Tuberculous Osteomyelitis of the Mandible

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Abstract Although tuberculosis can affect any part of the body involving both soft and hard structures with variable measures; such an occurrence in the cranio-facial bones is relatively rare. Once affecting a bone it is rare for a mycobacterial infection to get directed towards the skin and present as multiple draining sinuses. We report a case of tubercular osteomyelitis of the left body of the mandible in a 19 year old male patient who came to us with complains of persisting pus discharge from multiple sinuses on his face (lateral border of mandible and submandibular region) because of its rarity and clinical interest. One should always have a suspicion of mycobacterial infection in the back of mind when dealing with chronic maxillo-facial infections not responding to the usual antibiotic course and local debridement.

Introduction

It is a common knowledge that tuberculosis once thought to be controlled via various screening and preventive programs has come back to challenge the medical fraternity in a big way especially in developing countries. Primary tuberculosis affecting the small and flat bones of the cranio-facial region is rare. Here we report a case of primary tuberculous osteomyelitis of the mandible in a young male without any systemic signs and symptoms (Fig. 1).

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Case Report

A 19 year old male patient reported to the oral and maxillofacial surgery O.P.D. of Manipal College of Dental Sciences, Manipal with complains of pus discharge from left side of face for the past 6–8 months. The patient reported that he had a decayed lower back left tooth which was diagnosed by a local practitioner to be the cause of his problem and was extracted around 7 months back. Medical records revealed he had undergone local debridement several times via both intra and extra-oral approaches. The patient was otherwise healthy with no constitutional symptoms. Nobody in the patient's family had suffered from tuberculosis [1, 2].

On examination there were multiple extra oral draining sinuses in relation to the left lateral border of mandible and left submandibular region. The skin around the sinus opening showed minimal erythema. On palpation there was no local rise in temperature, however there was induration of the skin around the sinus opening indicative of surgical fibrosis. Left submandibular lymph node was faintly palpable around 1 × 2 cm soft and non tender on palpation. Minimal manipulation led to extrusion of thick white pus discharge from the sinus opening and was associated with minimal pain. Intra orally there was missing 35. The mucosa appeared well healed with no evidence of pus discharge or sinus opening. OPG revealed ill defined radiolucent lesion in the region of 35 that could be traced to the lower border of the mandible. CT-scan was done which revealed multiple areas of medullary bone destruction in the region of 35 with buccal cortical bone perforation in two areas (Fig. 2).

These features were suggestive of osteomyelitis and other forms of osteomyelitis such as actinomycotic osteomyelitis of jaw were ruled out. Actinomycotic osteomyelitis

Fig. 1 Pre op photograph

Fig. 2 CT Image

usually affects soft tissue and it forms external sinuses that discharge distinctive sulfur granules and spreads unimpeded by anatomical barriers. Secondary spread to other areas of the head and neck readily occurs in actinomycotic tuberculosis.

With a provisional diagnosis of osteomyelitis, he was taken up for surgery under general anesthesia for decortication and saucerisation of the defect in the region of 35 via extraoral submandibular approach. During exposure of the defect, submandibular lymph node and anterior midline lymph node were found to be necrosed and a cheesy discharge was present from them. Along with the decorticated bone, the necrosed lymph nodes were sent for histopathological examination with high suspicion of tubercular

Fig. 3 Submandibular approach to expose the defect

Fig. 4 Excision of the sinus

osteomyelitis. Histopathological examination revealed caseating necrosis with the presence of giant cells thereby confirming our suspicion of tubercular osteomyelitis [3]. A medicine consultation was given and he was started on anti tubercular therapy. With the ongoing treatment, the patient has exhibited a complete resolution (Figs. 3, 4).

Discussion

Each year, 3 million people worldwide die from tuberculosis. The epidemiology of tuberculosis differs considerably with

Fig. 5 Histopathologic slide

ethnicity. Despite dramatic improvements in public health measures associated with *M. tuberculosis* infection and disease, such as living conditions, nutrition, Bacille Calmette-Guerin vaccination programs, and antimicrobial chemotherapy, none have resulted in a dramatic decline in the incidence of tuberculosis in many countries during the past century. Moreover, a resurgence of tuberculosis has been seen owing to an increase of co-infection with HIV, which decreases cell-mediated immunity. This is the primary defense mechanism against the tubercle bacillus.

Clinical history prompting suspicion of active tuberculosis includes a productive cough (3 weeks) with other signs and symptoms of fever, chills, night sweats, and fatigue. Forty percent to 75 % of patients with tuberculosis and HIV infection have extrapulmonary tuberculosis.

A history of tuberculosis exposure and/or previous tuberculosis infection (active disease) should always be a part of medical history. Orofacial presentation of tubercular disease includes swelling, pain, loosening of teeth, and even displacement of tooth buds. Other manifestations may include an ulcer, granulomas, involvement of salivary glands and temporomandibular joint, and tuberculous lymphadenitis. Tuberculous osteomyelitis is quite rare and constitutes <2 % of skeletal tuberculosis. Jaw involvement is even rarer and usually affects older individuals. In the younger age group, tuberculous involvement of the jaw is highly unlikely and sporadic instances have been reported in the literature.

The patient never had any other symptom that could lead to a differential diagnosis of tubercular osteomyelitis. It was our strong intra operative suspicion after seeing the Caseous discharge which was later confirmed by histopathological examination. Apart from histopathological examination, pus culture was done which was positive for *Mycobacteria*. No other tests were conducted as it would not have altered the post operative treatment plan.

Most of the cases of tuberculosis of maxillofacial bones are secondary to pulmonary tuberculosis. However, there was no clinical and radiographic evidence of pulmonary involvement in this case. Traditionally, the diagnosis of tuberculosis has been made on the basis of clinical findings and radiographs and confirmed by sputum or tissue smears that show the bacilli. These methods remain the “gold standard” for diagnosis, but development of DNA probes, polymerase chain reaction assays, and liquid media now allow more sensitive and rapid diagnosis. Skin testing should be used in conjunction with other clinical findings to establish tubercular infection in children. In extrapulmonary tuberculosis, site-specific tissue or fluid samples or both are submitted for smear, culture, and histologic analysis. Typically, histologic features of tuberculous lesion include caseating and noncaseating granulomata with giant cells, as was seen in our case (Fig. 5).

CT is more sensitive than plain radiography when findings on films are absent or inconsistent and for guiding diagnostic evaluations. High-resolution CT may reveal occult abscesses, pathological cavities, and the extent of disease [4].

Conclusion

There is a well known phrase that states, “The more things change, the more they stay the same.” This expression continues to apply to tuberculosis, a widespread infectious disease. The age-old adage, “Prevention is better than cure,” holds good even today. The pivotal role in reducing morbidity and emergence of tuberculosis is through early diagnosis and prompt initiation of an effective regimen. Although a rare occurrence, the differential diagnosis of tuberculous osteomyelitis must lurk in the deepest recesses of the dental professional’s mind when clinical findings do not conform to routine therapy.

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