

## FREQUENCY OF DRY SOCKET, PAIN, WOUND DEHISCENCE AND SWELLING ONE WEEK AFTER REMOVAL OF MANDIBULAR THIRD MOLAR IMPACTION

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### ABSTRACT

**Objective:** The objective of this study was to determine the frequency of dry socket, pain and swelling; one week after removal of mandibular third molar impaction.

**Material and Methods:** One hundred patients having mandibular third molar impaction were included in the study. The extractions were done by house surgeons and trainee medical officers. Smokers, patients with systemic diseases, using medications were excluded from the study. After elevating mucoperiosteal flap, mandibular third molar removal, primary closure was done with 3-0 suture (silk or vicryl). All patients were instructed properly and prescribed antibiotics and analgesics. Age, gender and complications of disimpaction (dry socket, pain, wound dehiscence and swelling) at one week follow up were recorded. The data were analyzed using SPSS 17.

**Results:** Out of hundred patients, 44 (44%) were females and 56(56%) were males. The age was ranged from 18 to 45 years. The common age group was 21-25 years. The frequency of dry socket one week after mandibular third molar extraction was 10% in this sample of population. The frequency of wound dehiscence one week after mandibular third molar extraction was 10%. The frequency of mild pain, moderate, and severe pain one week after mandibular third molar extraction were 41, 10, 4% respectively. The frequency of swelling one week after mandibular third molar extraction was 35%.

**Conclusions:** Third molar surgical extraction is associated with many complications which can be minimized by observing the basic principles of surgery.

**Key words:** Third molar impaction, dry socket, pain, wound dehiscence

### INTRODUCTION

Surgical removal of impacted mandibular third molars is one of the most common surgical procedures in maxillofacial surgery<sup>1</sup>. Mandibular third molars have the greatest incidence of being impacted with 33% of the population having atleast one impaction<sup>2</sup>. Third molars are frequently impacted due to skeletal insufficiency in the area of their eruption. Sagittal growth of mandible finished earlier than eruption of third molar in many cases leading to impaction<sup>3</sup>. Proper mandibular third molars eruption also depends on their favorable path of eruption. For example, if

the tooth bud is medially angulated during the initial stages of calcification and root development, this path of eruption will be unfavourable<sup>4</sup>. Root angulation had been correlated with third molar impaction. Angulated roots were more common in impacted mandibular third molars as compared to erupted mandibular third molars<sup>5</sup>.

Removal of impacted third molar is associated with postoperative complications<sup>2</sup>. Complications associated with impacted teeth removals are not irrelevant and their development is conditioned by local and general factors including tooth position, age and health status of the patient, knowledge and experience of the surgeon and surgical equipment. Because of osteoporotic or sclerotic bones, dental ankylosis, use of various drugs for coagulation, osteoporosis etc., which are more common seen at the older patients. The complications associated with removal of impact-

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ed teeth might be more serious comparing with the same complications at younger patients<sup>6</sup>. Immediate complications include pain, trismus, swelling, dysphagia while delayed complications include bleeding, dry socket, wound dehiscence, delayed wound healing, infections, periodontal pocketing and nerve injury<sup>2,3</sup>.

Surgical edema is an expected sequela of removal of impacted teeth. Swelling usually reaches a maximum level 2 to 3 days postoperatively and should subside by 4 days and be completely resolved by 7 days. The use of ice and head elevation in the perioperative period may limit postoperative swelling and improve patient comfort. The preoperative use of systemic corticosteroids has been advocated to reduce immediate swelling, but debate still exists as to their efficacy<sup>6</sup>.

Trismus is often the result of surgical trauma and is secondary to masticatory and facial muscles inflammation. As with surgical edema, there is evidence to support the preoperative use of steroids in reducing postoperative trismus. No current agreement exists as to the most beneficial dose, type, or timing of its administration, however. Measurement of interincisal opening preoperatively and at follow-up ensures that the patient returns to the preoperative level of function<sup>7</sup>.

The objective of this study was to determine the frequency of dry socket, pain and swellings one week after removal of mandibular third molar impaction.

## METHODS AND MATERIALS

One hundred patient having mandibular impacted third molar, presenting to Oral Surgery Department of Khyber College of Dentistry, Peshawar between January 2014 and march 2015 were include in this study. Informed consent was taken from all patients.

All the patients were attended by house surgeons and trainee medical officers. Age and gender and complications of disimpaction (of Alveolar osteitis (Dry Socket), pain, wound dehiscence and swelling) at one week follow up were recorded. The local anesthetic given to all patients was 2% lidocaine with adrenaline 1:100 000 and not more than five cartridges. Envelope mucoperiosteal flaps were raised and the bone overlying the tooth was removed using a slow speed round bur. In some cases a straight fissure bur was used to section the crown and the roots which helped the removal of tooth without any trauma. A sterile normal saline irrigation was used during the tooth sectioning

and bone removal. After removal of teeth, wounds were irrigated and sharp areas were smoothened with bone file. A 3-0 Vicryl or silk was used to close the wounds. The patients were given appropriate post-operative instructions. All patients were given the same antibiotics and analgesics.

Those patients using oral contraceptive or were in menstrual cycle phase, smoker and or suffering from any systemic disorders were excluded.

Pain was recorded as mild, moderate, and severe using 10-point visual analog scale (0-2 = mild, 3-5 = moderate, and 6-10 = severe). Swelling was analysed by comparing the two sides of the patient's face. Trismus was determined by checking the extent to which the patient could open his/her mouth before disimpaction and after one week of disimpaction. Intra-oral examination was then carried out for any other complication such as dry socket, or wound dehiscence.

The data were analyzed using Statistical Package for Social Sciences (SPSS) version 17. Frequencies and percentages were calculated for complications.

## RESULTS

Out of hundred patients 44 (44%) were females and 56(56%) were males. The age was ranged from 18 to 45 years. The mean age was  $25 \pm 5.3$  years. The common age group was 21-25 years. The details of age distribution are given in the Table-1.

The frequency of dry socket one week after mandibular third molar extraction was 10% in this sample of population. The frequency of wound dehiscence one week after mandibular third molar extraction was 10%. The frequency of mild pain, moderate and severe pain one week after mandibular third molar extraction were 41, 10, 4% respectively. The frequency of overall swelling one week after mandibular third molar extraction was 35%. The details are given in Table-2 and 3.

Table-1: Age distribution of the sample

| Age (years)  | Frequency  | Percent      |
|--------------|------------|--------------|
| 18-20        | 14         | 14.00        |
| 21-25        | 38         | 38.00        |
| 26-30        | 20         | 20.00        |
| 31-35        | 11         | 11.00        |
| 36-40        | 9          | 9.00         |
| 41-45        | 8          | 8.00         |
| <b>Total</b> | <b>100</b> | <b>100.0</b> |

**Table-2: Frequency of complaints after one week of mandibular third molar impaction removal.**

| Complaint                   | Frequency  | Percent      |
|-----------------------------|------------|--------------|
| Wound dehiscence            | 10         | 10.0         |
| Swelling                    | 34         | 34.0         |
| Pain                        | 44         | 44.0         |
| Dry socket + pain           | 6          | 6.0          |
| Dry socket + swelling       | 1          | 1.0          |
| Dry socket + pain+ swelling | 5          | 5.0          |
| <b>Total</b>                | <b>100</b> | <b>100.0</b> |

**Table-3: Degree of severity pain after one week post operatively (n = 55)**

| Pain          | Frequency | Percent      |
|---------------|-----------|--------------|
| Mild pain     | 41        | 74.55        |
| Moderate pain | 10        | 18.18        |
| Severe pain   | 4         | 7.27         |
| <b>Total</b>  | <b>55</b> | <b>100.0</b> |

## DISCUSSION

The eruption time of mandibular third ranged from 17 to 25 years<sup>8</sup>. Mandible grow anteroposterior upto adolescent growth spurt which is upto 13 or 14 years in females and 15 or 16 in males. In most cases mandibular sagittal growth finished before complete eruption of mandibular third molar and becomes impacted<sup>9</sup>. In this study the age range was from 18 to 45 years. The common reasons for presenting third molar impaction removal in this age range is pain, swelling, trismus as a result of pericoronitis and dental caries. The late presentation among patients may due to lack of awareness among patients of our country. Ayaz et al<sup>10</sup> carried out a study on the assessment of factors associated with surgical difficulty during removal of impacted lower third molars using 106 patients in their study. Age range for their study was 11 to 50 years. Maria et al<sup>11</sup> conducted a study on comparison of primary and secondary closure of the surgical wound after removal of impacted mandibular third molars using 60 patients. In their study the age range was 18 to 40 years which are similar to the current results.

A dry socket also referred to as alveolar osteitis is a post-operative complication that interrupt the healing process taking place after a tooth extraction. Presenting complaints are post-operative pain inside and around the extraction site, which increases in severity at any time between the first and third day after the extraction, accompanied by a partial or total

disintegrated blood clot from the alveolar socket with or without halitosis. Dry socket was first described by Crawford<sup>12</sup> in 1896. The name dry socket is used because the socket has a dry appearance after the blood clot is lost and debris washed away. The other terms used are alveolar osteitis, alveolitis, localized osteitis, alveolitis sicca dolorosa, localized alveolar osteitis, fibrinolytic alveolitis, septic socket, necrotic socket, alveolagja<sup>13</sup>.

In the current study 12% patients came with complication of dry socket. In a local study<sup>10</sup> conducted at Khyber College of Dentistry Peshawar reported that only 3.8% patients presented with dry socket. A review by Preetha<sup>14</sup> reported that dry socket occurred in 0.5-5% of routine dental extractions and 25-30% in extraction of impacted mandibular third molars. High prevalence in the preetha's study may be due to difference in difficulty index of third molar, surgeon experiences or genetic variation. There is great variation in reported incidence rates (0.5%-68.4%) between series, usually due to inconsistency in diagnostic criteria, variation in microbial prophylaxis, patient medical status and the operative skills of the surgeons. The true incidence rate probably lies somewhere between 5% and 20%<sup>15</sup>.

Wound dehiscence occurs in primary closure after third molar impaction removal due tension incorporated. In the present study the prevalence of wound dehiscence was 10% which is very low than international studies<sup>14,15</sup>. Small sample size, variation in operators skill, population variation may play a role in these respects. Khande et al<sup>16</sup> found that wound dehiscence occurred in 33.33% of primary closure, there was dehiscence postoperatively. Pasquilini et al<sup>17</sup> found this complication in 30% of his cases.

Pain and swelling after extraction is due to inflammatory process of oral tissue. The commonest complication was mild pain (41%) in this study while the frequency of swelling after third molar impaction removal after 7 day was 40%. These results are supported by Ayaz et al<sup>10</sup> and Yahya et al<sup>18</sup>.

This study shows weakness in many respect. This include small sample. Many variables affect the frequency of complications after third impaction removal like level and pattern of impaction (distoangular is most difficult) , patient age, surgeon experience etc. more studies are indeed in this population for taking consideration of these confounders.

**CONCLUSIONS**

It is concluded from the present study that:

1. The most common post op complication was pain followed by swelling.
2. Dry socket was seen in 10% of the cases.
3. Third molar surgical extraction is associated with many complications which can be minimized by taking proper precaution.

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