type of lesions were noted. More than one type of lesion may coexist in the same patient.Haematogenous dissemination, lymphatic spread due to secondary bacterial infections leading to elephantiasis and rarely squamous cell carcinoma are few other complications of Chromoblastomycosis.

Chromoblastomycosis lesions are polymorphic and must be differentiated from several other associated clinical conditions. In our study, the differential diagnosis that were considered are lupus vulgaris, basal cell carcinoma, discoid lupus erythematosus and tuberculous verrucosa cutis. Others include sporotrichosis, cutaneous leishmaniasis and atypical mycobacterial infection[8].With less awareness, poor clinical suspicion and absence of laboratory back up, patients are inappropriately diagnosed and administered antibiotics leading to development of resistance.

Due to the non-availability of serological tests to confirm chromoblastomycosis, the laboratory diagnosis of the disease is also challenging. Tissue reactions in chromoblastomycosis are nonspecific and the detection of sclerotic bodies (Synonyms- Copper Penny bodies or Medlar bodies) needs expertise. In our case, only one sclerotic body was detected in biopsy of the second case as opposed to the first case due to the strong suspicion of the pathologist in view of the tissue reactions. Culture is found to be positive in 72% of the cases studied, while sclerotic bodies have been observed in 84% of the cases reported by various authors from different regions. [4] In our case, positive sclerotic bodies and fungal cultures clinched the clinical diagnosis.

Though Potassium iodide is a cost effective treatment option for CBM, other therapeutic interventions include oral itraconazole (200-400mg),posaconazole, voriconazole, oral terbinafine (500-1000mg) daily for 6-12 months, curettage, electodesiccation, cryosurgery and surgical excision. The chemotherapeutic combination of itraconazole with terbinafine or cryosurgery is found to be more effective in treating actively progressive lesions. Prolonged heat therapy kills Fonsecaea pedrosoi at tolerable temperature. Both of our patients responded well to oral itraconazole and local heat therapy. Refractory chromoblastomycosis has also been treated with Photodynamic therapy using 5-Aminolevulinic acid (ALA) irradiation with a combination therapy of 200mg Voriconazole and 250mg Terbinafine[9]. Absence of standard treatment along with high rates of relapse justifies topical use of imiquimod either with or without concurrent oral antifungal therapy[10].

Conclusion

There seems to be a high incidence of Chromoblastomycosis due to the existence of favourable environmental conditions for the spread of the aetiological fungi in India. Our case reports indicate the need for a high index of clinical suspicion for chronic skin lesions in sun exposed parts of the body backed by diagnostic sclerotic bodies and a positive fungal culture to guide appropriate patient management and thereby to avoid under diagnosing this infection.

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PUSHPAGIRI MEDICAL JOURNAL

✪ CASE REPORT

Recurrent abdominal CSF pseudocysts: a rare complication of Ventriculo-peritoneal shunt

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Abstract

A rare case of multiple episodes of encysted abdominal CSF collections in a fourteen year old girl, is being reported. The patient had undergone ventriculo-peritoneal [VP] shunt placement at eleven months age for congenital obstructive hydrocephalus, and after a free disease interval of about 13 years, developed recurrent abdominal CSF pseudocysts. The condition required six USG guided aspirations, exteriorization of shunt and a revision in the side of VP shunt placement. In spite of all these, the abdominal complaints persisted, along with recurrent symptoms of shunt malfunction and seizures. So ultimately a ventriculo-pleural shunt was placed. Phenytoin sodium and Levipil were prescribed for seizure control, and she went in for phenytoin toxicity as well. In spite of all these issues the candidate is reasonably good academically, and is on regular follow up.

Keywords: Ventriculo-peritoneal shunt, encysted CSF collection, abdominal CSF pseudocyst, ventriculo-pleural shunt, hydrocephalus.

Introduction

Hydrocephalus arising out of multiple aetiologies are managed primarily by VP shunts. It became widely performed round the world in the second half of the 20th century, on developing appropriate materials and shunting techniques. This is generally preferred, being safe, easily performed and less time consuming, and has lower life threatening risks from potential infections. The frequent abdominal complications include distal catheter migration, peritonitis, abscess formation, CSF pseudocysts in abdomen and CSF ascites.

We present a rare case of recurrent abdominal pseudocysts, encountered after a free-disease-interval of thirteen years of the shunt procedure.

Case presentation

The patient, presently a 14 year old girl, is the second of twins born of non-consanguinous marriage, delivered by emergency LSCS at 32 weeks [birth weight 1.3 kg]. She had neonatal jaundice [phototherapy given], and was discharged, healthy, on the 30th postnatal day. By eleven months of age ventriculo-peritoneal shunt was done for congenital obstructive hydrocephalus. She had considerable delay in developmental mile stones, but has reasonable performance at school. She was being taken care of by grandparents, owing to maternal expiry at an early age.

The current sequence of problems occurred over a period of five months. It started as abdominal pain and vomiting, and clinically presented as a soft, tender, cystic mass in the left hypochondrium, extending to the lumbar region [Fig. 1].

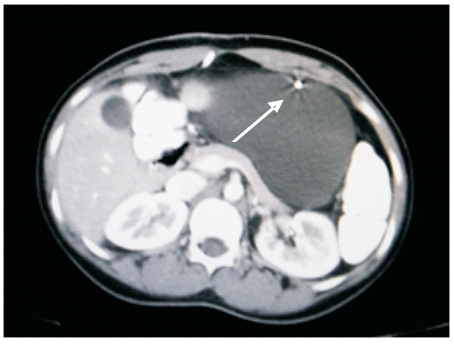

Fig. 1: Abdominal CSF pseudocyst showing the catheter in situ (arrow)

It was diagnosed radiologically as encysted CSF collection in the peritoneal cavity along the shunt tube, and confirmed by ultrasound studies as transonic cystic mass, with peritoneal end of the catheter within the cyst. USG guided aspiration had to be done twice in an interval of five days, and she was discharged.

A month later the symptoms recurred, and aspiration was done twice, with an interval of eight days. After two days of the second aspiration ligation of the tube was done, and she had multiple episodes of seizures and headache, proving her shunt dependence. Peritoneal catheter was exteriorized and connected to sealed drainage system, and seizures were managed using Phenytoin sodium and Levetiracetam.

Then the patient underwent left-sided VP shunt, and the existing right sided shunt was removed. She was discharged with symptomatic improvement, but after three weeks of discharge, again she was admitted with abdominal pain. The CSF pseudocyst had reappeared, and aspiration was done under USG guidance. Since the shunt was working well she was then discharged, only to be admitted after four days with abdominal pain, and aspiration was done again.

There was no option other than to convert the functioning shunt to a ventriculo-pleural shunt, with commendable clinical improvement. She was discharged with shunt in the right pleural cavity [Fig. 2], and seems getting on well.

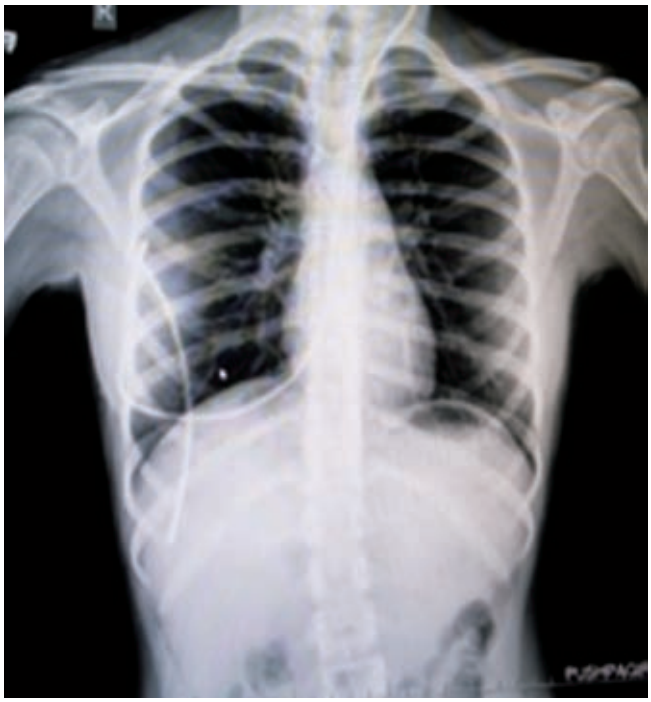

Fig. 2: Ventriculo-pleural shunt in the right pleural cavity

All the aspirates obtained were micro-biologically negative. Features of intestinal obstruction were never observed.

After eight weeks of symptom free interval the patient presented to the OPD with blurring of vision, ataxia, unsteady gait, and a tendency to fall. She was diagnosed as having either phenytoin induced ataxia or remote symptomatic epilepsy. Eptoin was discontinued and she was maintained on Levipil and supportive measures. On symptomatic improvement she was discharged and is being followed up.

Discussion

Abdominal problems represent a sizeable part of complications associated with VP shunts. Conditions like appendicitis and gynaecological disorders could specifically influence the shunt. Hernia, hydrocele, peritoneal pseudocysts, lost distal catheter, bowel perforation etc., could be disturbances provoked by presence of the shunt. Incompatibility between peritoneum and shunt can cause problems like ascites.

Griffith R Harsh first described a peri-umbilical CSF pseudocyst in the year 1954[1]. While doing VP shunt, rather than entering the peritoneal cavity directly he utilized the fimbria of the fallopian tube.

According to Florian Popa *et al,* the free disease interval, *i.e.,* the time period between the VP shunt surgery and symptoms of abdominal complications, is short in conditions like peritoneal irritation syndrome and abscesses [comes to days], and longer in ascites and CSF pseudocysts [from months to many years][2]. This interval was quite long, around 13 years, in this reporting case.

In our patient, multiple episodes of shunt malfunction were encountered repeatedly over a short period of time. This conforms to Rajeev Kariyattil *et al,* who observe that shunt malfunction is the most common mode of presentation in 60% of patients with abdominal CSF pseudo-cysts[3]. According to them, culture proven infection, abdominal surgery and shunt revisions seem frequent in pseudocysts. However a positive culture was never obtained from the aspirates in our patient.

Florian Popa *et al,* in a study on laparoscopic treatment of abdominal complications noted that diffuse abdominal pain was the most common symptom, seen in eleven out of the seventeen cases studied, and a palpable mass was present only in two cases[2]. They also noted that almost all patients presented elevated ICP.

Arunbabu BS and team observe that abdominal CSF pseudocyst may present with features of shunt obstruction, progressive abdominal distension or intestinal obstruction, with or without raised ICT. Predisposing factors include low grade shunt infection, chronic inflammation, multiple shunt revisions, increased CSF protein content, peritoneal adhesions, CSF malabsorption secondary to subclinical peritonitis, silicon allergy, etc. They considered cysts of mesentery and omentum, abdominal abscesses, ascites, etc.,as the differential diagnoses of encysted effusion[4].

In a study of twelve cases, Gaskill *et al,* state that the pathophysiology of pseudocysts is still unclear. Predisposing factors suggested by them include shunt infections with microaerophilic or anaerobic bacteria, low grade sepsis, mute clinical peritonitis, iterative shunt revisions, history of abdominal surgeries, hyperproteinorrhachia, impaired CSF absorption and allergy to catheter.

They also observe that peritoneal response to subclinical shunt infection could be isolation of the distal catheter by fibrous tissue, forming pseudocysts, along with adjacent viscera[5].

Adegbite AB and Khan M agree with the above authors in noting that these pseudocysts represent a self-limiting nature of the infection[6]. They also observe that if the histopathology of cystic wall shows fibrous tissue without epithelial lining, it proves that pseudocyst is secondary to a local inflammatory response. Florian Popa and colleagues note that a prolonged contact of CSF with the peritoneum by itself could be an irritant, even without any infection[2]. This could account for the extensive adhesions noted in the peritoneal cavity.

Infections are the most frequent cause of shunt dysfunction, occurring in 0.17 to 30% of shunted patients, observe Sciubba DM *et al,* in a study with antibiotic impregnated shunt catheters, intended to reduce the incidence of shunt infections[7]. Baird C and team in their study on late shunt infections suggest that early infections are usually due to contamination during surgery, and late infections occurring after nine months from shunt insertion are usually seeded from an abdominal site[8].

In a report on three cases of pseudocysts following VP shunt for obstruction due to TB meningitis, Ghritlaharey Rajendra K *et al,* suggest that cyto-biochemical examination and culture of the aspirated fluid need to be mandatory to rule out any additional pathology[9].

While considering the management of abdominal pseudocysts, Gaskill *et al,* observe that cysts get absorbed spontaneously without excision or aspiration if the CSF flowis diverted, in cases devoid of infection[5]. On complete reabsorbtion, the peritoneal cavity could be used for re-shunting. According to them the standard treatment of pseudocyst without signs of infection, comprises removal of distal catheter and insertion of a new one in another location, with or without resection of the cyst wall.

It was observed by Florian Popa *et al,* that the specific treatment of shunt infection mandates external ventricular drainage, antibiotics and shunt re-integration[2]. Ghritlaharey and colleagues claim good results with cyst excision, adhesiolysis and relocation of the catheter's end in the right suprahepatic space[9]. To ensure complete asepsis Bayston R recommend intraventricular antibiotics as well, for infected pseudocysts[10].

Florian Popa and team are of the opinion that ventriculo-pleural shunt is not a good option in abdominal pseudocysts, as pleura is also a mesothelial structure, and hence ventriculo-pleural shunt could result in hydrothorax[2]. They feel the best option for such patients is a ventriculo-cardiac shunt placement.

In a comparative study on ventriculo-atrial and ventriculo-pleural shunts by Robert *et al.,* it was observed that VA shunts may require distal revisions mainly due to haematological complications such as thrombus formation on the distal catheter, jugular thrombosis, or vena cava thrombosis[11]. VA shunts were primarily used by them for patients with a history of abdominal surgery, ventriculo-pleural shunt infection, or increased intraabdominal pressure due to obesity. We agree with their observation, and prefer ventriculo-pleural shunt in cases which necessitate removal of ventriculo-peritoneal shunts. Complications that could unfortunately result from a ventriculo-atrial shunt could pose a graver risk to the patient. Hence we are of the opinion that ventriculo-cardiac shunts may be reserved for patients who are not able to cope up with either ventriculo-peritoneal or ventriculo-pleural shunts.

Conclusion

Abdominal CSF pseudocysts are rare complications of ventriculo-peritoneal shunts. It is a relatively benign condition, and the cyst formation usually can be dealt with minimum surgical interference. Recurrent pseudocyst formation and shunt malfunctioncan finally be dealt with by ventriculo-pleural shunt, and if that too fails, ventriculo-atrial shunt. Frequent lifetime follow up is essential for all such patients.

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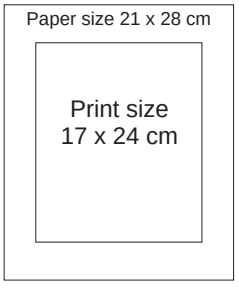

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