

PACIFIC JOURNAL OF MEDICAL SCIENCES

{Formerly: Medical Sciences Bulletin}

ISSN: 2072 – 1625



Pac. J. Med. Sci. (PJMS)

www.pacjmedsci.com. Email: pacjmedsci@gmail.com.

FOREIGN BODY PENETRATION: A MISSED DIAGNOSIS

***Jayshree Agrawal, Prashanth Shenai K, Laxmikanth Chatra,
Prasanna Kumar Rao and Veena KM**

**Department of Oral Medicine and Radiology, Yenepoya Dental College, Yenepoya University,
Nithyananda nagar, Deralakatta, Mangalore, Karnataka, India**

***Correspondence Author: jayshreeagrawal25@gmail.com**

Running title: Foreign body reaction.

FOREIGN BODY PENETRATION: A MISSED DIAGNOSIS

*Jayshree Agrawal, Prashanth Shenai K, Laxmikanth Chatra,
Prasanna Kumar Rao and Veena KM

Department of Oral Medicine and Radiology, Yenepoya Dental College, Yenepoya University,
Nithyananda nagar, Deralakatta, Mangalore, Karnataka, India

*Correspondence Author: jayshreeagrawal25@gmail.com

Running title: Foreign body reaction.

ABSTRACT:

Healing of the injured site is a complex biological process of carefully orchestrated cellular events. Presence of any foreign body at the site of injury delays the healing along with inducing biological response such as inflammation, infections, allergic reactions, toxic events and tissue alterations. Such body reactions against an exogenous materials depends upon the mode of entry, chemical composition of material, quantity of material its physical form and also depends upon the body site. A careful history, clinical examination and imaging techniques should be considered for patients with any suspected penetrating injuries.

Key words: foreign body reaction, traffic accident, wood fragments, tissue response.

Received: December 2011; Accepted: March 2012

INTRODUCTION:

The term foreign body reaction is used for the tissue response to extraneous materials that becomes implanted in or beneath dermis [1]. Such reactions occur as a result of direct accidental penetration of the exogenous

materials or due to iatrogenic cause, both inducing an inflammatory reaction. Epidemiological profile reveals Road Traffic Accident (RTA) is one among the top five causes of morbidity and mortality in South-East Asian countries [2]. A careful history

surrounding any suspected penetrating injury is essential, taking in account the timing and the type of material involved. Diagnosis depends on combination of through history taking supported by external and oral cavity examination followed by radiographic aids. Foreign bodies like wood fragments, if present, act as infectious nidus, which is not revealed by imaging study [3]. A wound that fails to heal continues to cause pain with movement or exhibit persistent purulent discharge, may suggest the presence of a foreign body.

This case report describes the clinical feature of foreign body reaction that develops after traumatic implantation of wood following RTA and the limited role of radiographs in diagnosis of such reaction.

CASE REPORT:

A 37-year old male patient reported to department of Oral Medicine and Radiology with chief complains of swelling on the right middle third of face since one month. Medical history reveals that the patient was involved in a road traffic accident three months back and was hospitalized immediately because of loss of consciousness. He reported injuries to the upper extremities and bleeding from nasal cavity for which primary management was provided. No injury to teeth and jaws was reported, however treatment was provided for the soft tissue laceration of mid-facial region.

The patient was discharged after an observational period of 24hrs. He was asymptomatic for 2 months except complaining of stuffiness below the right malar region. Extraoral examination after two months revealed Scar mark on forehead and below middle canthus of right eye. A diffuse oval swelling on the right middle third of face and obliteration of right nasiolabial fold was also noticed (Figure 1). Extension of swelling was 2.0 cm below the middle canthus of right eye to base of upper lip superior-inferiorly & 3.0 cm laterally from the right ala of nose. Surface and color of skin over the swelling was similar as adjacent side with no sign of trauma. On palpation swelling was woody hard centrally and soft at the periphery with diffuse margins. The temperature of the swelling was raised with tenderness positive. Intraoral examination revealed presence of root stumps in relation to maxillary right premolars, maxillary left second molar and mandibular left first molar teeth. A solitary irregular ulcerative lesion was noticed on the right upper buccal vestibule near the periapical region of maxillary right central, lateral incisors and canine (Figure 2).

The surface of the lesion appeared to be hypervascular with irregular tissue projections and purulent discharge at the periphery. The central area of lesion showed presence of yellowish mass of size 1.0 × 1.0 cm which on palpation was woody hard in consistency and non mobile. Surrounding area elicited

fluctuation with purulent discharge suggestive of cystic lesion. Tenderness was positive over the lesion and also with maxillary right central, lateral incisors and canine, on percussion. Intraoral periapical radiographic examination and maxillary occlusal radiograph revealed presence of only root stumps in relation to maxillary right both premolars with no other contributory findings (Figure 3 and 4). Hence the hard yellowish mass was retrieved. The implanted material was wooden pieces 4 to 5 in number of varying size (Figure 5). Thus, suggestive of penetrating injury during the time of accident and missed during preliminary examination, causing a foreign body reaction over a period of three months.

DISCUSSION:

When exogenous materials penetrate body tissue, there is usually a phase of acute inflammation in response to the injury. Persistent presence of such inert substance within tissue results in accumulation of monocytes, tissue macrophages, epithelioid histocytes and giant cells with fibroblastic reaction to lay down new connective tissue around the area of foreign body deposition [1]. Thus, penetration injuries may result in formation of implanted cysts mixed with granulomatous response. Such response is different from immune specific granulomatous inflammatory reactions based on duration, dynamics, severity and evolution. The clinical

presentation of body reaction may vary based on physical composition of material, size, their non digestible characteristics and site of injury. Tissue reactions to foreign materials are commonly encountered in oral cavity against large number of dental materials. The more common iatrogenic instances such as accidental penetration of metallic restoration or endodontic sealers and fillers are already reported in literature which induces toxic reaction [4,5]. Occurrence of pyogenic infections with vegetative matters is also common in oral cavity [6]. Unusual foreign bodies like wooden stick in oral cavity are rarely reported [7]. Review of the literature indicates foreign body reaction with aluminum silicate and black plastic tapes in oral cavity [8].

As seen in present case, such foreign body reactions are complicated by infections, especially with traumatic inoculation of wooden splinters [9,10]. This may be due to introduction of sporotrichosis or mycotic organisms manifested as cellulitis, abscess or draining sinus. Diagnosis of such reaction depends on careful history taking as the tissue reaction may be associated with delayed symptoms which may apparently been forgotten by the patient or left unrevealed, as in the present case. Hence, if the history of trauma is significant, the possibility of a mass associated with a long standing foreign body should be considered.



Figure 1: Diffuse oval swelling on the right middle third of face and obliteration of right nasiolabial fold



Figure 2: Ulcerative lesion was noticed on the right upper buccal vestibule near the periapical region of 11, 12 & 13



Figure 3 - Intraoral periapical radiographic in relation to 14 and 15 shows root stumps in relation to 14 and 15 missing with no other contributory findings.

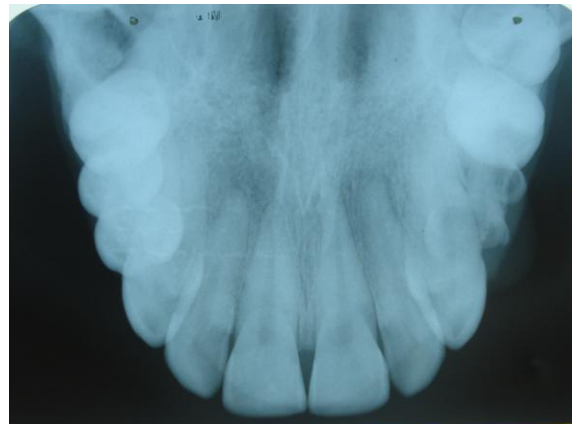


Figure 4 - Maxillary occlusal radiograph was non contributory.

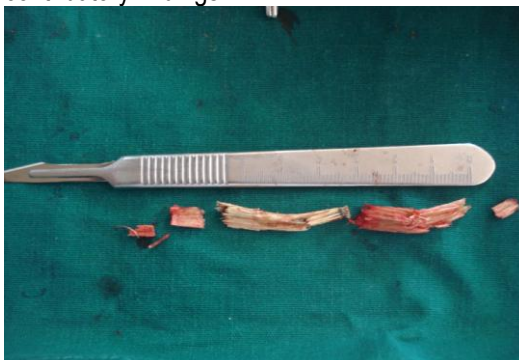


Figure 5 - Wooden pieces 4 to 5 in number of varying sizes

A history of trauma in the remote past must be treated with skepticism with essential clinical and radiological examination of suspected penetrated injury. Imaging technique may be helpful but may not yield consistent results in certain radiolucent materials like glass, wooden splinters or vegetative matters [12]. In such case sonography is an accurate imaging modality; however this was not performed, as the presence of foreign body was not suspected due to unrevealed history of penetrated injury [13]. It was difficult to judge as to whether or not to explore the lesion, but based on location and accessibility, the suspicious embedded material was retrieved revealing presence of numerous wooden splinters. This indicates that a thorough patient history and careful imaging in suspected cases remains the keys for diagnosis of retained foreign bodies.

Dentist should be familiar with their features and include them in the differential diagnosis of tissue masses, mainly in the presence of trauma history.

REFERENCE:

1. Burns T, Breathnach S, Cox N, Griffiths C. Rook's Text book on dermatology. 8th edition; volume 2: chapter 28: pg 28.39.
2. Paden M, McGee K, Krug E. Injury: A leading cause of the global burden of disease. Geneva, Switzerland: World Health Organization; 2000; 2002.
3. Chang C, Huang L, Lui C, Huang S. Oral Wooden Stick Injury Complicated By Meningitis and Brain Abscess. Chang Gung Med J. 2002; 25: 266-70.
4. Eley BM. The fate of amalgam implanted in soft tissue – An experimental study. J Dent Res 1979; 58(3):1146-1152.
5. Ektefaie M R, David H T, Poh C F. Surgical resolution of chronic tissue irritation caused by extruded endodontic filling material. J Can Dent Assoc 2005; 71(7): 487-90.
6. Scivetti M, Lucchese A, Ficarra G, Giuliani M, Lajolo C, Maiorano E, Favia G. Oral pulse granuloma: histological findings by confocal laser scanning microscopy. Ultrastruct Pathol. 2009 Jul-Aug; 33(4): 155-9.
7. C Aniece, K Parmod, S Sanjeet, B Des Raj A, and R Noor. Foreign Body in the Wharton's Duct, a case report. JK Sci. 2005; 7:61–62.
8. Shehata E, Moussa K, Al-Gorashi. A foreign body in the floor of the mouth. The Saudi dental journal. 2010; 22:141-143.
9. Gulati D, Agarwal A. Wooden foreign body in the forearm presentation after

- eight years. *Ulus Travma Acil Cerrahi Derg* 2010; 16 (4): 373-375.
10. Silveira V A S, Carmo E D, Colombo C E D, Cavalcante A S R, and Y R Carvalho. Intraosseous foreign-body granuloma in the mandible subsequent to a 20-year-old work-related accident. *Med Oral Patol Oral Cir Bucal*. 2008 Oct1; 13(10): E657 - 60.
11. Monu JU, McManus CM, Ward WG, Haygood TM, Pope TL, Bohrer SP. Soft-tissue masses caused by long-standing foreign bodies in the extremities: MR imaging findings. *AJR Am J Roentgenol* 1995; 165: 395-7.
12. Hunter T B, Taljanovic M S. Foreign Bodies. *Radiographics* 2003;23:731-57
13. Soudack M, Nachtigal A, Gaitini D. Clinically unsuspected foreign bodies: the importance of sonography. *Journal Ultrasound Med* 2003; 22:1381-5.