Removal of Rarely Positioned Supernumerary Impacted Tooth with Lateral Trepanation Technique: A Case Report

Maitrey G.Bhalodia[1], Abhinay Deshmukh[2], Priya Singhal[3], Ronak M Desai[4], V.Jeevan Prakash[5]

1,2,4- Post Graduate student,Oral and Maxillofacial Surgery, Vyas dental college and Hospital, Jodhpur. 3- Post Graduate student, Oral Medicine and Radiology , Vyas dental college and Hospital, Jodhpur. 5- Principal, Professsor, HOD, Oral & Maxillofacial surgery, Vyas Dental college and Hospital, Jodhpur.

Correspondence to:
Dr. Maitrey G Bhalodia, N-158,Ashiana Amarbagh, Main Pali Road, Jodhpur-362005
Contact us: www.ijohmr.com

ABSTRACT

Surgical removal of the supernumerary impacted tooth may be associated with some complications like periodontally impaired adjacent teeth, adjacent teeth trauma, fracture of root, parasthesia, and sinusitis. Lateral trepanation technique described by Bowdler Henry and Howe gives minimal post-operative complications. Most commonly it is used for the surgical removal of the mandibular third molar teeth. Here we present a case of impacted supernumerary tooth present in between right first and second mandibular molar which was extracted using Lateral trepanation technique. This article highlights the rare case of impacted supernumerary tooth present at an unusual location and This articles aware the Oral & Maxillofacial surgeons about the new and safest technique of surgically extracting the impacted supernumerary tooth without damaging adjacent teeth.

KEYWORDS: Supernumerary tooth, Lateral trepanation technique, Bowdler Henry, and Howe Technique.

INTRODUCTION

Among the alterations in the normal development of the oral and maxillofacial region, there are differences in the number of teeth which can occur in both deciduous and permanent dentition. Supernumerary teeth are defined as those in excess when compared to the normal dentition. Their prevalence ranges between 0.3−0.8% in the deciduous dentition and 0.1−3.8% in the permanent dentition. Females are affected approximately half as often as males.[1-3]Supernumerary teeth are estimated to occur in the maxilla 8.2 to 10 times more frequently than the mandible, and most commonly affect the premaxilla.[4]

Factors need to be evaluated before a supernumerary impacted tooth is extracted include age of the patient, status of adjacent teeth. (Including mobility, decayed teeth and operative status, shape, resorption), status of the impacted tooth, occlusal relationship and arch length.[5]

Complications that may be associated with the surgical removal of supernumerary impacted tooth include periodontally compromised adjacent teeth, damage to the adjacent teeth, root fracture, neuropathy, sinus involvement and osseous defect.

To overcome these complications Bowdler Henry and Howe have described a technique for the removal of lower third molar called lateral trepanation technique.[6] This technique provides minimal post-operative complications.This case referred from the department of orthodontics with the prime concern of preserving buccal bone which is best preserved by lateral trepanation technique.

CASE REPORT

A 12-year-old female child reported to the hospital with a chief complaint of irregularly placed teeth in upper and lower front region. Intraoral examination confirmed the patient's chief complaint. Radiographic examination revealed the presence of a supernumerary tooth germ which was present between right mandibular first and second molar (Fig 1).Parallax technique confirmed its presence on the buccal side. Extraction of the tooth was needed for the successful orthodontic treatment for which

Fig 1

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she was referred to the Department of Oral and Maxillofacial Surgery. The medical history of the patient was nonsignificant and she was born to nonconsanguineous parents. Surgical extraction of the tooth was planned after taking parent consent.

Prior to the procedure, complete hematological investigations were performed to rule out any possible complication. After administering local anesthesia (Inferior alveolar, lingual and long buccal nerve block) to the patient a crevicular incision was given extending from distal to the right mandibular second premolar to the distal to the right mandibular first molar (Fig 2).Along with it an anterior releasing incision was given with no 15 BP blade. The Full thickness mucoperiosteal flap was then raised with molt no.9 periosteal elevator, Blood fewer fields was maintained by applying pressure and with the use of the gauze. A round surgical bony window was created with the round surgical bur under constant irrigation,(Fig 3) which exposed the crown of the impacted supernumerary tooth. Once the crown got exposed, it was splitted into two and luxated out of its socket and then removed (Fig 4).Hemostasis was achieved and the flap was placed back and sutured with 4-0 vicryl suture. (Fig 5) A postsurgical instruction was explained to the patient and was kept on analgesic and antibiotic coverage. Patient was instructed to maintain a good oral hygiene using a soft bristle toothbrush and chlorhexidine mouthwash twice daily. The recall visits were scheduled for 1 week for evaluation of healing followed by a 6 monthly recall pattern for continued observation.

Fig 2

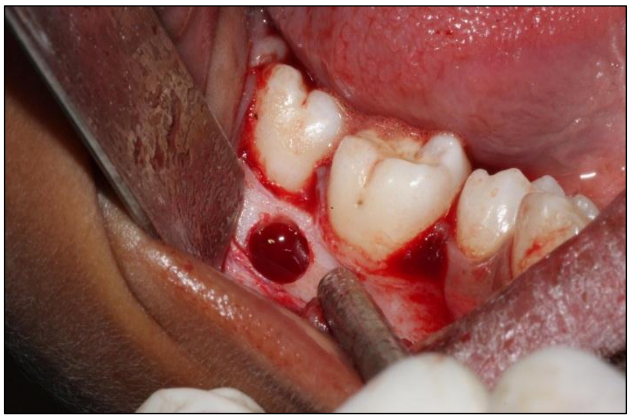

Fig 3

Fig 4

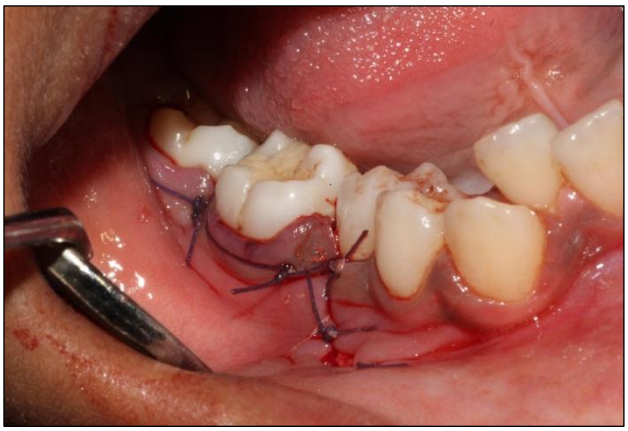

Fig 5

DISCUSSION

The most comprehensive study of supernumerary teeth and one often quoted is that conducted in Germany by Stafne in 1932.[7] This involved the survey of full-mouth radiographs of 48,550 adults. A total of 500 supernumerary teeth were identified (1%) including nine maxillary and 33 mandibular premolars (8.4% of all supernumerary teeth identified).

Following study showing prevalence of supernumerary teeth are mentioned in Table No.1. [1,3,7-13]

In Barcelona A descriptive study of 113 unerupted supernumerary teeth in 79 pediatric patients concluding that Incidence in supernumerary teeth is more among male patients (ratio M: F of 1.82:1). Most common locations are: maxilla (82%) and premaxilla (77%). Only one supernumerary tooth (68.5%) in most of the cases and premolar region in multiple cases. The commonest morphology is conoid shape (69.62%). Surgical extraction was done by palatal/lingual in 49.37% of the cases, as opposed to the vestibular approach in 45.57% (Table No.2).[14]

In this case, a female patient presented with a supernumerary tooth in posterior teeth region between the molar tooth which is a very unusual position, and the patient was undergoing the orthodontic treatment. Minimal invasion of buccal bone should be the prime concern during the surgical removal also Lateral

Table No.1

Authors	Sample size	Country of study	Age of Subjects	Methods of detection supernumeraries	Reported prevalence of supernumeraries	Male: Female ratio
Gabris et al(2006)	2,219 patients	Hungary	6–18 years	Radiographs	1.53%	1.4:1
Tyrologou el(2009)	97 children	Sweden	3–15 years	Clinical examination and radiographs	-	2.1%
Rajab and Hamdan(2002)	152 children With diagnosed with supernumerary teeth	Jordan	Range from5-15 years	Clinical examination and radiographs	-	2.2:1%
Liu (1995)	112 children With diagnosed with supernumerary teeth in maxillary region	Taiwan	Range from 4-14 years	Clinical examination and radiographs	-	2.8:1
von Arx(2002)	90 patients with anterior superior maxillary teeth	Switzerland	6–10 years	Clinical examination and radiographs		2.6:1
Bodin *et al(1978)*	21,609 patients	Sweden	Not specified	Not specified	1.6%	1.7:1
Brook(1974)	1,331 children	Britain	11-13 years	Clinical examination and radiographs	2.1%	1.4:1
Stafne(1932)	48,550 patients	USA	Average-age approximately 40 years	Radiographs	0.91%	-

Table No.2

Supernumerary tooth characteristics	N° cases	% cases
Total number	113	100
Number:		
Single	52	65,82
Double	22	27,85
More than 3	5	6,33
Location		
Maxilla	92	82
Mandible	21	18
Zone		
Mesiodens	42	53,16
Superior incisors	15	18,99
Inferior Premolars	8	10,13
Superior Distomolar	5	6,33
Superior Canine	4	5,06
Inferior Paramolar	2	2,53
Inferior Canine	1	1,27
Superior Premolars	1	1,27
Premolar / paramolar zone	1	1,27
Superior Paramolar	0	0
Inferior Distomolar	0	0

trepanation technique was preferred over the conventional technique.

Detection of supernumerary teeth is best achieved through clinical and radiographic examination.[15] However; most of them can be diagnosed only by means of radiography. Before surgical removal is attempted, the position of the supernumerary tooth must be located. One method of localizing impacted supernumerary teeth uses the parallax technique.[16] Palpation is another valuable adjunct in determining the location of the unerupted tooth. In this patient, the supernumerary tooth in the molar region was palpated by clinical examination and parallax technique confirmed its presence on the buccal side.

LATERAL TREPANATION VS. CONVENTIONAL TECHNIQUE (Table 3)

Certain complications may be associated with the surgical removal of supernumerary impacted tooth like periodontally compromised adjacent teeth, damage to the adjacent teeth, root fracture, neuropathy, sinus involvement and osseous defect.

To minimize these complications Bowdler Henry and Howe have described the lateral trepanation technique.

Most commonly it is used for the surgical removal of the mandibular third molar teeth. This technique gives minimal post-operative complications.[6]

	Conventional technique	Lateral trepanation technique
ASD	-	-
Infection & Pus Drainage	6	-
Increased Pocket Depth	5	-
Unattached Gingiva	11	1
No Complication	8	18

Table No.3

KajFinnel and Agneta Klxmfeld in their study showed the operation time with the lateral trepanation technique ranged between 13 and 35 min (mean 21 min) and with the conventional technique between 11 and 25 min (mean 17 min). As to post-operative bleeding, swelling or echymosis, no difference between the two sides could be recorded one week after the operation. On the other hand, local infections with pus drainage were seen in more numbers of cases when the conventional technique had been used and in no case when the lateral trepanation technique had been used. Between the first and the second post-operative reviews, two more cases of infection on the conventional side occurred. ASD (alveolitis sicca dolorosa) was not significant in either.

PERIODONTAL ASPECT: [6]

At the 2-month review, the pocket depth was increased by 2 mm or more in cases where the conventional technique had been used. In no case where the lateral trepanation technique had been used did the increase of pocket depth exceed 1 mm. Before the operation, the buccal gingiva was firmly attached to the underlying bone in all cases. Two months after the operation it was unattached in few cases where the conventional technique had been used, and in none cases where lateral trepanation technique used.

The lateral trepanation technique gives less post-operative infections is probably that the surgical trauma is minimal as less bone is removed so it gives us the best advantage to preserve the bone and the fact that both the marginal gingiva and the marginal bone are left untouched could explain the differences of periodontal complications between the two techniques.[5-6]

CONCLUSION

Lateral trepanation technique has been proved to be better in all the aspects than conventional technique including bone preservation, infection, periodontal health, unattached gingiva and dry socket. In view of the fewer post-operative complications, the preferred technique for the removal of the supernumerary impacted tooth in patient undergoing orthodontic treatment is Lateral trepanation.

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