DIAGNOSIS OF ENIGMATIC NON-ODONTOGENIC BONY PATHOLOGY- DO ENDODONTIST HAVE ANY ROLE?

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INTRODUCTION

The oral cavity is a reflection of our body. Pain in oro-facial region is complex and distressing condition which frequently overlaps with various surgical and medical disciplines.[1] Accurate diagnosis may turn out to be challenging for experienced clinician as well and Non-odontogenic toothache is one such entity. A misdiagnosis can lead to unnecessary treatment for the patient and may also exacerbate the symptoms for which the patient sought treatment.

One of such entity is osteomyelitis having radiographic similarity with periapical radiolucency during its initial stage. Often such situation can lead to inaccurate diagnosis during dormant stage. Though due to advancement in medicine the incidence of osteomyelitis had a great decline still it can be an enigma to an endodontist in diagnosing the condition.

We hereby report one such similar condition encountered in the department of Conservative dentistry and emphasizes on a multidisciplinary approach, which highlights the importance endodontist in diagnosis of an rare entity reported in literature.

CASE REPORT

A 64 year old male patient who is farmer by occupation reported to the Department with the chief complaint of pain in right upper back tooth accompanied with swelling for 2 months.

The pain was gradual in onset, dull aching and intermittent in nature and aggravated on mastication. Patient consumed analgesics for pain relief (Diclofenac sodium 50 mg).

The patient had a history of fronto-maxillary sinusitis for which he was admitted to associate hospital and was referred to the dental hospital for pain as mentioned above. With positive history on diabetes type II, patient was on insulin therapy since 4 years. Past dental history revealed local treatment with drainage of pus, and consumption of systemic antibiotics(Amoxycillin 500mg TDS for 3 days) but symptoms were persisting. Extraoral clinical examination showed no gross facial asymmetry, extraoral sinus or pus discharge. On palpation, mild tenderness present over right side upper lip region.

IMAGE 1

Intraoral examination showed

- Intact dentition with no carious tooth. Generalized attrition was present suggesting of middle age group.
- Grade I mobility seen irt 14 with mild tenderness present. Intraoral sinus with pus discharge was present and buccal mucosa was edematous. The pus was muddy yellow in color, and the volume increased on applying pressure. Pocket dept in relation with 14 was 10 mm.
- IOPA irt 14 was inconclusive, electric pulp test (7) revealed delayed response suggestive of irreversible changes, hence final diagnosis primary periodontal secondary endodontic lesion with symptomatic apical periodontitis was made. Treatment for 14-root canal treatment was decided.

IMAGE 2- PRE OPERATIVE

IMAGE 3 OCCLUSAL VIEW

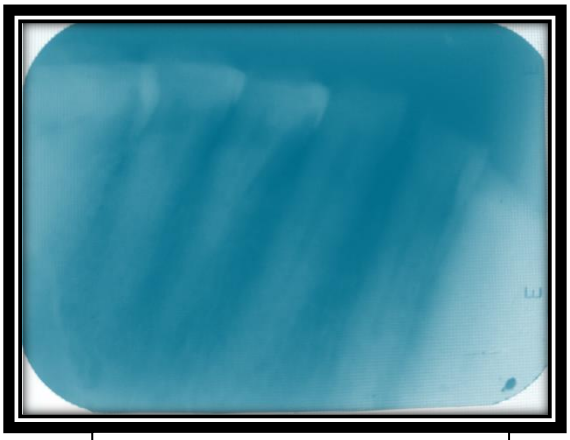


IMAGE 4 - PRE –OP IOPA

Access opening was done with Endo Access bur (2) and biomechanical preparation for Buccal and Palatal canals were completed in one visit. Working length-buccal 18mm palatal 19mm preparation was done upto30- 4%(Neoendo)Calcium hydroxide(D-tech) intra-canal medicament was placed and patient was recalled after 1 week.

Patient reported after 15 days with multiple swellings with pus discharge from 14 to 24 region. Suspecting it to be underlying bony pathology, patient was referred to the Department of Oral and Maxillo-facial Surgery for further opinion. Radiographic Investigations were done. OPG showed ill-defined apical radiolucency irt with 14, 15. Swab was taken for pus culture. No further treatment was attempted at this time. Systemic Antibiotic was prescribed for 5 days(Augmentin 625mg TDS+ Metrogyl 400 mg TDS+ Rantac 150mg + Zerodol P BD)

IMAGE 5- 1ST RECALL VISIT

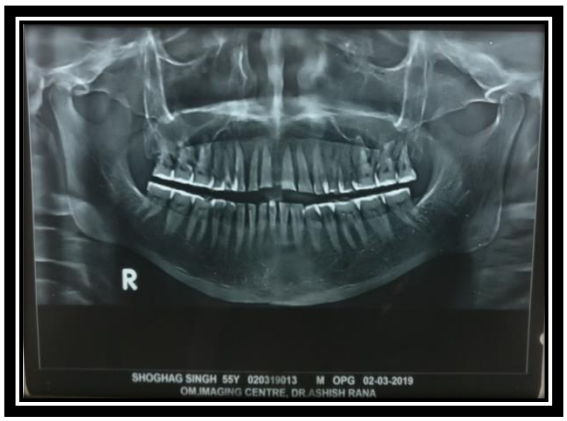


IMAGE 6- OPG

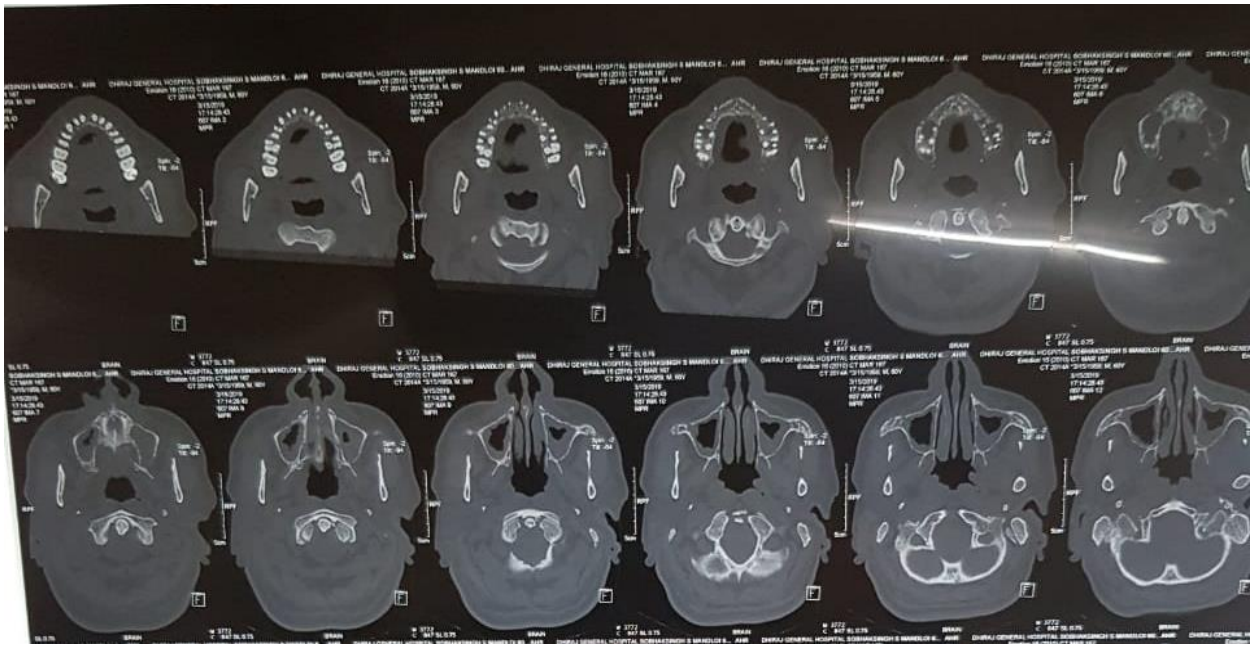
Pus culture report obtained after 3 days suggested multiple organisms can be isolated from culture hence inconclusive. Patient was recalled for further treatment 1 week later, however, the severity of symptoms and disease worsened. Patient reported within 5 days with Grade II mobility was seen with 11, 12, 14, 21, 22, 23 and Grade I mobility with 13, 15, 24, 25. Entire anterior maxillary segment was mobile.

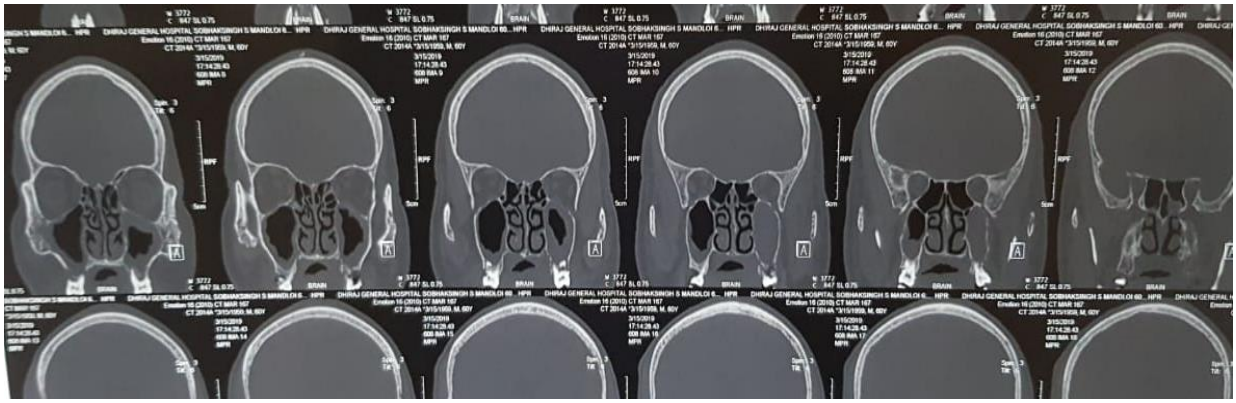
IMAGE 7- 2ND RECALL VISIT

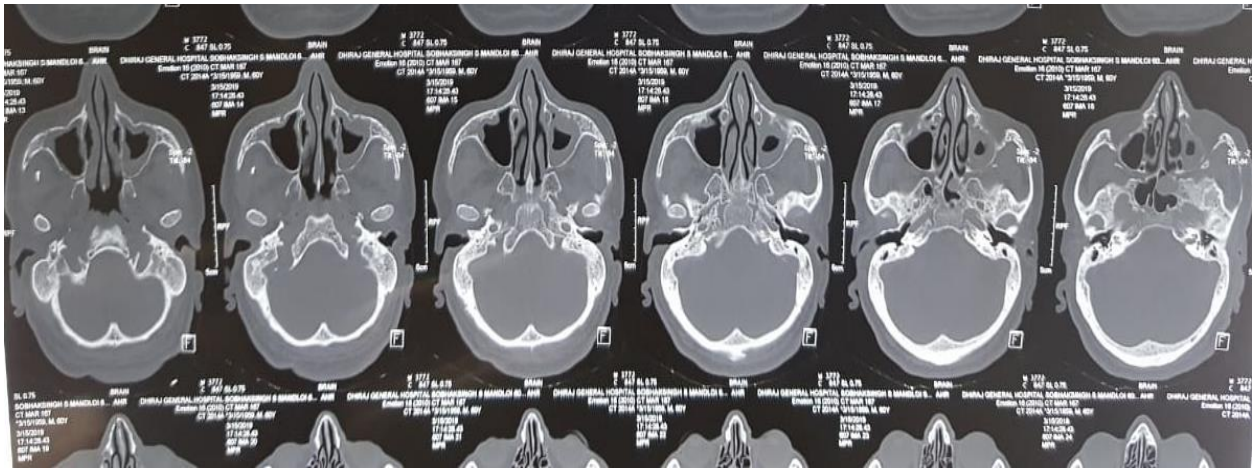
Considering it to be a fast spreading underlying bony pathology further, patient was referred for Contrast Enhanced Computed Tomography (CECT) after consulting the Department of Oral and Maxillofacial Surgery.

CECT showed the presence of extensive areas of bony destruction on maxillary sinus wall on the right and left side, alveolar process of maxilla, and floor of right orbit.

IMAGE 8- CECT SCANS







Provisional diagnosis of osteomyelitis involving maxilla was made. Squamous cell carcinoma of the maxilla and fibrous dysplasia was included in the differential diagnosis and ruled out by clinical and radiological findings. Therefore, a clinic-radiographic diagnosis of acute suppurative osteomyelitis involving maxilla was made, and the patient was advised for maxillectomy.

Entire maxillectomy was performed by the oral surgery. Yellowish colored pus-filled lobules were seen during intra-operative procedure, complete debridement of bone was done and specimens were sent for the histo-pathological examination.

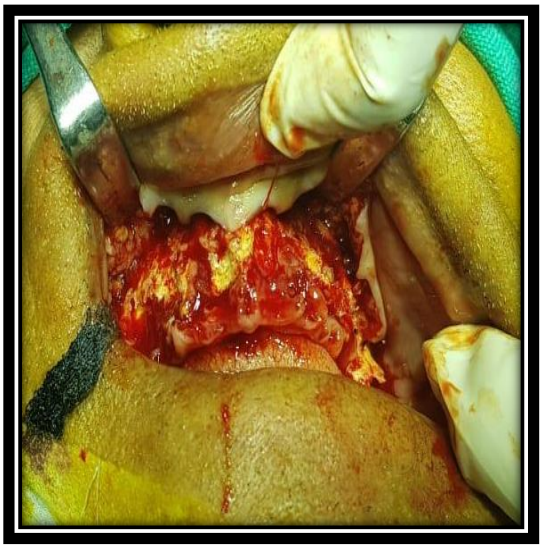


IMAGE 9 –DURING SURGICAL PROCEDURE WITH FLAP RAISED

IMAGE 10-ENTIRE MAXILLECTOMY PERFORMED

Post operative histo-pathological examination revealed- maxillary sinus lining with-tubercular inflammation and bony trabeculae with ragged margins. Marrow spaces filled with chronic inflammatory cells and tooth with cortical bone as osteomyelitis. Patient is planned for further rehabilitation by ridge augmentation and full mouth prosthesis after complete recovery.

DISCUSSION

Why endodontist plays here an important role in such situations? As an endodontist it is very important for us to differentiate between Odontogenic and non odontogenic pathology. Most of the non odontogenic pathology is also

showing its first sign as pulpal pain or periodontal lesion. Limitation of our knowledge to differentiate between odontogenic and non odontogenic pain is also one of the major reason that we start the treatment focusing on odontogenic cause. Many times we start RCT/ extraction and do irreversible damage to the patient. Many such cases are reported by Gupta V and Nezafati s et al[2,3]

Early diagnosis of any non odontogenic pain or pathology will help the patient to heal faster with lesser involvement of the other parts of body organs.

In the present situation patient reported to an endodontist with history of chronic sinusitis with poor oral hygiene, pus discharge with deep pockets along with the delayed pulpal response, the reason was thought to be the odontogenic one, the final diagnosis as primary periodontal secondary endodontic lesion was done. As a first line of treatment root canal was preformed. While evaluating for persistent pain, sudden development of multiple radiolucent areas over a period of two weeks with systemic history of diabetic mellitus, and multiple gingival swelling with pus drainage seen. We realized the condition has bony pathology rather than local tooth involvement hence the reference was done to the Dept of Oral and Maxillofacial Surgery were OPG was made with showed localized radiolucency. Oral Surgeon reported it to be a dental cause only and swab of pus culture was taken. Since the report was inconclusive broad spectrum antibiotics were started.

It was seen and endodontist was the only to evaluate the severity of symptoms on subsequent visits. Pt when recalled reported with multiple abscess and segmental mobility of maxilla. Poor periodontal condition, which leads to breakdown of the periodontal ligament facilitating deep invasion of pathogens, seems to be an important condition leading to osteomyelitis. Significant periodontal disease was found in 51% of the OM patients in a retrospective study [4]

This assured us that now definitely it was a bony pathology so CECT was advised as per Gupta V et al.[3] He stated that these modalities provide excellent anatomic delineation of the infected area and surrounding soft tissue, assisting surgeon to plan optimal surgical management, avoiding morbidity and complications to adjacent critical structures.

The radiographic changes always plays an important role for the clinician as in osteomyelitis usually demonstrate a “moth-eaten” appearance due to enlargement

of medullary spaces and widening of Volkmann's canals resulting from destruction and replacement with granulation tissue. While in periradicular case it is either due to microbial load or the caries commonly which causes destruction of bone.[5]
The above mentioned case had misdiagnosed as sinusitis and odontogenic pain due to underlying bone pathology in its dormant stage.

Endodontist are the first to encounter such cases because the initial symptoms include the tooth pain and we should know about the clinical features of the odontogenic and non odontogenic pathologies to rule out.

The word "osteomyelitis" was described by the French surgeon Edouard Chassaignac in1852 which originates from the ancient Greek words osteon (bone) and muelinos (marrow). [6,7]Although the osteomyelitis of the maxillofacial region is uncommon, the mandible is more likely to be involved than the maxilla. The primary reason is a complex network of blood supply of maxilla is richer and thin cortical bone present. [8]

Endodontist should know the complete medical and dental history to identify the following etiology which may be either traumatic, rhinogenic or odontogenic. [9]

Clinical findings include Deep Pain, High Intermittent Fever, Paresthesia Or Anesthesia Of Lower Lip, Carious Tooth, Poor Periodontal Status, Pus discharge from the gingival crevice. Constitutional signs of acute infection such as body ache, malaise, leukocytosis, raised ESR, etc.[10]

The role of an endodontist here was as an meticulous examination with analyzing the clinical features which include deteriorating gingival condition, increase in bone destruction leading to mobility. Therefore, it is imperative that prompt diagnosis is to be made and aggressive treatment is initiated to avoid subsequent dreaded consequences.

CONCLUSION

Maxillary osteomyelitis is one of the most difficult to treat infectious disease, clinical suspicion is critical to initiate prompt and appropriate hematological, histological and radiological investigation. Aggressive medical management with adequate surgical intervention is the key to successful management. In the present case as an endodontist we could not save the tooth but definitely we could save the patient's life.

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(up to four authors for case report)