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Case Report

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Tuberculous osteomyelitis of maxilla in a teenage female patient

Abstract

Tuberculosis osteomyelitis of the maxilla is a rare occurrence, especially in adolescents. This case report presents a 15-year-old female with pulmonary tuberculosis who developed maxillary osteomyelitis. The patient presented with persistent pain and swelling in the upper right anterior region, unresponsive to dental treatments. Clinical and radiographic examinations revealed significant bone destruction, leading to the diagnosis of tuberculosis osteomyelitis.

Keywords: tuberculosis, maxilla, osteomyelitis, adolescent, oral

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Introduction

Tuberculosis (TB) remains a significant global health concern, with an estimated 10 million new cases worldwide in 2022).[1,2] While primarily affecting the lungs, extrapulmonary manifestations of TB can occur in various organs, including bones and joints. Tuberculous osteomyelitis of the maxillofacial region is a rare form of extrapulmonary TB, accounting for less than 2% of skeletal TB cases.[3–5]

Maxillary involvement in tuberculous osteomyelitis is particularly uncommon, with the mandible being the more frequently affected jaw bone).[6] The rarity of this condition, coupled with its non-specific clinical presentation, often leads to diagnostic challenges and delays in appropriate treatment.[7] This is especially true in adolescent patients, where the differential diagnosis may include a wide range of pathologies, from dental infections to neoplasms.[8]

The diagnosis of maxillary tuberculous osteomyelitis requires a high index of suspicion, particularly in regions with a high prevalence of TB. It is crucial for clinicians, including dental professionals, to consider this entity in cases of persistent maxillofacial lesions that are unresponsive to conventional treatments.[9] The association between pulmonary TB and its oral manifestations further emphasizes the need for a comprehensive medical history and interdisciplinary approach in managing such cases.[10,11]

This case report presents a rare instance of tuberculous osteomyelitis of the maxilla in a 15-year-old female patient with a history of pulmonary tuberculosis. By detailing the clinical presentation, diagnostic journey, and management of this case, we aim to increase awareness of this uncommon condition among healthcare professionals. Furthermore, this report underscores the importance of considering tuberculosis in the differential diagnosis of persistent maxillofacial lesions, especially in adolescents from TB-endemic areas.

Case presentation

The patient, a 15-year-old female, presented with a chief complaint of pain and swelling in the upper right anterior region persisting for two months. The swelling had initially been small but gradually increased in size over time. Despite undergoing root canal treatment on tooth #13 by a local dentist, followed by root canal therapy on teeth #11, 12, 14, and 15 at a dental clinic, the swelling persisted, prompting referral to our department. Clinical examination revealed a significant, diffuse, and hard swelling measuring approximately 2 x 3 x 1 cm in the upper right maxillary region, with associated tenderness. Intraoral examination showed discoloration of teeth #11, 12, 14, and 15, with no apparent sinus tract. Grade 1 mobility was observed in teeth #13 and 14. Radiographic examination demonstrated evidence of bone destruction in the affected area. Notably, the patient had a medical history of pulmonary tuberculosis since April 5, 2013, and was currently under medication for the same. Based on the clinical presentation, medical history, and radiographic findings, a diagnosis of tuberculosis osteomyelitis of the right maxilla was established. Patient was reffered to medical hospital for further systemic treatment (Figure 1-4).

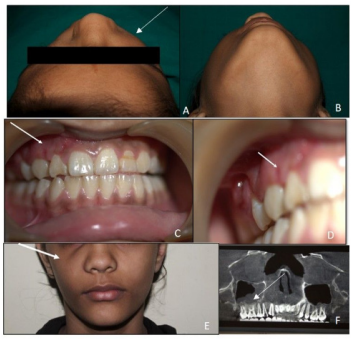

Figure 1 Clinical and radiographic images.

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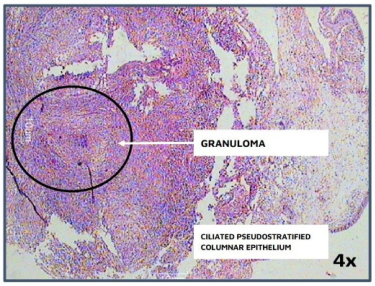

Figure 2 Histopathology Showing Features Under 4x.

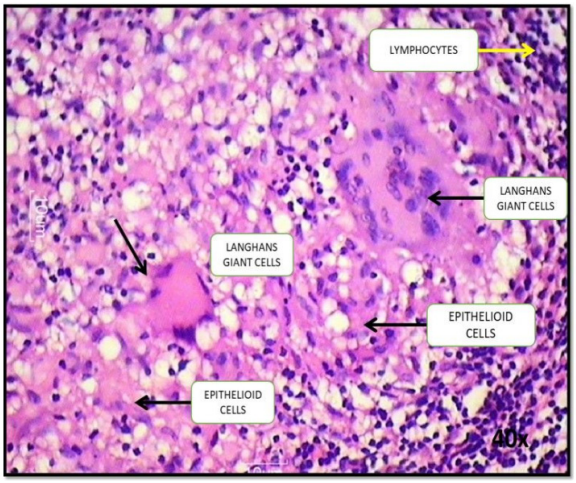

Figure 3 Histopathology showing features under 10X.

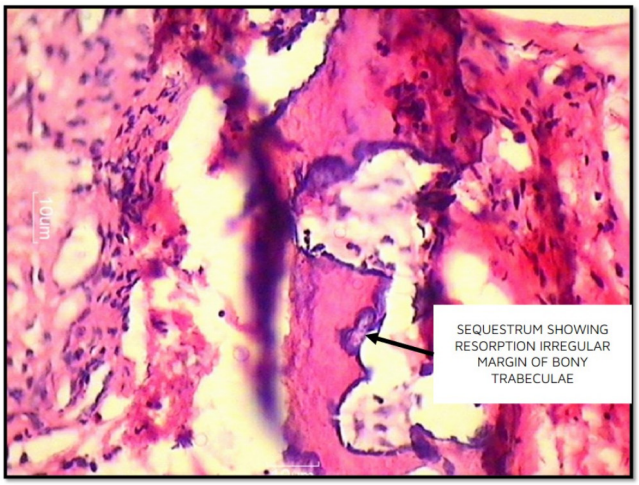

Figure 4 Histopathology showing sequestrum under 40X.

Discussion

This case highlights the importance of considering tuberculosis as a potential cause of persistent maxillary lesions, especially in patients with a history of pulmonary TB. The failure of conventional dental treatments to resolve the condition underscores the need for a comprehensive medical history and interdisciplinary approach in such cases.[12]

Tuberculosis osteomyelitis of the maxilla is a rare manifestation of extrapulmonary tuberculosis, particularly in adolescents. Our case of a 15-year-old female patient with maxillary tuberculosis osteomyelitis presents several unique features and diagnostic challenges that warrant discussion in the context of existing literature. Tuberculous osteomyelitis primarily affects the spine and weight-bearing joints, with involvement of the maxillofacial region being uncommon.[6,11] Most reported cases in the maxillofacial region involve the mandible rather than the maxilla.[13] Gupta et al.[14] described tuberculous osteomyelitis of the maxilla as "a rarest of rare case," underscoring the uniqueness of our patient's presentation. The involvement of the maxilla in our case adds to the limited literature on this specific manifestation.[7,14,15]

Our patient's age of 15 years is noteworthy. While tuberculosis can affect any age group, maxillofacial involvement in adolescents is less commonly reported. Sambyal et al.[16] reported a case in a 3-year-old child,[16] and Kalaiarasi et al.[15] described a pediatric case. Our case bridges the gap between these pediatric reports and the more commonly reported adult cases, providing insights into the presentation and management of this condition in adolescents.

The initial misdiagnosis in our case, leading to multiple dental treatments, highlights the diagnostic challenges associated with tuberculous osteomyelitis. This echoes findings by Sheikh et al.[7] who reported a case of tuberculous osteomyelitis of the mandibular condyle that presented a diagnostic dilemma. Similarly, Chalwade et al.[6] described a case mimicking ameloblastoma. Our case reinforces the importance of considering tuberculosis in the differential diagnosis of persistent maxillary lesions, especially in regions with a high prevalence of tuberculosis.

Our patient's history of pulmonary tuberculosis is a crucial factor. While some cases in the literature present as primary oral tuberculosis without pulmonary involvement,[10] our case demonstrates the potential for maxillofacial manifestations in patients with known pulmonary tuberculosis. This underscores the need for a comprehensive medical history and interdisciplinary approach in managing such cases.

The presenting symptoms of pain and swelling in our case are consistent with those reported in the literature. However, the persistence of symptoms despite dental interventions is a key feature that should alert clinicians to consider alternative diagnoses. Saurabh et al.[9] emphasized the importance of considering tuberculosis in cases of non-healing lesions or those unresponsive to conventional treatment.

The bone destruction observed in our case is consistent with the radiographic features described in other reports of tuberculous osteomyelitis.[17] However, these findings are non-specific and can be mistaken for other conditions, necessitating a high index of suspicion for accurate diagnosis.

Several aspects make our case unique:

1. The involvement of the maxilla, which is less common than mandibular involvement.
2. The adolescent age of the patient, providing insights into this age group's presentation.
3. The concurrent active pulmonary tuberculosis, highlighting the importance of systemic evaluation.
4. The initial misdiagnosis and dental treatments, emphasizing the need for awareness among dental professionals.

In **conclusion**, our case of tuberculous osteomyelitis of the maxilla in an adolescent patient with pulmonary tuberculosis adds to the limited literature on this rare condition. It highlights the diagnostic challenges, the importance of considering tuberculosis in persistent

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maxillofacial lesions, and the need for a multidisciplinary approach in management. As emphasized by Krawiecka and Szponar,[11] tuberculosis of the oral cavity remains an uncommon but still relevant issue in clinical practice.

This case serves as a reminder for clinicians to maintain a high index of suspicion for tuberculosis, especially in endemic areas, and to consider it in the differential diagnosis of persistent maxillofacial lesions unresponsive to conventional treatments.

Conclusion

Tuberculosis osteomyelitis of the maxilla, though rare, should be considered in the differential diagnosis of persistent maxillary lesions, particularly in patients with a history of pulmonary tuberculosis. Early diagnosis and appropriate management are crucial for optimal outcomes.

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None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

Author contributions

Dr Sandhya Tamgadge: collecting data, analyzing interpreting data, drafting the manuscript, critically reviewing the intellectual content of the manuscript. Dr Treville Pereira: analyzing interpreting data, drafting the manuscript, critically reviewing the intellectual content of the manuscript, Dr Subraj Shetty: analyzing interpreting data, drafting the manuscript, critically reviewing the intellectual content of the manuscript.

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