

IATROGENIC INJURY CAUSED BY BONE SCREW FIXATION IN TOOTH: A CASE REPORT

Rohit Sharma¹, Sumit Kumar Yadav², Achla Bharti Yadav³, Neal Bharat Kedia⁴, Kshitij Jhamb⁵, Alka Kaushik⁶

1.Senior Lecturer, Oral And Maxillofacial Surgery, Yamuna Institute of Dental Sciences And Research, Yamuna Nagar, Haryana, India.

2.Reader, Department of Orthodontics & Dentofacial Orthopedics, Mithila Minority Dental College & Hospital, Darbhanga, Bihar, India.

3.Senior Lecturer, Department of Oral Pathology, Mithila Minority Dental College & Hospital, Darbhanga, Bihar, India.

4.Reader, Deptt. of Orthodontics & Dentofacial Orthopedics, Buddha Institute of Dental Sciences & Research, Patna, Bihar, India.

5.Senior Lecturer, Oral And Maxillofacial Surgery, Yamuna Institute Of Dental Sciences And Research, Yamuna Nagar, Haryana, India.

6.Reader, Dept Of Periodontics, Yamuna Institute Of Dental Sciences And Research, Yamuna Nagar, Haryana, India.

ABSTRACT:

Use of mini-plates is being used for quite some time in treating facial fractures. However, as with every procedure, this procedure is also associated with various complications, which might be due to failure of compliance on the part of the patient, or iatrogenic. One such iatrogenic complication, which has not been reported so far in the literature, is the placement of the screw in to an otherwise healthy tooth, which later on might even lead to extraction of the tooth.

Key words: Iatrogenic injury, Bone Screw, Mini-plate

INTRODUCTION:

Michelet (1973) was the first one to report treatment of mandibular fractures using mini-plates and mono-cortical screws placed trans-orally. ^[1] The technique was further validated by Champy *et al* (1978).^[2] As with every other procedure, some complications can occur while putting the plates due to iatrogenic causes, if proper care is not

taken. One of the iatrogenic complications of mini-plates is the placement of screw in to a tooth.

This report highlights a case of a screw placed in a tooth, resulting in pain, and ultimately requiring extraction of the tooth as well as the removal of the mini-plate.

CASE DETAIL:

A 21-year old patient reported to us with the chief complaint of pain in right lower back region of the jaw. There was history of trauma one and a half year back. On clinical examination, the right lower third molar was partially erupted in the oral cavity, and was tender on percussion. An intra-oral peri-apical (IPOA) radiograph of the region was taken, which showed bone plates fixed in the region. An orthopantomogram (OPG) was also performed, showing a 2-hole plate and a 4-hole plate fixed in the region (Figure 1). The 2-hole plate was fixed very close to the roots of the third molar. It was decided to remove the impacted third molar.

A standard ward's incision was given in the region of the third molar and the tooth was exposed. The bone plate was found to be fixed on to the tooth. It was decided to remove the plate along with the third molar.

The bone plate was exposed intra orally and the screw fixed on to the bone was removed. The screw fixed on the tooth was loosened and the tooth was elevated from its socket. As the tooth came out of the socket, the plate came out with it (Figure 2). The socket was thoroughly irrigated and closure was done using simple interrupted sutures. Post-operative antibiotics were given. The healing was uneventful.

DISCUSSION:

Rigid fixation with mini-plates has become increasingly popular among oral surgeons to treat mandibular fractures. A number

of complications have also been reported with the use of mini-plates, namely, post-operative infections, non-union of fractures, wound dehiscence, osteomyelitis, mobile teeth, facial nerve damage and malocclusion.^[3] The treatment of mandibular angle fractures is plagued with the highest postsurgical complication rate of all mandibular fractures.^[4-7]

Iatrogenic damage to teeth has been reported with the use of IMF screws, leading to tooth loss.^[8] However, no cases have been reported with injury to teeth with the use of bone screws. Poggio *et al* indicated that a 1-mm thickness of alveolar bone around the screw is sufficient for good periodontal health.^[9]

CONCLUSION:

While the placement of mini-plates and screws for the rigid fixation of facial fractures appears to be a relatively simple technique, it requires a lot on the part of the operator to accurately visualize the position of tooth roots, adjacent to the site of screw insertion, in his mind. Damage to tooth roots may easily occur if this is not done, as in this case. The operator must also be confident that he has felt the bur enter the medullary bone after having perforated the buccal cortex. If this is not felt, probably the bur is partly or fully in the tooth root, which might later on give rise to complications, including infection and dehiscence, which might require removal of the tooth.

REFERENCES:

1. Michelet F X, Deymes J, Dessus B: Osteosynthesis with miniaturized screwed plates in maxillofacial surgery. *J Maxillofac Surg* (1973) Vol. 1: 79
2. Champy M, Lodde J P, Schmitt R, Jaeger J H, Muster D: Mandibular osteosynthesis by miniature screwed plates via a buccal approach. *J Maxillofac Surg* (1978) Vol. 6: 14
3. Lamphier J, Ziccardi V, Ruvo A, Janel M: Complications of Mandibular Fractures in an Urban Teaching Center. *J Oral Maxillofac Surg* (2003) Vol. 61: 745
4. Wagner W F, Neal D C, Alpert B: Morbidity associated with extraoral open reduction of mandibular fractures. *J Oral Surg* (1979) Vol. 37: 97
5. James R B, Fredrickson C, Kent J N: Prospective study of mandibular fractures. *J Oral Surg* (1981) Vol. 39: 275
6. Chuong R, Donoff R B, Guralnick W C: A retrospective analysis of 327 mandibular fractures. *J Oral Maxillofac Surg* (1983) Vol. 41: 305
7. Iizuka T, Lindqvist C, Hallikainen D, Paukku P: Infection after rigid internal fixation of mandibular fractures: A clinical and radiological study. *J Oral Maxillofac Surg* (1991) Vol. 49: 585
8. Majumdar A: Iatrogenic injury caused by intermaxillary fixation screws. *Br J Oral Maxillofac Surg* (2002) Vol. 40: 84
9. Poggio P M, Incorvati C, Velo S, Carano A: "Safe areas": A guide for miniscrew positioning in the maxillary and mandibular arch. *Angle Orthod* (2006) Vol 76: 191

FIGURES:



Figure 1: Orthopantomogram of the Patient



Figure 2: Extracted Tooth with Bone Plate and Screws