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# Scientific Editorial:

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## Age of Digital Impressions

The Classic Method of Dental Impressions being carried out by placing a viscous material into the mouth usually in a customized tray which then sets to become an elastic solid may be forgotten in the next decade , giving relief to the clinician of the "office dust" and giving the patient "accurate" prosthesis, can be anticipated with the arrival of the "age of the digital impression". The digital impressions systems with its technology-driven process eliminates the imprecision synonymous with conventional impressions. The process involves a highly detailed digital scan of the tooth

preparation area , followed by sending the digital image to the laboratory for milling into the physical model , which is then used make the prosthesis. But considering the infrastructure requirement as well as further studies to prove it's pros and cons, it may still be premature to presume it to be a global gold standard.

I hope you enjoy this issue of Dental Follicle.

Dr. Syed Nabeel

Editor -in-Chief

## Secondary Tuberculosis of Maxillary Sinus with Oro-Antral Fistula – A Case Report

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### Abstract

Tuberculosis, a chronic granulomatous infection is caused by Mycobacterium tuberculosis. Extra pulmonary tuberculosis occurring in oral cavity is relatively rarest of oral cavity may occur as primary or secondary lesion. TB osteomyelitis involving maxillary antrum is uncommon. We present a case of Secondary Tuberculosis of Maxillary sinus with oro-antral fistula in a middle aged male. The site and clinical manifestations of TB in this patient is very unusual that warrant this publication

**Keywords:** TB-Tuberculosis, Osteomyelitis, Oro-antral Fistula, Maxillary sinus

### Introduction

Tuberculosis is a chronic infectious granulomatous disease caused mainly by Mycobacterium tuberculosis. It is a major health hazard in developing countries. Incidence of TB has increased with the emergence of AIDS. TB affecting the oral cavity is usually secondary to pulmonary infection accounting for 0.05- 0.5%.<sup>1</sup>The organisms enter the oral cavity either through infected sputum or haematogenous route. Secondary lesions of TB in oral cavity usually manifests as ulcers. Occasionally it occurs as swelling, granular, nodular or fissured lesions with no obvious clinical ulcerations.

This paper reports a case of Secondary Tuberculosis in a middle aged person affecting the left maxillary sinus with oroantral fistula.

### Case Report

A 46 year old male reported to Sri Ramakrishna Dental College and Hospital with a chief complaint of fistula and swelling in the palate for few months. Patient gave history of Tuberculosis for which he has undergone anti-tuberculosis regime before 2 years. The teeth 24 and 25 were extracted 1 year back



**Fig.1**

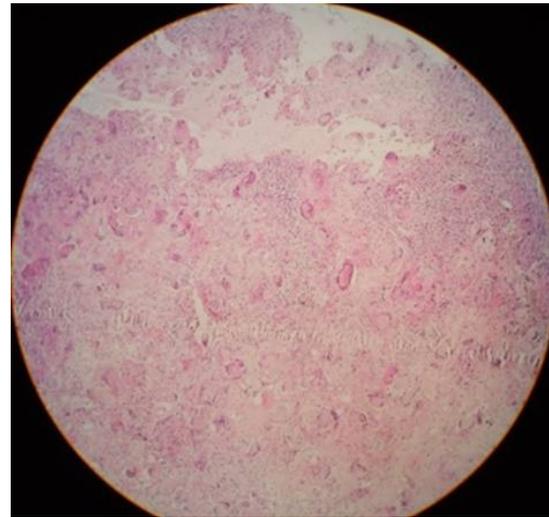
Clinical examination revealed a fistula in relation to buccal aspect of 24 and 25 and 26 with root exposure of 26 (Fig 1). Mild swelling was noted in the palatal aspect of 26. Aspiration revealed a transudate fluid. Provisional diagnosis of Oro-antral fistula was given

**Fig.2**

OPG, CT scan, 3-D reconstructed image revealed a large osteolytic lesion involving left maxilla, maxillary sinus with perforation of palate and infra-orbital floor (Fig 2).

An incisional biopsy of the lesion was done and specimen was given to oral pathology department for histopathological evaluation. The histopathology revealed highly cellular

delicate connective tissue consisting of multinucleated giant cells resembling Langhan's type with nuclei placed at periphery resembling horse shoe. There are lymphocyte, plasma cells, histiocytes, and fibroblast and collagen fibers. Necrosis and haemorrhagic areas were also seen.



Histopathological examination revealed a chronic granulomatous lesion with Langhan's giant cells and areas of necrosis. The histopathological report was suggestive of tuberculous granuloma. Since the patient had a previous history of tuberculosis, the patient was referred to a general physician for opinion, investigation and management (Fig.3).

Further the investigations confirmed the presence of tuberculosis and the patient was treated with anti-tuberculous therapy and the oral lesion was surgically excised. The patient is under regular follow up to monitor the prognosis.

## Discussion

Tuberculosis is most commonly caused by *Mycobacterium tuberculosis*, an aerobic, and non-motile, non-capsulated, non-spore forming rods. Oral lesions of TB are uncommon and occur as secondary to pulmonary infections, which accounts for 0.05%-0.5 %<sup>1</sup>. The organisms are carried by sputum and enter the oral mucosa through a break in epithelium or by haematogenous route. The most vulnerable areas includes gingiva<sup>3</sup> extraction socket, buccal fold, tongue <sup>4</sup> and rarely involves maxilla, mandible, antrum and orbit. Palatal perforation following TB Osteomyelitis <sup>5</sup> occurs in conditions of extensive involvement.

An unusual feature in our case was location of the lesion in left maxillary sinus with oro-antral fistula with out any discharge. Involvement of these areas with oro-antral fistula formation, although reported are very rare.

In our case the radiographic finding revealed an extensive osteolytic lesion in left maxilla with perforation of palate. Another remarkable feature is the history of tooth extraction and the radiographic findings which raised the possibility of occurrence of a previous Tb osteomyelitis as reported by Jain Mr. et al 19796. The extraction of the tooth in that area subsequently has lead to the formation of oro-antral fistula.

A differential diagnosis of secondary tuberculosis, deep fungal infection, Wegener's granulomatosis and malignant tumor were suggested. Histopathological examination revealed a chronic granulomatous lesion with

Langhan's giant cells and areas of necrosis. No fungal organisms were observed in the biopsy specimen. ANCA test was negative for Wegener's granulomatosis.

For confirmation of TB AFB Staining, culture, biopsy should be obtained. A Positive tuberculin test indicates that the individual has been sensitized to Mycobacterial antigen. It does not necessarily imply active disease. According to FA Ito et al<sup>1</sup> demonstration of bacilli in tissue section by AFB staining is seen in 27%-60% of the cases. In our case AFB staining were negative for smear and tissue section. Tuberculin test, culture and biopsy were positive for tuberculosis.

The culture reports are time consuming and lack sensitivity. Diagnosis of Tuberculosis was relied mainly on histopathological examination in the past. But sophisticated techniques like PCR, provides an accurate and accelerated diagnosis when conventional methods of diagnosis render equivocal results especially when low number of bacteria in the tissues prohibit their detection.<sup>7</sup> PCR was done to confirm the histopathological diagnosis of TB. PCR demonstrated a weak positivity for immunoglobulin antibodies. All these finding confirmed the tuberculosis.

The cell mediated immunity is able to control the infection in most of the cases, allowing subsequent arrest of the disease. Seeding of oral cavity may follow secondary or reactivated TB.<sup>8</sup>

In our case the lesion would have started as

secondary Tb osteomyelitis of maxillary sinus. Following anti-tuberculosis treatment it would have healed leaving a cavity in the bone. Extraction would have made oro-antral fistula without any clinical symptoms of Tb. The lesion was surgically excised and patient is under follow-up to monitor the prognosis.

### Conclusion

Tuberculous lesions of oral cavity are relatively rare. Recently the incidence of Tuberculosis has increased especially when associated with HIV infection. So clinicians should be aware of such possible secondary lesion in a patient with primary Tuberculosis and should consider it in the differential diagnosis of oral lesions.

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## Flare-Up In Endodontics and its Management

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### Abstract

For many patients, to a large extent, endodontic treatment continues to be associated with pain and discomfort. However, the last few decades have seen significant advances in basic sciences and therapeutic techniques which have increased the success rate of endodontic treatment.

Although, nowadays, dentists are capable of controlling and managing pain, successfully; both inter appointment pain and post treatment pain the terms inter appointment pain and post obturation pain have distinct meanings ,in case of multiple visit endodontic treatment. However with the popular advent of single visit endodontic therapy (where instrumentation and obturation of root canal system is done without any time break) the term post treatment pain has newly emerged. In this write up, both terms are used interchangeably; even though the phase of treatment may be different continue to be a matter of great frustration to even the experienced clinician

This unfortunate and undesirable pain condition leaves both the dentist and the patient perplexed as often; the severity of pain is totally out of proportion to the treatment rendered

In the article, the author proposes to define the etiology, and attempts to provide a solution to this complex problem

**Keywords:** endodontic pain , post operative pain , re-treatment , intracanal medication

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### Introduction

Many of us clinicians have patients calling up or returning to the dental clinic with pain during the various stages of root canal therapy. This problem of pain poses one of the biggest challenges in every day dental practice. Pain may be mild, moderate, severe or unbearable or present only on biting. The very severe and unbearable pain which generally makes the patient report for an unscheduled visit to the dental clinic and requires clinical intervention is termed a "flare-up". The causes of this kind of severe, intolerable pain are baffling to many a clinician. Probable causes include:

(a) Host Factors

(b) Iatrogenic Factors

**Host Factors:** In the span of the author's clinical experience it has been identified that the singularly most important feature which adversely affects the pain status of the tooth immediately after treatment is "*PRE-OPERATIVE PAIN*". History of pre-operative pain is an excellent predictor of pain after treatment. Walton and Fouad have appropriately described the prediction of pre treatment pain causing post treatment pain as "pre existing severe periapical pathosis setting the stage for post treatment problems" The probable explanation being the stimulation of c- fibers of somatosensory peripheral nerves due to locally produced pain inducing chemical mediators (such as prostaglandins) from

periapical inflammation or pressure build up in the confined periapical space. Other factors include retreatment cases (use of guttapercha solvents), certain involved teeth (mandibular bicuspid and anterior teeth have a higher rate of involvement), presence of necrotic pulp, allergy prone individuals and presence of systemic diseases. These factors increase the chances of post treatment pain

**Iatrogenic Factors:** Include missed canal, incomplete debridement, intra canal medicaments, high occlusion and last but not the least ,the speed of working and over instrumentation. The last reasons are observed by the author to be highly contributive to a flare-up.

## Management

It has been observed that the flare-up pain never lasts beyond 48 to 72 hours with pain reaching a crescendo in the first 24 hours. The key to management of flare-up applies in the ability to predict to some extent and to tackle it with confidence. However the gold standard to differentiate if the flare-up is due to infection or otherwise is to ask the patient as to how and when the pain started. If the patient affirms that the pain was of immediate onset after the effect of local anaesthetic wore-off and was extremely unbearable, then the patient is suffering from flare-up. If the patient replies that the pain was of slow and gradual onset after the wearing-off the anaesthesia, the pain is most likely to be caused due to infection. The logical explanation being that bacteria have an incubation period during which there is colonization of bacteria and manifestation of symptoms of an abscess. It is observed that when the key to

management of pain in a flare-up is to explain to a patient the nature of treatment and to mentally prepare him/her to anticipate pain. In this way, the patient is reassured and psychologically well prepared. Also individuals are more subdued due to this advance information.

The clinician can also prescribe NSAIDs- non steroidal anti inflammatory drugs which are well known in the management of pain. A vast array of drugs are available. Regarding the selection of the drug- it is recommended that the patient be questioned to which analgesic he/she finds effective for alleviation of pain and the same be prescribed. Unless and otherwise desired by the patient, powerful analgesics should preferably not be imposed by on the patient

The author recommends popular drugs including ibuprofen 600mg given every 6th or 8th hourly and paracetamol 500mg to 1000mg every 6th hourly. Ketoprofen 10mg tablets and piroxicam 10, 20 mg capsules may also be given. Other methods to prevent flare-up include antibiotic coverage, coronal flaring method of biomechanical preparation, intra-canal Ca(OH)<sub>2</sub> therapy, long acting local anaesthetics and a last resort- systemic corticosteroid therapy. However, the corticosteroids have to be used judiciously.

It must be said at this point that, the elimination of irritants by chemico-mechanical debridement has been found to be far more effective than antibiotic coverage.

## Conclusion

The management of pain in endodontic therapy first calls for a good understanding of anxiety which though a separate entity is very closely related to pain. A dentist with anxiety reducing retreatment talk

and behaviour, in conjunction with good knowledge of biology of the disease involved, proper therapeutic techniques, and an empathetic attitude would reach the goal of rendering “painless endodontia” for his/her patients.

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