Original Article

DEGREE OF DIFFICULTY IN MANDIBULAR 3RD MOLAR IMPACTIONS IN PATIENTS REPORTING TO KCD

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ABSTRACT

Objective: *The objective of this study is to find out the difficulty index of impacted mandibular third molars and additional factors making the surgical procedure difficult for the surgical team.*

Material and Methods: *The present study is conducted at Khyber College of Dentistry, Peshawar, Pakistan during a period from 1st December, 2016 to 30th March, 2017. The sample contained 100 patients who reported with impacted mandibular third molars, between the ages of 15-45years and included both genders.*

Data collection tool was a specially designed and validated proforma. The structured questionnaire included variables related to the demographic factors of the patient (name, age, gender), side of the jaw involved, chief complain of the patient, and difficulty score of the impacted mandibular molar based on WHARFE scale. Some additional factors were also considered, presence or absence of bulky tongue, cheek, gag reflex, limited mouth opening and cooperation of the patient and radiographic factors. The data obtained was analyzed using SPSS version 19.

Results: *Out of 100 patients, 61 were male while 39 were female with a male to female ratio of 1:1.56. Sixty one percent were in the age range of 15 to25 years and 35% were in the age range of 26-35years. Right mandibular third molar impactions were more commonly reported (53%). Pain was the predominant chief complain observed in patients. As per WHARFE's Scale, majority of the patients had impactions with the degree of difficulty score ranging from 1-5 followed by 6-10 (36%). Contact with second molar (72%) and proximity to inferior alveolar nerve (69%) and bulky cheek (24%) were found to be the remarkable additional difficulty factors present in the study subjects.*

Conclusion: *majority of the patients are in the age range of 15-25 years; pain is the predominant presenting complaint with a WHAFE score of 1-5 in majority of patients.*

Key words: *Mandibular third molar, Impacted teeth, WHARFE difficulty index*

INTRODUCTION

Impacted tooth is defined as the tooth that does not erupt to attain its normal functional position in the usual range of expected time. Generally they erupt between ages of 17-21years. If not extracted surgically they are retained throughout the individual's lifetime because they lack eruptive forces. Impacted teeth may remain asymptomatic or may be associated with various pathologies such as caries, pericoronitis, cysts, tumors, and also root resorption of the adjacent tooth[1].

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The most common cause of impaction is insufficient arch length. That is the total length of the alveolar arch is smaller than the combined mesio-distal width of each tooth.[2,3] Other causes include interference from adjacent teeth, dense overlying bone, excessive soft tissue or a genetic abnormality[4].

Most commonly involved teeth are maxillary and mandibular third molars, followed by maxillary canines and mandibular premolars. The third molar impaction is more frequent than the other teeth because they are the last to erupt in the arch. Mandibular third molars are more commonly impacted than their maxillary counterparts[3].

Unless their removal is contraindicated, all the impacted teeth must be removed[5]. The most common

contra indications include acute infection and systemic diseases contraindicating the surgical intervention.

The tooth related radiographic features which affect the degree of difficulty of removal of Impacted mandibular thirds molars include angulation of the tooth, its relationship to anterior border of the ramus, its relationship to the occlusal plane, nature of the overlying tissue,[6] length, divergence and curvature of the roots,[7] width of the periodontal ligament space around the roots, presence of ankylosis, size of follicular sac, density of surrounding bone, its relationship to inferior alveolar nerve and contact with mandibular second molar.[8,9]

Other factors related to patient are age, gender, height and weight of the patient,[8,10] size of the patient's tongue, thickness of cheek mucosa, gag reflex of the patient, mouth opening of the patient and cooperation on patient's behalf.

The impaction needs thorough surgical planning, including consent, difficulty index, type of anesthesia and cost & time involved. Basic surgical principals of flap design and removal of the tooth are also important points to be considered.[6,11,13]

The aim of this study is to find out the difficulty index of impacted mandibular third molars and additional factors making the surgical procedure difficult for the surgical team.

METHOD AND MATERIALS

The present study is a descriptive and quantitative study conducted at Khyber College of Dentistry, Peshawar, Pakistan during a period from 1st December, 2016 to 30th March, 2017. The sample contained 100 patients who reported with impacted mandibular third molars, between the ages of 15-45years and included both genders.

Data collection tool was a specially designed and validated proforma. The structured questionnaire included variables related to the demographic factors of the patient (name, age, gender), side of the jaw involved, chief complain of the patient, and difficulty score of the impacted mandibular molar based on WHARFE scale. Some additional factors were also considered, presence or absence of bulky tongue, cheek, gag reflex, limited mouth opening and cooperation of the patient and radiographic factors including loss of lamina dura, proximity to inferior alveolar nerve, contact with second molar. The data obtained was analyzed using SPSS version 19. A descriptive analysis was made regarding the data and results were drawn in the form of tables and charts.

RESULTS

According to the results of the present study, out of 100 patients, 61 were male while 39 were female with a male to female ratio of 1:1.56. Sixty one percent were in the age range of 15 to25 years and 35% were in the age range of 26-35years. Detail is presented in Table1. Right mandibular third molar impactions were more commonly reported (53%) as compared to left side (47%). Pain was the predominant chief complain observed in patients. Details regarding other chief complains are given in Table2. As per WHARFE's Scale, majority of the patients had impactions with the degree of difficulty score ranging from 1-5 followed by 6-10 (36%). Detail is given in Fig-1.

Table 1: Age Distribution

AGE(in Years)	Frequency	Percentage
15-25	61	61
26-35	35	35
35+	4	4
Total	100	100

Table2: Chief Complaint

CHIEF COMPLAINT	Frequency	Percentage
Pain only	43	43
Pain & Pericoronitis	15	15
Pain & Swelling	11	11
Pain, Pericoronitis and Swelling	11	11
Others	20	20
Total	100	100

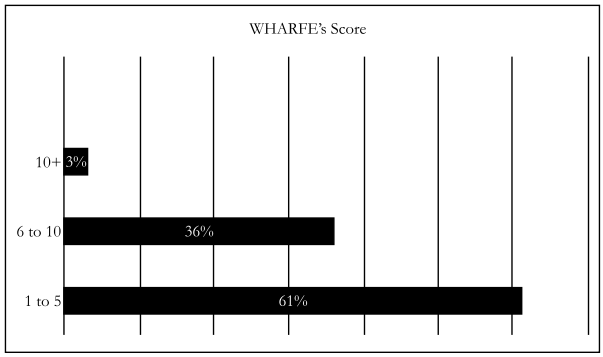

Fig: WHARFE's Score

Additional difficulty factors were noted and recorded as Yes/No responses. Out of 100 patients, radiographic difficulty factor e.g contact with second molar (72%) and proximity to inferior alveolar nerve (69% and bulky cheek (24%) were noted. Detail regarding additional difficulty factors are given in Table 3.

DISCUSSION

The current study shows that patients between the age of 15-25years were more common with the mean age of 25years. These results were in conformity with previous studies. Gbotolorun [12] stated in their study that the ages range was 17 to 55 years with a mean of 26.63 (+/- 7.39).

The present study also shows that patients presenting with mandibular third molar impactions were mostly males. The results are contradictory to studies done by by Masagti et al on13, and by Gbotolorun et al12 showing a male to female ratio of 1.2:1 (496 males and 400 females) and 1:1.15 (153 males and 176 females) respectively.

Right sided mandibular impactions were presented more commonly. This finding is supported by a study done by Masagti et al[13].

Pain remained the most frequent chief complaint (43% of the patients). Our findings are similar to a study done in Bangkok, Thiland by Jirapun Punwutikorn et al[14].

WHARFE score criteria for the degree of difficulty of impaction is a preoperative assessment criteria and based on dental radiographic factors. The methods of estimating difficulty of extraction have been dominated by dental factors evident on radiological assessment of the dentition. Winter described three imaginary lines that indicate the depth of the tooth in bone. It was expanded by Macgregor in 1985, to WHARFE which includes the Winter's lines along with other factors and has recently been used in several studies[8,16]. The factors include Winter's Classification (vertical, horizontal, mesial and distal), Height of the mandible, Angulation of second molar, Root shape, Follicle size and path of Exit. Increase in WHARFE score depicts increase in difficulty in removal of the mandibular impaction. According to the results of the current study majority of the patients had a WHARFE score ranging between 1-5. This scoring criteria have been used in studies performed in other parts of the world e.g the study done by Renton et al[8,16].

In the present study, besides the radiographic factors from WHARFE scale, other additional factors have also been considered. These factors include both dental(radiographic) and clinical(patient) factors.

Clinical assessment of the patients revealed that 19% of the patients had bulky tongue, 24% had bulky cheek, 18% of them had hypersensitive gag reflex, 15% presented with limited mouth opening and 10% were non-cooperative. The presence of these factors made the surgery further difficult and time consuming for the operators. The fact that these factors, if present, add up to the difficulty in removal of mandibular third molar impactions, is being supported by Rajiv[17]

The current study shows that at the time of appointment for mandibular third molar impaction removal, pericoronitis was active only in 23% of the patients. This finding is in contradiction with the study done by Gbotolorun et al[12]. They stated that recurrent Pericoronitis was the most common indication for extraction (209 extractions; 63.1%). The reason for the contradiction in our results with this study is that at the time of our data collection the patients had been pre medicated and their pericoronitis had subsided already.

Radiographic factors that were assessed include loss of lamina dura, proximity to inferior alveolar nerve and contact with second molar. None of them showed loss of lamina dura or ankylosis.

According to the results of our study 69% of the patients had their impacted mandibular third molars in close proximity of the inferior alveolar nerve. These results are supported by studies done by Kositbowornchai et al18. They used different methods to find the relation between the mandibular third molar and inferior alveolar nerve. The results showed that in 68.6% of the cases the mandibular third molars were in contact with the inferior alveolar nerve detected by dental cone beam CT.

The current study revelaed that 72% of the patients had their mandibular impacted third molars in contact with the second molar, creating difficulty in its removal. This is in conformity with Hupp et al[4].

CONCLUSION

The following can be concluded from the results of the present study:

1. Majority of patient were male in their age group 15-25 years.
2. Pain & Pericoronitis are the primary presenting complaints.
3. Majority of the impactions were in a range of 1-5 WHARFE score.
4. Contact with second molar (72%) and proximity to inferior alveolar nerve (69%) and bulky cheek (24%) were found to be the remarkable additional difficulty factors present in the study subjects.

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