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JULY- DEC 2017 • VOL 7 • ISSUE 2

Indian Journal of Comprehensive Dental Care

TREATMENT OF A PERIODONTAL ABSCESS BY MODIFIED KIRKLAND FLAP COMBINED WITH OSSEOUS REGENERATIVE THERAPY UTILISING AN ALLOPLASTIC GRAFT: A CASE REPORT

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ABSTRACT:

A case of recurrent abscess was seen in a 28 year old male driver with poor oral hygiene and copious amounts of supragingival and subgingival plaque and calculus. Clinically there was evidence of moderate amount of bone loss which was f ascertained by radiographic examination by utilising Gutta Percha point no. 30 as radio opaque marker. The patient was then educated about the shortcomings of his oral hygiene routine and advised oral prophylaxis along with surgical treatment. A modified Kirkland flap procedure was performed whereupon it was seen that a vertical defect was present mesial to the lower right lateral incisor. Subsequently bone grafting was done with an alloplastic graft material with further restorative treatment planned at follow up.

KEYWORDS: Periodontal abscess, angular bone loss, alloplastic graft material, pus

Date of Submission : 11/12/16 Date of Acceptance : 12/1/17

INTRODUCTION:

Periodontitis has been defined as an infectious microbial disease resulting in inflammation, bleeding (which may be elicited either by probing or may occur spontaneously), pocket formation, clinical attachment loss, bone loss, and tooth mobility[1].

Chronic generalised periodontitis is an inflammatory condition of the gingiva affecting more than 30% of the teeth in the oral cavity concomitant with clinical attachment loss and bone loss[2].

Among several acute conditions that occur in periodontal tissues, the abscess calls for special attention. Among all abscesses of the periodontium, the periodontal abscess is the most important one. It is a destructive process occurring in the periodontium, resulting in localised collections of pus[4].

Poor Oral hygiene has been proven to be a major aetiological factor in causation of periodontitis as it provides a favourable environment for biofilm formation[3].

CASE REPORT:

A 28 year old male driver reported to the outpatient Department of Periodontology and Oral Implantology, Sri Guru Ramdas Institute of Dental Sciences and Research, Amritsar, with chief complaint of pain and swelling in right

lower region pf the jaw and bleeding from gums since 6 months. On detailed history patient told that this swelling was recurrent and earlier was associated with pain which later on decreased and then subsided.

General examination: General physical examination of the patient revealed that the patient was systemically healthy, with no extremes of age, stress or fatigue, with no ongoing medication or had taken any medication taken for any disease since the past 6 months.

Intra oral examination: Intra oral examination revealed that patient had extremely poor oral hygiene with gross stains and calculus along with sinus formation with respect to lower right lateral incisor. Probing depth between the mandibular central and lateral incisors was found to be 6mm, compared with a generalised probing depth of around 4.5mm-5.5mm. The tooth was non carious, slightly extruded out of position, whereas the adjoining central incisor was distally deviated and also out of position. The lateral incisor showed no evidence of fracture and was not tender on percussion but showed Grade 1 mobility when assessed according to Glickman's Tooth mobility Index.

Lab investigations[5]: Lab tests were performed and used to confirm the presence of a suspected infection. Tests showed elevated levels of leukocytes and also an increase in blood neutrophils suggestive of an inflammatory response of the body to microbial toxins.

Radiographic examination[6]: Intra oral periapical radiographs clarified the presence of vertical defect mesial to the lower right lateral incisor and distal to the mandibular right central incisor. A Gutta Percha point no. 30 was inserted into the sinus so as to determine the exact pathway and source of the purulent discharge.

The source of the abscess was determined to be intrapulpal. So the patient was promptly referred to the department of

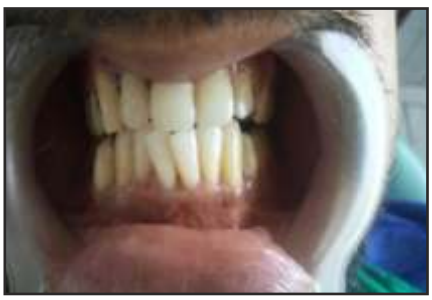

Figure 1 Pre operative radiograph showing sinus in relation to lower right lateral incisor

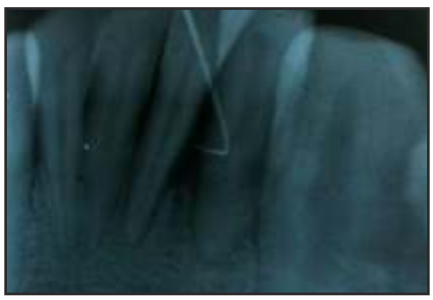

Figure 2 Radiogaph with Gutta Percha Point

Figure 3 Root Canal Treatment performed

Figure 4 Clinical determination of sinus pathway

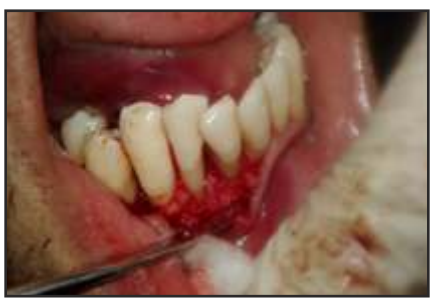

Figure 5 Revealed vertical defect after raising mucoperiosteal flap

Figure 6 Insertion of alloplastic graft

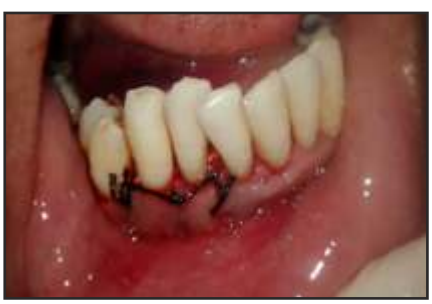

Figure 7 Suturing the flap after insertion of graft material

Figure 8 Healing of the area after 1 week

Endodontics and Conservative dentistry for Root Canal treatment.

Differential Diagnosis[10]: The differential diagnosis of the periodontal abscess is a clinically important step that allows the dentist to clearly understand the condition, assess reasonable prognosis, eliminate any life threatening condition and help in treatment planning until the condition subsides. The periodontal abscess was ruled out from the following similar conditions and lesions:

1. Gingival Abscess

Features that differentiate the gingival abscess from the periodontal abscess are:

I. History of recent trauma

II. Localisation to the gingival

III. No periodontal pocketing

2. Periapical Abscess

Periapical abscess can be differentiated by the following features

I. Located over the root apex

II. Non- vital tooth, heavily restored or large filling

III. Large caries with pulpal involvement

IV. History of sensitivity to hot and cold food

V. No signs / symptoms of periodontal diseases

VI. Periapical radiolucency on intraoral radiographs

3. Perio-Endo Lesion

The Perio-endo lesion shows:

I. Severe periodontal disease which involves furcation

II. Severe bone loss close to the apex, causing pulpal infection

III. Non-vital tooth which is sound or minimally restored

4. Endo-Perio Lesion

Endo-Perio lesion can be differentiated by:

I. Pulp interaction spreading via the lateral canals into the periodontal pockets

II. Tooth usually non-vital, with periapical radiolucency

III. Localised deep pocketing

5. Cracked tooth syndrome

Cracked tooth syndrome can be differentiated by:

I. History of pain on percussion

II. Crack line noted on the crown

III. Vital tooth

IV. Pain upon release after biting on cotton roll or rubber disc

V. No relief of pain after endodontic treatment

6. Root Fracture

Root fracture can be differentiated by the presence of:

I. Heavily restored crown

II. Non vital tooth with mobility

III. Post crown with threaded post

IV. Possible fracture line and halo radiolucency around the root

V. Localised deep pocketing

DISCUSSION:

The treatment of periodontal abscess follows the management of simple dental infections albeit with some modifications[7]:

1. Local measures:

I. Drainage

II. Maintain drainage

III. Eliminate cause

2. Systemic measures in conjunction with the local measures:

The management of a patient with periodontal abscess can be divided into three stages:

I. Immediate management

II. Initial management

III. Definitive therapy

Immediate Management

Immediate management is advocated in:

1. Space infections of orofacial regions

2. Diffuse spreading infections

In non-life threatening conditions, systemic measures such as oral analgesics and antimicrobial chemotherapy will be sufficient to eliminate the systemic symptoms.

Antibiotics are prescribed empirically before the microbiological analysis and before the antibiotic sensitivity tests of the pus and tissue specimens.

The common antibiotics which are used are:

1. Phenoxymethylepenicillin 250 -500 mg qid 5/7 days

2. Amoxycillin 250 - 500 mg tds 5-7 days

3. Metronidazole 200 - 400 mg tds 5-7 days

Initial Therapy

The initial therapy is usually prescribed for the management of acute abscesses without systemic toxicity or for the residual lesion after the treatment of the systemic toxicity and the chronic periodontal abscess.

The treatment options for periodontal abscess under initial therapy:

1. Drainage through periodontal pocket

Drainage through the pocket is the treatment of choice if the abscess is not complicated by other factors. In such patients, the use of systemic antibiotics with short term, high dose regimens is recommended. Antibiotic therapy alone, without subsequent drainage and subgingival scaling is contraindicated.

2. Drainage through an external incision

If the lesion is sufficiently large, pin-pointed and fluctuating, an external incision can be made to drain the abscess. It is recommended to use systemic antibiotics as the only initial treatment in order to avoid the damage to the healthy periodontium. In such conditions, once the acute condition has receded, mechanical debridement including root planning is performed.

3. Periodontal surgery

I. Surgical therapy has also been advocated mainly in abscesses which are associated with deep vertical defects, where the resolution of the abscess may only be achieved by a surgical operation[8].

II. Surgical flaps are also proposed in cases in which the calculus is left subgingivally after treatment.

III. The main objective of therapy is to eliminate the remaining calculus and to obtain drainage at the same time.

DEFINITIVETREATMENT[9]

The treatment following reassessment after the initial therapy is to restore the function and aesthetics and to enable the patient to maintain the health of the periodontium. Definitive periodontal treatment is done according to the treatment needs of the patient.

After thorough clinical, radiographic examination with subsequent lab tests, which showed the presence of a deep pocket along with angular defect mesial to lower right lateral incisor and leukocytosis, coupled with pain and swelling in the region since long duration and the presence of an otherwise sound tooth with no restoration a diagnosis of chronic periodontal abscess was made.

Since it was associated with a deep vertical defect, it was decided to treat the patient after raising a mucoperiosteal flap. Patient was informed about the diagnosis and then explained about the treatment modality, then recalled for open flap debridement in the form of Modified Kirkland flap combined with regenerative therapy applying a non bone graft material in the form of an Alloplastic graft consisting of Tricalcium Phosphate particles or TCP (RTR™-France).

Patient was recalled after 7 days for suture removal and asked to come for follow up after 6 months.

There are several aetiologies for abscess formation. Poor oral hygiene linked chronic periodontitis is one of the most common. Due to chronic accumulation of plaque and subsequent mineralization there exists a congenial environment for micro organisms to flourish leading to periodontal breakdown and also abscess formation.

CONCLUSION:

The patient was not following proper oral hygiene procedures leading to plaque and calculus accumulation causing periodontitis and subsequent abscess formation.

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