Case report

Nasal lepromatous leprosy mimicking as rhinoscleroma: An insight to early diagnosis

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Abstract

Leprosy is an infectious disease caused by an acid fast bacilli Mycobacterium leprae. It affects all age groups with no sex predilections. Skin and peripheral nerves are commonly involved. Nasal manifestations of leprosy in the form of nodules and crusting are less known, but in some cases it may precede the skin lesions much earlier. Nasal biopsies are nearly 100% positive in lepromatous pole of the disease. Presence of large distended histiocytes complimented by Fite ferraco stain will aid in diagnosis. With these findings, clinicians and pathologists should have an insight to keep leprosy as a differential diagnosis, so that treatment is instituted early to prevent disabilities and morbidities. We present an adult female who presented with nodular lesions on the nasal septum and inferior turbinates, biopsy of which showed features of lepromatous leprosy.

Key words: Biopsy, Early diagnosis, Lepromatous leprosy, Nasal mucosa

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Leprosy (Hansen’s disease) is a slowly progressive, chronic granulomatous disease caused by Mycobacterium leprae. Despite being one of the most ancient diseases affecting mankind, it has a high worldwide incidence of >407,000 new cases per year. Brazil, India, Nepal, Congo and Tanzania are the endemic areas in the world. Leprosy has a long incubation period and affects cooler areas of the body like skin, mucus membrane and peripheral nerves. Mode of transmission is by skin contact, inhalation, ingestion and transplacental route. Otorhinological manifestations are common towards lepromatous pole of the disease. Nasal symptoms include stuffiness, blood stained nasal and postnasal discharge, epistaxis and hyposmia. Nasal examination may show nodular infiltrates on septum and turbinates, mucosal dryness, crusting, ulcers and nasal septal perforation. Diagnosis is by clinical suspicion, histopathological examination, Ziehl Neelson stain and slit skin smear. We present an adult female who presented with nodular lesions on the nasal septum and inferior turbinates, biopsy of which showed features of lepromatous leprosy.

Case report

A 35 year old female presented with complains of swelling and pain on the dorsum of the nose since 2 weeks (Fig 1A). Diagnostic nasal endoscopy showed multiple nodules in both nasal cavities, on the septum and inferior turbinate associated with crusting (Fig1B).
Fig 1. Clinical image showing swelling in the nose (A) and rhinoscopy showing multiple lesions (B).

Fig 2. Metaplastic stratified squamous epithelium showing pseudoepitheliomatous hyperplasia and dysplasia (A). Foamy histiocytes are seen in diffuse sheets and surrounding the mucus glands [H&E, X100] (B). Histiocytes with eccentrically placed nucleus and abundant clear cytoplasm, some of them are massively distended [H&E, X400] (C). Fite ferraco stain is strongly positive with a bacillary index of 6 [X1000] (D).
She was in a good general health state. Clinically diagnosed as rhinoscleroma, biopsy of the nodule was done. Histopathological examination showed metaplastic stratified squamous epithelium showing pseudoepitheliomatous hyperplasia and severe dysplasia (Fig 2A). Foamy histiocytes were seen in diffuse sheets and surrounding the mucus glands (Fig 2B). Also seen were histiocytes with eccentrically placed nucleus and abundant clear cytoplasm, some of them were massively distended (Fig 2C). Fungus was ruled out by periodic acid Schiff (PAS) stain. Fite ferraco stain was strongly positive with a bacillary index of 6, confirming the diagnosis of lepromatous leprosy (Fig 2D).

On further enquiry and examination, she gave a history of red patch on her right leg and white patch in the neck 3 years ago, which she ignored. Cutaneous examination showed discrete nodules largest measuring 2.5 cm × 2.0 cm on dorsum of left foot. Papules were seen on legs, feet, forearms and nose. Right radial cutaneous and left posterior tibial nerve was enlarged. Skin biopsy from papule on right forearm also showed features of lepromatous leprosy with bacillary index of 6. Slit skin smear showed lepra bacilli with fite stain. Currently she is on antileprosy treatment with dapsone, rifampicin and clofazamine and she is on regular follow up.

Discussion

Leprosy is a public health problem in the world causing a socioeconomic impact. It is endemic in South East Asian countries such as India, Nepal, Pakistan, Srilanka, African countries and Central America and Brazil. In India, it is common in Tamil Nadu, Odisha and Bihar. World Health Organization (WHO) classified leprosy into two types: paucibacillary which includes tuberculoid and borderline tuberculoid forms and multibacillary includes midborderline, borderline lepromatous and lepromatous forms. Paucibacillary patients have few skin lesions, low or absent Bacillary Index (BI), show specific cell mediated immunity, with granulomatous pathology. Multibacillary patients have multiple symmetric skin lesions, a high BI, and histopathology showing lepra cells or Virchow cells.

Droplet infection by coughing, talking and sneezing is a major route of transmission as nasal secretions contain plenty of bacilli. In the nose, inwardly curved turbinates facilitates physical trapping of the bacilli and Schwann cell predilection which are found in abundance. Nasal symptoms may preceede skin lesions for several years depending on immunological condition of patient. In our case, the patient came with nasal complaints of pain and swelling of dorsum of nose and skin lesions were noted after enquiring further history.

The nasal leprosy manifests with pale yellow mucosa, along with discrete nodules or plaques. Anterior end of inferior turbinate is the preferred site. Later, destruction of cartilaginous and bony framework results in septal perforation and saddle nose deformity. In our case, anterior rhinoscopy and nasal endoscopy showed nodules in both nasal cavities, in the septum and inferior turbinate along with crusting. Hence provisional diagnosis of rhinoscleroma was made and was subjected to histopathology.

Histopathological examination showed metaplastic stratified squamous epithelium showing pseudoepitheliomatous hyperplasia and severe dysplasia. Foamy histiocytes were seen in diffuse sheets and surrounding the mucus glands. Some of the histiocytes were massively distended. Differential diagnosis which we kept in mind was rhinoscleroma, fungal lesion, polyvinyl pyrrolidone (PVP) granulomas and leprosy. There were no mikulicz cells and lymphoplasmacytic infiltrate, characteristic of rhinoscleroma and Periodic acid Schiff (PAS) stain was negative. Fungus was ruled out by PAS stain. PVP granulomas occur in patients who use frequently hair sprays and nasal drops. There was no such history given by patient. Hales colloidal iron stain was negative. As a last resort, Fite ferraco stain was done which was strongly positive with a bacillary index of 6, confirming the diagnosis of lepromatous leprosy. Subsequently, the patient on enquiry gave history of skin lesions for which she was referred to dermatology where skin biopsy and slit skin smear was done which substantiated the diagnosis of lepromatous leprosy.

Current treatment of leprosy involves use of three drugs: dapsone, rifampicin and clofazamine. Multidrug therapy aims to effectively eliminate \textit{M. leprae} in shortest possible time. The duration of therapy is 12-24 months.

Conclusion

Leprosy is a very well known public health problem which usually affects skin and peripheral nerves. The airway can be affected much before the skin lesions or it may be coexistent with it. Infective lesions of the nose are infrequently encountered and there is a high chance of missing the diagnosis especially when nasal symptoms are isolated or predominant. The clinicians and the pathologists should always keep a differential diagnosis of leprosy when there are nodules and crusting in the...
septum and turbinates and also when biopsy shows large distended histiocytes. Early diagnosis can help initiating multidrug therapy and prevent the deformities and morbidities associated with it.

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