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Dear Friends,

Time is, as we all know, a continuum; punctuated by days, months and years if we consider the calendar. We are reminded of time passing by through these milestones, like now we are gliding into 2017 through an end of the year celebration of an eventful 2016. But when we look back into the years gone by we remember those not by the routine activities that we did during the years, but by the achievements we had. For a scientifically inclined organization like ours, the scientific achievements and the translation of the same into meaningful patient outcomes make a year memorable. And we are fortunate to have such an immensely talented group of people at SRL that we remember each of the years gone by through our achievements. And Pulse is a chronicle of the same. It was always meant to be that way.

In this issue we have an In Focus article on a rare entity: Systemic Reactive Plasmacytosis authored by Dr Subhra Dhar from Kolkata on a case from Aizawl. We also eight more case reports authored by scientific staff of SRL from various laboratories across India. Many of these articles are written in association with clinicians, signifying the involvement of our clinician colleagues in making the reports as medically informative as it could be. We have cases covering microbiological, biochemical to histopathological aspects of diseases-a true representation of laboratory medicine.

Also, do not forget to look at the highlights of our scientific achievements of the past 6 months, and to send answers to our picture puzzle.

With the tremendous enthusiasm of our internal scientific team and the continued patronage of our clinician colleagues, Pulse will continue to express itself in the language of clinical diagnostics.

I wish you a bright, successful and healthy 2017 ahead.

Thank you. God bless.

Happy Reading

Dr. B. R. Das
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**Picture Puzzle: Identify the Disease**

Highlights of Our Scientific Achievements in the Last 6 Months
Primary cutaneous plasmacytosis is a rare cutaneous disorder with extensive cutaneous plaques and papules mainly on the trunk and face. Cases have mostly been documented from Japan.

We present here the first documented case of cutaneous plasmacytosis from India of mongolian descent. The patient had extensive maculo-papular violaceous coloured plaques distributed on the face, axilla, trunk and lower extremities. Initial and repeat skin biopsy revealed dense perivascular and periadnexal mature plasma cells. Patient also had systemic involvement in the form of lymphadenopathy and renal disease. Serum protein electrophoresis did not reveal any M band and the Bence Jones protein was negative in urine. The patient also had multiple superficial lymph nodes and a biopsy from the cervical lymph node showed effacement of normal nodal architecture by sheets of plasma cells.

Immunohistochemistry was done from both skin and lymph node biopsies. The kappa and lambda light chains were not restricted there by proving the polyclonal nature of the plasma cells.

A skin biopsy was performed and initial blood tests were ordered. Her Hemoglobin was found to be 7.3 gm/dl and the ESR was 150/hr. The histopathology examination of the skin biopsy revealed the following: The epidermis was unremarkable. The dermis shows moderately dense aggregates of plasma cells in the superficial and deep perivascular areas (Fig2). These were admixed with variable number of lymphocytes and histiocytes.

A peripheral smear examined revealed extensive rouleaux formation. Other biochemical parameters were as follows - BUN: 26.8 mg/dl, Creatinine 3.4 mg/dl, total protein was 12.6 g/dl, albumin was 2.6 gm/dl, total urinary protein was 15931 mg/dl, LDH was 361 U/L. Serum total IgA was 41 g/dl.

Serum protein electrophoresis did not reveal any M band and the Bence Jones protein was negative in urine.

The patient also had multiple superficial lymph nodes and a biopsy from the cervical lymph node showed effacement of normal nodal architecture by sheets of plasma cells (Fig 3).

Immunohistochemistry was done for kappa and lambda light chains to rule out monoclonality of plasma cells from the lymph node biopsy. The kappa and lambda light chains were not restricted, there by proving the polyclonal nature of the plasma cells(Fig 4).

**In Focus**

Cutaneous and Systemic Reactive Plasmacytosis: A Rare Entity with Unique Presentation

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Central Reference Lab; SRL Mumbai

Summary
Primary cutaneous plasmacytosis is a rare cutaneous disorder with extensive cutaneous plaques and papules mainly on the trunk and face. This entity is thought to be a reactive process of unknown etiology. The skin lesions may be associated with variable extracutaneous involvement. Cases have mostly been documented from Japan.

We present here the first documented case of cutaneous plasmacytosis from India of mongolian descent. The patient had extensive maculo-papular violaceous coloured plaques distributed on the face, axilla, trunk and lower extremities. Initial and repeat skin biopsy revealed dense perivascular and periadnexal mature plasma cells. Patient also had systemic involvement in the form of lymphadenopathy and renal disease. Serum protein electrophoresis did not reveal any M band and the Bence Jones protein was negative in urine. The patient also had multiple superficial lymph nodes and a biopsy from the cervical lymph node showed effacement of normal nodal architecture by sheets of plasma cells.

Immunohistochemistry was done from both skin and lymph node biopsies. The kappa and lambda light chains were not restricted there by proving the polyclonal nature of the plasma cells.

Introduction
Primary cutaneous plasmacytosis is a rare cutaneous disorder with extensive cutaneous plaques/papules mainly on the trunk and face. This entity is thought to be a reactive process of unknown etiology. The skin lesions may be associated with variable extracutaneous involvement. Cases have mostly been documented from Japan.

We present here the first documented case of cutaneous and systemic plasmacytosis from India in a 53-year-old female of Mongolian descent.

Case Report
A 50-year-old female from Mizoram (north eastern part of India) and of Mongolian ethnicity presented with multiple violaceous plaque lesions of variable size and shapes all over the body, predominantly over trunk, face and neck. Examination revealed reddish brown to purple colored plaques of sizes varying from 3-6 cm in diameter. The shapes were variable with circular, elongated, annular, and arciform lesions, coalescing at places to form reticulated patches (Fig1). Lesions were found predominantly over the trunk, face & neck, axillae and back. No hepatosplenomegaly was found. Patient was found to be anaemic.

Fig 1 Fig 2 Fig 3

Fig 4
Discussion
Cutaneous and systemic plasmacytosis is a rare reactive lympho-plasmacytic disorder. It was first described in Asia by Yashiro in 1976 who described it as a type of plasmacytosis. Kitamura further characterised it in 1980. Since then it has been described in Asian patients, specially amongst the Japanese. As most patients of cutaneous plasmacytosis are found to have some form of systemic symptoms, some authors prefer the term “Cutaneous and systemic plasmacytosis” to account for the extracutaneous involvement.6

The cutaneous plasma cell infiltrate are polyclonal and the most common extracutaneous involvement is lymphadenopathy. Our patient too had presented with skin lesions and lymphadenopathy. In the Indian setting, we did not find any literature that fully fits into this entity and this will probably be the first reported case of cutaneous and systemic reactive plasmacytosis.

Clinical manifestations include fever, anaemia and hypergammaglobulinaemia. The cutaneous presentation is very characteristic comprising of multiple reddish-brown infiltrated macules, plaques and nodules, chiefly on the trunk.7

The etiopathogenesis is poorly understood. Dysregulated production of IL-6 which is a cytokine that induces B-cell proliferation and differentiation to plasma cells which in turn causes immunoglobulin secretion and angiogenesis is thought to play a role. Genetic polymorphism in the IL-6 gene may possibly explain the propensity of the disease to manifest in particular geographic regions.8,9

Histologic features include a moderately dense infiltrate of mature plasma cells in perivascular areas of both superficial and deep dermis. Admixture of lymphocytes may be present and lymphoid follicles with reactive germinal centres can also be seen.

Light chain restriction is absent which goes with the polyclonal nature of the plasma cell infiltrate10. Approximately 58% of cases of cutaneous plasmacytosis have associated lymphadenopathy which forms the commonest extracutaneous manifestation. Liver, spleen, lungs and kidney are less frequently affected organs.1,12

Our patient had no history of recurrent infections, chronic inflammatory disease or neoplasm and tested negative for autoimmune markers. Most cases of plasmacytosis run a benign indolent course without spontaneous remissions. There are reports of plasmacytosis developing malignant lymphoma. However the rate of transformation to malignant neoplasm is quite low in Asian literature.13 Cases are recalcitrant to treatment. Treatment modalities like topical PUVA, radiotherapy have been tried with variable outcome13.

References

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An Interesting Fungal Isolate in a Renal Transplant Patient

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Summary
Transplant patients are predisposed to many opportunistic infections due to immunosuppressive therapy. Fusarium is a fungal pathogen commonly seen in immunosuppressed lung transplant patients associated with high mortality. Fusarium species are filamentous fungi found in soil and air worldwide, especially in tropical/temperate regions. The main portal of entry for Fusarium species is the airway.

This is an interesting case report of a renal transplant patient with Fusarium infection treated successfully. The patient hailing from Allahabad and a farmer by profession presented with acute onset dyspnoea, fever and non-productive cough. BAL fluid sent for investigations showed presence of septate fungal hyphal elements on KOH Mount. Culture yielded a pure growth of a rapidly growing mycelial fungus, with a salmon pink colour. LCB mount showed the presence of typical sickle-shaped macroconidia. Patient was treated with Amphotericin B and Voriconazole with complete clearance of fungal infection.

Background
Fusarium infections are commonly reported in lung transplant cases and patients with haematological malignancies having a fatal outcome. This was an interesting and rather rare isolate obtained in a renal transplant patient 3 years post transplant with a favourable outcome and complete recovery. Timely diagnosis aided management of the infection.

Case Presentation
- 48 years male post renal transplant presented with dyspnoea, fever and cough of acute onset and rapid progression, 3 years post transplant surgery.
- Patient had no co-morbidities and was on immunosuppressants.
- No family history of diabetes/respiratory illnesses.

 Investigations
On investigation, he was detected to have anaemia (Hb 9.8g%), WBC Count of 4,500 DLC (N89 L07 E01 M03 B0) and deranged renal parameters. Chest X Ray showed right lobar pneumonia. BAL fluid from right upper and lower lobe was sent for microbiological investigations. KOH Mount revealed the presence of septate fungal hyphal elements with conidia. Culture yielded rapidly growing mycelial filamentous fungus in 72 hours which gradually developed a salmon pink hue. Lactophenol Cotton Blue (LCB) Mount from culture confirmed the presence of characteristic macroconidia sickle-shaped with septae, consistent with Fusarium species.

Differential Diagnosis
Clinical differential diagnosis included fungal/bacterial pneumonia.

Treatment
Patient was treated with Amphotericin B and Voriconazole with good response to therapy.

Outcome
Antifungal therapy resulted in a favourable outcome with complete clearance of the fungal infection on follow up after 5 months.

Discussion
The immunoprotective mechanisms of the transplanted lungs are impaired, increasing vulnerability to Fusarium infection occurring in up to 32% of lung transplant patients. Lung transplant patients commonly present with Fusarium infections which are acquired by aerosols and have a high mortality of nearly 67%. Fusarium infections are reported commonly post-lung transplant but relatively rare after renal transplant with very few documented case reports in medical literature. Early and timely diagnosis plays a vital role in determining treatment outcomes.

References
Summary
A 24 yrs female presented with the history of fever, loss of appetite, vomiting, pharyngitis and dark coloured urine since 1 week. On physical examination there was jaundice, tonsillar enlargement with whitish yellow membrane covering tonsils and cervical lymphadenopathy. US abdomen revealed hepatosplenomegaly. Routine blood tests detected abnormalities in liver function tests (Total Bilirubin, SGOT, SGPT all were raised). Serological tests showed negative results for Viral Hepatitis. Throat swab culture was positive for Staphylococcus Aureus while was negative for C. Diptheriae and β hemolytic streptococci. Initially TLC was 6300/cumm with 30% lymphocytes which rose to 16000/cumm in 6 days. Peripheral Blood film showed 73% lymphocytes with atypical lymphocytes constituting 24% of total lymphocytes. These lymphocytes had appearance of Downey cells. Immediately physician was called for clinical history, as history was correlating with presumptive diagnosis, so patient was advised to get serological tests of EBV done. The subsequent tests showed increased levels of EBV (VCA) IgM antibodies and EBV (EA) IgG antibodies in the serum, with the comments that it could be Early Primary EBV infection. After diagnosis patient was on symptomatic and antibiotic treatment and completely recovered in 45 days.

Background
Infectious Mononucleosis (IM) is a benign lymphoproliferative disease caused by Epstein Barr Virus. It is usually a self limiting disease but occasionally can cause complications. Its diagnosis requires high level of clinical suspicion supported by the laboratory findings. Careful examination of Peripheral Blood Film (PBF) by a pathologist is important, as presence of Downey cells in appropriate clinical setting can help to clinch diagnosis and prevent unnecessary treatment (injudicious use of antibiotics), as this disease requires only symptomatic and supportive management. However patient needs antibiotic treatment in case of co-infection as was in this case. Therefore throat swab culture is very important to diagnose any co-infection. We are reporting a rare case of Infectious Mononucleosis and Staphylococcus Aureus co-infection causing acute hepatitis in young female.

Case Presentation
A 24 year female presented with history of fever, pharyngitis, loss of appetite, vomiting and dark coloured urine since 1 week. Physical examination of the patient showed presence of jaundice, tonsillar enlargement with whitish yellow membrane covering the tonsils and cervical lymphadenopathy. USG Abdomen also revealed mild hepatosplenomegaly.

Investigations
Routine blood tests showed deranged Liver Function. Total Bilirubin- 3.04 mg/dl, Direct Bilirubin- 2.11 mg/dl, SGOT-135 U/L, SGPT-213U/L Serological tests revealed negative results for various viral hepatits markers ( Hepatitis E IgM, Hepatitis A IgM, Hepatitis B core IgM, Hepatitis B surface antigen, Hepatitis C antibodies). Throat Swab Culture & Sensitivity report was found to be positive for Staphylococcus Aureus. Total Leukocyte Count (TLC) was initially low at 6300/ mm³ with 30% lymphocytosis. Within 6 days, TLC rose to 16,100/ mm³. Peripheral blood film examination showed increased lymphocyte count to 73% with presence of atypical lymphocytes (constituting 24 % of total lymphocytes). These atypical lymphocytes have appearance of downey cells. These cells were pleomorphic with size ranging from 1.5 to 2 times the size of mature lymphocytes. Some cells had indented nuclei with clumped chromatin and scanty cytoplasm while others cells had a round to oval nucleus,
moderately clumped chromatin, absent or indistinct nucleoli and abundant grey-blue cytoplasm. EBV (VCA) Ig M- 12.62U/ml, EBV (VCA) Ig G- 7.58 U/ml, EBV(EA) Ig G- 77.78U/ml, EBV(NA) Ig G- 3.09U/ml. Primary EBV infection.

Pharyngitis caused by IM must be differentiated from acute Streptococcal Pharyngitis, diptheria and acute viral pharyngitis of other types. Classic triad of IM is seen in 80% of cases as fever, tonsillopharyngitis and Lymphadenopathy. Therefore confirmation through special Laboratory tests is required to establish diagnosis of IM.

Hepatitis caused by other viral etiologies like hepatitis A, B, C, E, CMV, VZ virus and HSV. Hepatomegaly with hepatitis is a complication of IM. Hence there is need to rule out other causes of hepatitis by various serological tests.

Outcome and Follow Up
The patient was recommended bed rest, to refrain from physical activity, drink plenty of fluids, NSAIDS to control pain and antibiotic treatment for Staphlococcus aureus infection. She completely recovered in one and half month.

Discussion
Infectious Mononucleosis is caused by Epstein Barr Virus. EBV is classically associated with Burkitt’s Lymphoma and Nasopharyngeal carcinoma and is also associated with many other human malignant and nonmalignant disorders. Modes of transmission of disease are intimate contact with oropharyngeal secretions, blood transfusion and organ transplantation. Primary infection is self limited and is most frequently effects adolescents and young adults. It is characterized by the clinical triad of fever, pharyngitis and generalized lymphadenopathy, along with atypical lymphocytosis.

Atypical lymphocytosis is defined as an absolute lymphocytosis with more than 50% lymphocytes and 10% or more atypical forms in the differential count. Atypical lymphocytes are large mononuclear cells and are highly pleomorphic. They are classified as Downey cells type 1, 2 & 3. Type 1, which are small, have indented or lobulated nuclei with clumped chromatin and scanty cytoplasm, Type 2 which have a round to oval nucleus, moderately clumped chromatin, absent or indistinct nucleoli and abundant grey-blue cytoplasm and Type 3 which are larger with round to oval nuclei having moderately dispersed chromatin, one or more prominent nucleoli and is moderately abundant cytoplasm which stains deeply basophilic.

Other clinical features are hepatomegaly (10-30%), splenomegaly (50%), skin rash (5%). Some cases have eyelid edema without renal involvement. (1) Diagnosis of IM is difficult if not impossible particularly when there is high level of viral upper respiratory infection and group A streptococcal pharyngitis in community and requires high level of suspicion and supporting laboratory data. IM and group A streptococcal pharyngitis co-infection has been described by many studies with prevalence between 3-30%. (2) As Staphylococcus Aureus is known to cause mainly skin infections and S. Aureus co-infection is relatively uncommon. We have reported a rare case of IM and S. Aureus coinfection. Similar rare case was also reported by Chad E. Richmond et al. (2) Therefore throat swab culture is very important as any co-infection if diagnosed in patients with IM needs to be treated with antibiotics while in its absence only supportive treatment is required. Moreover we need to take care while prescribing antibiotics, as ampicillin and amoxicillin needs to be avoided because they often cause a severe rash in 90% to 100% of patients diagnosed with IM. (1) Mild to moderate elevations of direct bilirubin and aminotransferases is noted in 80% patients of IM and jaundice is uncommon, seen in 5%. (3). Our patient also had moderate elevation of SGOT, SGPT and mild elevation of bilirubin. Acute hepatitis due to EBV is rare, most of patients recover completely without specific therapy as was our case. Similar cases have been reported in literature.(4,5) Therefore we should consider infectious mononucleosis hepatitis in the young patients presenting with liver abnormality, fever, pharyngitis and lymphadenopathy. IM usually resolves with supportive management over a period of weeks to months and unusual clinical patterns and complications are rare.

Learning points
Pathologists should note that viral infections usually present with leucopenia and lymphocytosis while EBV infection present with lymphocytic leucocytosis. In such case, identification of downey cells and correlation with clinical history can help to clinch diagnosis and further guiding serological tests required, as was done in this case. Diagnostic criteria of IM are fever, pharyngitis and lymphadenopathy with demonstration of atypical lymphocytosis and confirmation by a positive serology. Atypical lymphocytosis is defined as
Triadelphia Pulvinata: A Rare Invasive Fungal Infection

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Summary
Invasive fungal infections are a menace in the immunocompromised patients. While some fungi are well defined to cause invasive infections in these hosts, a few are either unknown or often missed. We report a case of Triadelphia pulvinata, a rare dematiaceous fungi causing invasive fungal infection in a diabetic female. The diagnosis was made by combining the phenotypic findings and genome sequencing. There are only 4 case reports in literature and this is probably the first from India.

Case discussion
A 68 year old Iraqi female was admitted to our facility in September 2016 with chief complaints of lower back ache and weight loss since the past 3 months. She also had complains of weakness and low grade fever since the same time. Her significant past history was diabetes for the last 15 years. She had no other signs or symptoms. She was then evaluated for the same and her Complete blood counts, thyroid profile and viral markers were sent. Her CBC revealed decreased Red blood cell count (3.4mil/L), rest of her parameters was normal. Her thyroid profile was also normal. All her viral markers including HIV, HBV and HCV were non reactive.

Investigations done
1. MRI and PET CT were done and were suggestive of multiple D2- D7 enhancing lesions; likely malignant with a possibility of a chronic disease like Brucellosis
2. Hb was 10.5gm/dl, normocytic normochromic anaemia.
3. The patient was evaluated for malignancy but the histopathology report ruled it out. Further the bone marrow cultures were evaluated for Brucellosis but was negative.

With these reports, a bone marrow aspiration was done to find out the cause of her anemia. The marrow was sent to Histopathological examination and Aerobic cultures. The Histopath report was suggestive of inflammatory granulation tissue.

The marrow was inoculated into BacTAlert bottles and incubated for 21 days. The bottles gave a positive signal on day 6 of inoculation and smears suggested branched filamentous hyphae. These were subculutured onto Sabouraud dextrose agar plates, which grew more than 30 small colonies that developed a waxy texture with a

References:

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brownish color and a brown color on the underside of the culture plate as well. The colonies subsequently developed white velvety borders after around 2 weeks of incubation.

Lactophenol Cotton blue mounts were done form various parts of the colony. Brown, one-septate, cylindrical conidia, rounded at both ends and measuring approximately 3 to 3.5 by 9 to 10 μm, were formed throughout the culture (Fig. 1). Also present were long (40- to 60-μm), thin, hyaline, multisepatate conidia (Fig. 2). These characteristics are consistent with those previously reported in the literature for *Triadelphia pulvinata*.

Serum samples were screened with the galactomannan assay during the hospital stay. The serum galactomannan assay came positive ~ 0.54 (reference cutoff of 0.5); The fungal isolate from the bone marrow was sent to the SRL Reference Lab for Sequencing, where it was identified as *Triadelphia pulvinata*.

The patient was then started on Liposomal Amphotericin B 5mg/kg body weight as per the IDSA guidelines 2016. Paired blood cultures were also sent from this patient which were sterile even after 21 days of culture.

The isolate has been sent to National Centre for Cultivation of Pathogenic Fungi (NCCPF) for Anti Fungal Susceptibility testing (AFST), PGIMER Chandigarh.

The patient has been afebrile for over a month now.

This is the first case of invasive disease due to *Triadelphia pulvinata*, described from India. It is a rare dematiaceous hyphomycete first described by Maggi et al in 1978. The first case was following its isolation from the grass *Loudetia simplex* in the Ivory Coast (3). Al Hedaithy and Leathers isolated the fungus in Saudi Arabia from soils contaminated with bat guano (2), and Al Hedaithy reported the first and only case of human infection due to *Triadelphia pulvinata* (1).

Accurate and timely diagnosis is important in initiating appropriate therapy. Genotypic detection methods are critical in making such rare diagnosis.

References


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Malignant mesothelioma of spermatic cord on fine needle aspiration cytology—A rare tumor

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Abstract
Malignant Mesothelioma is an uncommon aggressive neoplasm that develops from cells of the mesothelium that covers many internal organs in the body. Very few cases were reported and to the best of our knowledge this is the first case diagnosed on FNAC. A 64-year-old man presented with a 3-month history of an enlarging mass in the right inguinal area and right side hydrocele. Patient was dyspnoeic when presented in emergency department and chest X-Ray showed right pleural effusion. Ultrasound Guided aspiration from inguinal mass was done. Aspiration smears were very cellular comprising of pleomorphic, polygonal and spindle shaped cells in tubules, forming papillae, flat sheets, balls and dispersed singly. Cells had abundant cytoplasm, central to eccentric hyperchromatic nucleus with prominent nucleoli. Some giant cells with intracytoplasmic inclusions were also seen. Cytomorphological features were of Malignant Mesothelioma with a differential of atypical reactive mesothelial mass lesion. Malignant mesothelioma needs to be considered in differential of inguinal swelling.

Introduction
Malignant mesothelioma (MM) is an uncommon aggressive neoplasm that develops from cells of the mesothelium. The most common sites of MM include: pleura (75%), peritoneum (10-20%), pericardium (1%), and scrotum. MM of the paratesticular region is extraordinarily rare.[1] The purpose of this study was to report a rare case of spermatic cord MM on aspiration smears which was proven on Histopathology. To the best of our knowledge this is the first case diagnosed on FNAC.

Case Report
A 64-year-old man presented with a 3-month history of an enlarging, non reducible, non tender mass in the right inguinal region with right side hydrocele. Ultrasonography (USG), X-rays, computer tomography scan and positron emission tomography scan was done. USG revealed generalized thickening of right spermatic cord measuring 10 x 4.5 cm. Epididymis appeared to be free. Radiological differential were inflammatory lump or neoplastic swelling. Smears were markedly cellular comprising of pleomorphic polygonal and spindle shaped cells in tubules, forming papillae, flat sheets, balls and dispersed singly. Cells had moderate cytoplasm, central to eccentric hyperchromatic nucleus with prominent nucleoli. Some giant cells with intracytoplasmic inclusions were also seen. Cytomorphological features were of Malignant Mesothelioma with a differential of atypical reactive mesothelial mass lesion. [Figure 1] Total right Orchidectomy specimen along with spermatic cord was received for histopathology. On gross examination Sac measured 7 x 5 x 5 cm. Testis in the sac measured 4 x 2. 2 x 2 cm. Attached spermatic cord measured 10 cm in length and 4.5 cm in diameter. Cut section of cord was firm throughout with tan grey white and variegated appearance. HPE- Sections showed pleomorphic tumor involving the spermatic cord comprising of papillary fronds with fibrovascular cores covered by mesothelium. In other areas tumor was solid, tubulopapillary and trabecular with epithelioid cells in sheets, intermixed with spindle cell component and dense lymphocytic infiltrate. Mitosis was infrequent. The testis was spared. Tumor cells expressed Calratinine, D2-40, EMA, CK 5/6, CK 7 and did not express WT 1, CK 20, CEA, PAX - 8; confirming the diagnosis of spermatic cord malignant mesothelioma. [Figure 2]

Radiologically patient also had pleural thickening, pleural effusion and retroperitoneal lymphadenopathy. However, no biopsy was available from these sites.

Figure 1

a) MGG stained cellular smears show sheets of pleomorphic polygonal cells lying in sheets and scattered singly. 

b) MGG stained smears show papillae , flat sheets , balls and dispersed singly . Some cells show binucleation and few spindle cells.

c) PAP stained smears show cells lying in tubulopapillary arrangement.

d) MGG stained smears show cells have moderate to abundant amount of dense cytoplasm with vacuolation in some . Cells show peripheral condensation of cytoplasm. Nucleus is central to eccentric hyperchromatic with prominent nucleoli.
Figure 2

a) H&E stained show normal looking epididymis and tumor arranged in papillary fronds with fibrovascular cores covered by mesothelium with dense lymphocytic infiltrate.

b) H&E In areas tumor has solid, tubulopapillary and trabecular pattern with epithelioid cells in sheets.

c) Tumor cell express D2-40

d) Tumor cell express calretinin both cytoplasmic and nuclear positivity.

Malignant Mesothelioma of the tunica vaginalis is a rare tumor but second most common paratesticular malignancy. It usually presents as a bimodal age distribution with peaks in the third to fourth and sixth to eighth decades with generally a history of asbestos exposure. It is often associated with a hydrocoele. Grossly tumor may be solid or partially cystic with multiple nodules or diffuse thickening of the tunica vaginalis. Malignant mesothelioma can assume three basic histological forms epithelioid, sarcomatoid, or mixed (biphasic). Approximately 70% of mesotheliomas are predominantly epithelioid, 25% biphasic, and 5% predominantly sarcomatoid and very rarely well-differentiated papillary mesotheliomas which carry an improved prognosis. Tumor has papillary projections, tubuloalveolar structures and solid sheets of cells. Cells are round, cuboidal, epithelioid with eosinophilic cytoplasm with central vesicular nuclei and prominent nucleoli. Psammoma bodies may be seen in the papillary areas. On Immunohistochemistry tumor express Cytokeratin 5 and 6, EMA, calretinin (nuclear more than cytoplasmic), GLUT1, telomerase, p53 and vimentin. CEA and Leu-M1 are negative. On special stain Alcian blue is positive; PAS and mucicarmine are negative. Tumor cells on electron microscopy have long slender microvilli, tonofilaments, desmosomes, and perinuclear mitochondria.

Differential Diagnosis includes -Benign reactive Mesothelial Proliferation, Florid Atypical Mesothelial Hyperplasia and Adenocarcinoma. Benign Reactive Mesothelial Proliferation are seen in hernia sacs. They are small and solitary with simple papillary processes and minimal cytological atypia. Florid atypical mesothelial hyperplasia show cytological atypia, numerous mitoses and tubulopapillary architecture. There is no true invasion of stroma. Malignant mesothelioma of the tunica may represent an early manifestation of generalized mesothelioma of the peritoneum or pleura and behaves in an aggressive manner with frequent recurrence and metastases.

The diagnosis of mesothelioma depends on a constellation of findings, including a history of asbestos exposure, clinical signs and symptoms, radiographic findings, histopathologic features, Immunohistochemically and ultra structural studies. Radical excision is the primary therapy in localized disease. Chemotherapy and radiotherapy show only minimal effectiveness. Spermatic cord MM show recurrence rates of up to 57% within 2 years. In paratesticular MM 30% of patients die after a median survival of 24 months and age of the patient appears to be the most important prognostic factor.

Conclusion

Malignant mesothelioma arising from spermatic cord is very rare. It may be confused with infections or inflammatory processes or tumor. Radical excision is the primary therapy in localized disease. FNAC is useful minimally invasive technique to early diagnosis and management. Therefore it is important to recognize cytomorphicological, histopathological and Immunohistochemically features for early diagnosis.

References

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Summary

The goblet cell carcinoid (GCC), a rare tumor of the appendix, is a distinct entity from adenocarcinoma and carcinoid tumors. We present a case of GCC who presented with recurrent right iliac fossa abdominal pain. CT scan revealed appendicular mass with multiple lymph nodes in illeocaecal region. Right hemicolectomy was performed with clinical suspicion of malignancy. On histopathological examination, goblet cell carcinoid has distinct features and needs to be differentiated from signet ring cell adenocarcinoma. This distinction is important as it has an intermediate prognosis between carcinoid and adenocarcinoma with adenocarcinoma having a more aggressive clinical course. Differentiation between GCC and adenocarcinoma based on only morphology can pose a diagnostic challenge. In such cases Immunohistochemistry (IHC) might be helpful to differentiate. This tumor can clinically present as appendicitis hence a high index of suspicion and good histomorphological examination aided by IHC can help in early diagnosis and treatment.

Background

- Goblet cell carcinoid (GCC) of the appendix is a rare entity.
- Suspected appendicitis with or without mass requiring surgery: GCC should be considered as differential diagnosis.
- The diagnosis is essentially made by histomorphology based on which treatment protocol is decided as the prognosis of GCC is intermediate between carcinoids and appendiceal adenocarcinomas.

Case presentation

- A 43-year-old man admitted with a 24-h history of right iliac fossa abdominal pain associated with vomiting. Patient gives a history of such recurrent episodes since last one year. No history of weight loss or pyrexia was present.
- CT scan: multiple enlarged pericolic lymph nodes around the illeocaecal region with a possible mass around the appendicular region.
- Right hemicolectomy was performed with the clinical suspicion of malignancy.

Gross

- Right hemicolectomy: ileum measured 31 cm, colon 19 cm in length.
- Ileal mucosa- normal, multiple tiny nodules over the serosal surface.
- Attached appendix measured 8.5 cm in length, appeared thickened.
- Mesentery- multiple matted lymph nodes ranging in size from 0.5 cm to 1.4 cm in diameter.
- Colonic mucosa- normal.
- Forty three pericolic lymph nodes identified, largest measuring 1 cm in diameter.

Microscopy

- Infiltrating tumour composed of goblet cells in nests, having vacuolated cytoplasm with nucleus pushed to periphery forming signet ring cell appearance at places.
- The tumour is seen predominantly in the subepithelial region of appendix and is dissecting through muscularis into the serosa.
- No significant nuclear atypia or mitosis.
- The overlying mucosa is relatively spared.
- Adjacent ileum and colon show nests of tumour cells within muscularis along with extracellular pools of mucin.
- Lymphovascular emboli and perineural invasion are seen. Twelve out of forty three pericolic lymph nodes show metastasis with perinodal extension (12/43). Soft tissue deposits are also seen.

Differential diagnosis

1. Goblet cell carcinoid 2. Signet ring cell adenocarcinoma IHC was done to ascertain the true nature of the tumour.
- Neuroendocrine markers were patchy positive.
- Markers for adenocarcinoma were positive.
IHC
- Strong CEA, CDX-2 and CK positivity(CK19 positive in GCC)
- Neuroendocrine marker expression variable and present in up to 50% of cells-positive is focal and patchy, unlike in carcinoid, where it is strong and diffuse.

Discussion
- GCC accounts for less than 5% of primary tumors of the appendix. It is believed that GCC represents an amplicrinetumor.
- Primary appendiceal adenocarcinomas: accounting for 6% of all malignant tumors of appendix.
- The signet ring type of adenocarcinoma needs to be distinguished from GCC and metastatic Gastric carcinoma.
- The signet ring type adenocarcinoma: more extensive mucosal involvement and nuclear atypia, complex and irregular invasive pattern.
- It lacks features of neuroendocrine differentiation ultrastructurally and by IHC.
- The first description of a tumor distinct from both adenocarcinomas and carcinoids was made by Gagne et al. in 1960s.
- In 1974, Subbuswamy et al. first coined the term GCC in reporting 12 cases as the principal cell type morphologically resembled goblet cells.

Take Home Message
- GCC is a rare entity.
- After exclusion of metastasis, differentiation between GCC and Adenocarcinoma based on only morphology can pose a diagnostic challenge.
- It is important to distinguish because adenocarcinoma has a more aggressive clinical course.
- In those cases IHC might be helpful to differentiate.

References

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Contact lens induced keratitis by *Elizabethkingia meningoseptica*: A Case Report

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Summary

To report keratitis with *Elizabethkingia meningoseptica*, which occurred in a healthy patient after wearing contact lenses beyond expiry. A 21-year-old female patient visited an Eye hospital with ocular pain. This patient had a history of wearing soft contact lens for 8 months, for approximately 8 hours per day. Microbiological examinations were performed from contact lens & contact lens case. The culture results from contact lens & contact lens case were positive for *Elizabethkingia meningoseptica*. Thus, we could confirm that the direct cause of keratitis was contamination of the contact lens. After treatment, the corneal epithelial defect was completely healed, and a slight residual subepithelial corneal opacity was observed. We diagnosed keratitis with *Elizabethkingia meningoseptica* in a healthy young female wearing soft contact lens for 8 months, for approximately 8 hours per day. We conclude that *Elizabethkingia meningoseptica* should be considered a rare but potential pathogen for lens induced keratitis in healthy host.

Background

Contact lens-related microbial keratitis is rising and likely to cause severe, vision threatening infections. Corneal epithelial damage owing to hypoxia and minor trauma is equally important as bacterial adherence to the contact lens surface. Wearing soft contact lenses poses more risk than rigid one and sleeping with it is also major risk factor. Infection occurs due to poor lens hygiene.

*Elizabethkingia meningoseptica* is non-fermenting gram-negative bacillus with intrinsic resistance to many antibiotics.

Case Presentation

- A 21-year-old female visited an Eye hospital due to left ocular grittiness with history of wearing soft contact lenses for eight months, for approximately 8 hours per day.
- She had no medical history of ocular injury, surgery, or treatment with either ophthalmic or systemic medications.
- On initial examination, visual acuity was 6/6 in the right eye and 6/9 in the left eye. Slit lamp examination revealed hyperemia of the left bulbar conjunctiva, corneal epithelial defect sized 0.5 mm × 0.5 mm along with intra-stromal infiltration without neovascularisation. The lens, vitreous body and retina were all normal.

The patient was firstly examined at a Peripheral Centre, where anterior segment photography and corneal scraping was not performed.

After two days, contact lens & lens case was then sent for the bacteriological test. Patient was symptomatically better. The corneal epithelial defect was nearly healed and the corneal intra-stromal infiltration was also decreased significantly. (Fig.1)

Specimens were inoculated and cultured in Blood & McConkey agar. (Fig.2). *Elizabethkingia meningoseptica* was identified by using the VITEK 2 compact instrument (Biomerieux). *Elizabethkingia meningoseptica* were sensitive to fluoroquinolones, trimethoprim/sulfamethoxazole, but resistant to gentamycin, piperacillin/tazobactam and amikacin.

The patient was treated with unpreserved Moxifloxacine eye drop 0.3%; 2% homatropine three times a day; and 1% Carboxymethyl cellulose six times a day.

![Fig.1](image1.png) depicting the remarkable improvement in 2 days after treatment

![Fig.2](image2.png) (A) Multiple pale yellow pigmented colonies in dome-shaped cluster on MacConkey (B) Gram staining showed various sizes of gram-negative bacilli.

Treatment

The patient was treated with unpreserved Moxifloxacine eye drop 0.3%; 2% homatropine three times a day; and 1% Carboxymethyl cellulose six times a day.
Outcome & Follow up
The patient was continued Moxifloxacin (0.3%) and 1% Carboxymethylcellulose four times a day. Complete re-epithelialization of the lesion was observed on seventh day after treatment. After two weeks, the patient was being treated only with 1% Carboxymethylcellulose four times a day. Her final corrected visual acuity in the right eye was 6/6.

Discussion
Elizabethkingia meningoseptica is found in hospital settings & may cause pneumonia and sepsis in immunologically compromised and postoperative adults 1.

One case 1 of soft contact lens related keratitis with Elizabethkingia meningoseptica resemblance with our case has been reported. Similarities are young age group, healthy individual, history of prolong contact lens wear, epithelial erosion, intrastromal infiltration.

First case of keratitis in 14-year-old cosmetic contact lens user showed growth of E. meningosepticum and Delftia acidovorans. The infection resolved with corneal scar after 5 weeks of effective treatment 2.

2nd case-21 year old presented with bilateral simultaneous infectious keratitis secondary to contact lens wear. The cultures showed growth of Pseudomonas aeruginosa, Alkaligenes species and Flavobacterium meningosepticum 3.

3rd case - 45 year woman presented with keratitis following nonpenetrating eye trauma from a tree branch. Cultures showed growth of E. meningosepticum. Patient responded well to combination therapy 4.

In our case, Ocular infection with Elizabethkingia meningoseptica in an eye with no significant comorbidities. Microbiological examination shows growth of Elizabethkingia meningoseptica; this made it possible to ascertain that the contact lense was the direct cause of keratitis.

Learning Points
- Contact lens-induced corneal hypoxia raises the chance of corneal infection by jeopardizing epithelial integrity, affecting wound healing and increases binding of bacteria to corneal epithelial cells. Similarly, the use of contaminated saline solution, inappropriate management of the contact lenses or direct contact with contaminated water increases the risk of corneal infection. Thus, proper lens hygiene should be maintained to prevent corneal infection. Contact lens users need to wash their hands before handling their lenses, keep their lens cases clean at all times, replace their cases at regular intervals and replace their soft contact lenses at least every three months.
- Contact lens-induced keratitis with Elizabethkingia meningosepticawhich we are reporting is the second case report till today. It has got striking resemblance with the case which was published earlier with minimal difference in presentation, but significant difference in the antimicrobial sensitivity. Most importantly, we too found this infection in healthy individual with no underlying disease.
- Thus we strongly support that this microbe should be considered as potential pathogen for contact lens related keratitis and increasing resistance to the antimicrobial agents should also be kept in mind.

References:

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Ocular Rhinosporidiosis-a Case Report

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Summary
Rhinosporidiosis is a chronic and localized infection of the mucous membrane caused by Rhinosporidium seeberi. It is very common in hot tropical climates and endemic zones located in South India. The disease mainly occurs in the nose and nasopharynx (81.1%) while the eyes are affected in 14.2%. Clinically it might mimic as a granuloma/papilloma/burst chalazion. In the absence of correct histopathological diagnosis it continues to get treated inappropriately with frequent recurrences. We present a case of a 12 years old male from North India who presented with conjunctival mass lesion in the lower fornix. Clinically it was suspected to be an epithelial metaplastic/dysplastic lesion. The mass was excised with wide margins. Biopsy revealed thick walled sporangia of rhinosporidiosis underneath the stratified squamous mucosa accompanied by dense inflammation. The treatment of choice is complete surgical excision of the mass resulting in a very good postoperative outcome.

Background
The case is of interest as this infection is not common in North India and hence was not suspected clinically. Moreover ocular location is an uncommon site for this infection with reported incidence varying from 9-14% of all cases of rhinosporidiosis.

Case Presentation
12 yrs male presented for ophthalmology consultation with a mass lesion in the lower fornix. Clinically, it was a sub-centimetre mass in lower palpebral conjunctiva. A clinical possibility of epithelial metaplastic or dysplastic lesion was kept and mass was excised with wide margins.

Investigations
The excised mass lesion was submitted for histopathological evaluation. Biopsy revealed conjunctival epithelium lined tissue with presence of multiple sporangia in various stages of maturity, enclosed in a thin chitinous wall, some of them containing numerous endospores. The surrounding tissues showed associated dense lymphoplasmacytic infiltrate and giant cell reaction. Histopathological features were consistent with diagnosis of rhinosporidiosis. (fig 1)

Outcome & Follow-up
Wide excision resulted in complete removal and adequate treatment of the lesion and the patient was healthy on follow up.

Discussion
Rhinosporidiosis was long considered a fungal infection but now it has been classified under new class Mesomycetozoa. Majority of infection by rhinosporidiosis occur in the upper respiratory sites, notably the anterior nares, nasal cavity, nasopharynx, larynx, soft palate and buccal cavity. Kuriakose T (1963) coined the term Oculosporidiosis for ocular rhinosporidiosis. Ocular rhinosporidium most often presents as a polypoid mass of the palpebral conjunctiva. It may also present as a lacrimal sac diverticulum, recurrent chalazion, conjunctival cyst, chronic follicular conjunctivitis in contact lens wearers, peripheral keratitis, sclera melting, ciliary staphyloma or simulate a tumour of the eyelid or periorbital skin.

Medical therapy is still controversial since cultures of R seeberi have been unsuccessful in all artificial media thus making sensitivity determination impossible. Dapsone has been implicated to have some benefit by arresting maturation of sporangia and accelerating their degenerative changes. Meticulous excision of conjunctival rhinosporidiosis is the treatment of choice, although rare cases of spontaneous regression have been reported. Thus rhinosporidial infection is a known clinical mimicker and histopathological evaluation is must for an accurate diagnosis.

Fig 1. Keratinized stratified squamous epithelium lining with subepithelium revealing numerous sporangia with surrounding edema and inflammation. Inset showing closer view of a sporangium.
Learning points
- Infectious diseases remain an important mimicker of neoplastic process in Indian scenario
- Rhinosporidiosis is not fungal infection as commonly believed
- Treatment of choice is surgical in contrast to medical

References

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Cysticercosis of Breast Mimicking Fibroadenoma: A Rare Case
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Summary
Human cysticercosis is an infection which is caused by the larvae of the pork tapeworm, Taenia solium. In this report, we are presenting the case of a 35-year old woman who came with a history of a painless, freely mobile lump in the left breast. A clinical diagnosis of a fibroadenoma was made and an excision biopsy was done, which revealed the presence of cysticercus larvae, along with foreign body giant cell reaction.

Background
Cysticercosis though rare in breast can mimic a fibroadenoma clinically. Histopathology can give a definite diagnosis and differentiate between the two and help in proper management of the patient.

Human cysticercosis, a potentially deadly infestation, is the consequence of the ingestion of the eggs of Taenia solium which is present in contaminated food, water, unwashed hands and by means of autoinoculation which results from reverse peristalsis.¹

Case Presentation
A 35 year old female from rural area presented with painless mobile soft non tender lump measuring 2.2x2x1.5 cm in left breast since two years. Clinical diagnosis of fibroadenoma was made. Fine needle aspirate cytology was inconclusive. An excision biopsy was performed.

Investigations
Specimen was excised and sent for histopathological examination.

Gross: A 2.2x2x1.5 cm whitish nodular cystic tissue was received. On cutting open clear serous fluid was seen. Wall thickness is 2-3 mm. Few slimy whitish material was seen (Figure 1).

Histopathology showed two suckers and tegument of cysticercus larvae (Figure 2).

Fig 1

Fig 2

Discussion
Cysticercosis continues to be a major public health problem in the developing countries, where open air defecation and a lack of hygiene are rampant. The cysticerci are commonly found in the CNS, the eye, the subcutaneous tissues and the striated muscle and rarely in the heart, lung and the bone. The breast is an unusual site for the cysts to form and only few such cases have been reported in the literature. In this case, an initial diagnosis of fibroadenoma of the breast was made, due to its typical feature of a painless, firm and a freely mobile mass. Thus, a diagnosis of cysticercosis in the unusual sites may be clinically difficult. It can be diagnosed only by the histological demonstration of the parasite in surgically removed tissues.

Radiologically it can be detected by X-ray visualization of the calcifying cysticerci and by the use of computerized tomography. In the present case, X-ray and CT scan of the other parts of the body were normal. FNAC also plays an important role in diagnosing cysticercosis, but it is limited by the varying cytomorphological features of cysticercosis. The host tissue response is extremely variable and it ranges from an insignificant response to the markedly cellular response, which consists of epitheloid cell granulomas and histiocytes. The presence of palisading histiocytes and eosinophils was found consistently in the patients with a cysticercosis breast. The hooklets and the scolex were occasionally seen. In the present case, because of a scanty cellularity, the FNAC was nondiagnostic. Serological tests such as the Indirect Haemagglutination Test, Indirect Fluorescent Antibody Test and ELISA (Enzyme Linked Immunosorbent Assay) can be used to diagnose cysticercosis in the suspected cases, but these are limited by a low sensitivity and specificity.

Learning Points
• Although it is rare, cysticercus should be considered as a differential diagnosis for a mass in the breast and in the areas of a greater prevalence.

References

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Picture Quiz

Short History: 45 yrs male patient presented with Serum Creatinine 11.0 mg/dl, on dialysis as and when required; in family sister died due to renal Failure. In this patient due to repeated UTI, the urosurgeon took a decision to do nephrectomy to remove source of infection, creatinine still 11.0 mg/dl and the patient still requires dialysis.

What is the diagnosis?

Contributed by Dr Jafar Pathan, SRL Aurangabad, Dhoot Hospital
Publications


Significant Scientific Achievements by SRL Staff
(apart from Journal Publications)

Dr Nalini Bansal Gupta has edited a Book Titled Liver Biopsy Made Easy that was released by Jaypee Brothers.

Dr Nalini [MD pathology (Gold Medalist), DNB, MNAMS, PDCC] is a histopathologist with over 10 years of experience in the specialty. She is an Associate Editorial Board Member of Indian Journal of Pathology and Microbiology and is a Scholar of International Society of Nephropathology. She is currently working in the capacity of Sr. Histopathologist at SRL Ltd, Fortis Escorts Heart Institute Okhla.

About the Book
Liver Biopsy Made Easy is an attempt to assist the practicing pathologist and students by providing a comprehensive source of information on the pathology of liver tissue.

The co-authors of the book are Dr Prasenjit Das, Dr Siddhartha Dutta Gupta, Dr Anjali Amrapurkar, Dr Malini Eapen, Dr Kaushik Majumdar, Dr Puja Sakhija, Dr C B Sharma, Dr Gaurav Pratap, Dr Apoorva and Dr Komal.
SRL Bags ABP News Healthcare Leadership Awards 2016

SRL won ABP News Healthcare Leadership Awards 2016 in the category of Best Use of Technology by a Diagnostic Service Provider. We were awarded a trophy along with a certificate in a glittering ceremony in the Taj Lands End hotel in Mumbai on 23rd Nov, 2016. In this award we were judged on the basis of our use of Molecular Diagnostic Technologies to enhance our diagnostic test menu, our expertise in using such technologies for in-house test development and our endeavours as an organization to increase awareness about molecular diagnostic tests in the medical fraternity.