

## Original ARTICLE

### Assessment of incidence of dry socket in patients undergoing extraction of impacted third molar

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#### ABSTRACT

**Background:** Dry socket is a post-extraction complication characterised by the onset of a severe pain usually 48 to 72 hours after the extraction of a tooth. Clinical examination will reveal a necrotic blood clot in the extraction wound which, on removal, will disclose alveolar bone with a 'dry' appearance. Hence; the present study was conducted for analysing the incidence of dry socket. **Material and method:** 80 patients were enrolled in this study that underwent tooth extraction in the oral surgery department of the dental college. All extractions were performed by senior faculty of the dental college. All demographic details of the patients were obtained. After each extraction an assessment of the blood clot in the extraction socket was made. Patients were then told to return to the hospital should they experience any discomfort from the site of the extraction during the following few days. SPSS software was used for statistical analysis. **Results:** Out of 80 patients who underwent extraction of impacted third molar in this study it was observed that only 3 patients reported with clinical evidence of dry socket. The mean age group of patients who developed dry socket was 31.62 years. 2 out of 36 females developed dry socket. Only 1 male out of 44 developed post extraction alveolar osteitis. This relation however was not statistically significant with P value of .25. Only 1 case of extraction of impacted maxillary third molar out of 33 cases developed dry socket. In mandibular third molar disimpaction 2 out of 47 cases developed dry socket. **Conclusion:** The incidence of dry socket is higher in extraction of impacted mandibular third molars and males and females are almost equally effected.

**Key words:** Dry socket, alveolar osteitis, fibrinolysis

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#### INTRODUCTION

Third molars are the most frequently impacted teeth and might fail to erupt into a normal functional position<sup>1</sup>. The prevalence of impacted third molars ranges between 16.7–68.6% across various populations<sup>2</sup>. The surgical extraction of impacted third molars is a common oral surgical procedure<sup>3</sup>. Common complications following third molar surgery include sensory nerve damage, dry socket, pain, swelling, trismus, infection and hemorrhage<sup>4</sup>.

The unscientific term “dry socket” refers to a post-extraction socket where some or all of the bone within the socket, or around the occlusal perimeter of the socket, is exposed in the days following the extraction, due to the bone not having been covered

by an initial and persistent blood clot or not having been covered by a layer of vital, persistent, healing epithelium<sup>5-6</sup>.

Although the aetiology of dry socket is debated, it is probably multifactorial<sup>7</sup>, and its pathogenesis remains Unknown<sup>8</sup>. Some of the factors implicated in its aetiology include hypovascularity due to the density of bone<sup>9</sup>, vasoconstriction activity of the local anaesthetic agents<sup>10</sup>, presence of underlying systemic conditions, imbalance of vitamin levels, contraceptive pills<sup>11</sup>, smoking, age and gender<sup>11</sup>, and trauma<sup>12</sup>. The purpose of this study was to analyse and assess the incidence of dry socket in patients undergoing extraction of impacted third molar.

**MATERIAL AND METHOD**

The purpose of this study was to analyse and assess the incidence of dry socket in patients undergoing extraction of impacted third molar. A total of 80 patients were enrolled in this study who underwent tooth extraction in the oral surgery department of the dental college. All extractions were performed by senior faculty of the dental college. All demographic details of the patients were obtained. All clinical and radiographic findings were also collected. After each extraction an assessment of the blood clot in the extraction socket was made. Patients were then told to return to the hospital should they experience any discomfort from the site of the extraction during the following few days.

In the follow up appointments only 3 patients reported with clinical evidence of dry socket. A detailed investigation and analysis of various predisposing factors in these patients were carried out. Entire data was recorded in the Microsoft excel sheets. SPSS software was used for statistical analysis. Chi square test and student T test were used to compare the variables. P-value of less than 0.05 was considered significant.

**RESULTS**

Out of 80 patients who underwent extraction of impacted third molar in this study it was observed that only 3 patients reported with clinical evidence of dry socket. The mean age group of patients who developed dry socket was 31.62 years. The mean age group of patients who did not develop dry socket was 44.69 years. This relationship was not statistically significant with P value of .03 [table1].

**Table 1:** Mean age group with dry socket

| Incidence of Dry socket | Average age | Standard deviation | P value |
|-------------------------|-------------|--------------------|---------|
| Yes                     | 31.62 years | 15.49              | 0.03    |
| No                      | 44.69 years | 17.81              |         |

This study observed a greater incidence of dry socket in females with 2 out of 36 females developing dry socket. Only 1 male out of 44 developed post extraction alveolar osteitis. This relation however was not statistically significant with P value of .25. {Table 2}

**Table 2:** Gender predilection

| Incidence of Dry socket | Not present | Present | P value |
|-------------------------|-------------|---------|---------|
| Female                  | 36          | 2       | 0.25    |
| Male                    | 44          | 1       |         |

The present study found a greater incidence of dry socket in the mandibular arch as compared to maxillary arch. Only 1 case of extraction of impacted maxillary third molar out of 33 cases developed dry socket. In mandibular third molar disimpaction 2 out of 47 cases developed dry socket {table3}.

**Table 3:** Incidence of Alveolar osteitis in maxilla and mandible

| Incidence of Dry socket | Not present | Present | P value |
|-------------------------|-------------|---------|---------|
| Maxillary teeth         | 33          | 1       | 0.14    |
| Mandibular teeth        | 47          | 2       |         |

**DISCUSSION**

Extraction of third molars is one of the most common procedures performed by oral surgeons. Generally, these surgeries do not encounter difficulties but at times can result in complications; a complication rate of 4.6–30.9% following the extraction of third molars is reported in the literature<sup>13</sup>. Dry socket lesions occur in approximately 1% to 5% of all extractions and in up to 38% of mandibular third molar extractions<sup>14</sup>.

Commonly known as “dry socket” which is one of the common postoperative problem that results in severe pain “postoperative pain” inside and around the extraction site, which increases in severity between the first and third day after the extraction, usually caused by a partial or total disintegrated blood clot within the socket<sup>15</sup>, this type of extraction complications usually associated with the extraction of impacted 3<sup>rd</sup> molar teeth and mandibular molar teeth<sup>16</sup>. Its prevalence has been reported to vary from 0% to more than 35%<sup>2</sup> and is more common following mandibular third molar extraction<sup>17</sup>. Out of 80 patients who underwent extraction of impacted third molar in this study it was observed that only 3 patients reported with clinical evidence of dry socket. The mean age group of patients who developed dry socket was 31.62 years. The mean age group of patients who did not develop dry socket was 44.69 years. This relationship was not statistically significant with P value of .03 [table1]. P A Heasman et al undertook a clinical investigation to find the incidence of dry socket as a post-operative complication of dental extraction on an out-patient basis. Two thousand three hundred and sixty three extractions were carried out under local anaesthesia by clinical staff and students over a four month period. The results are presented and their significance discussed, the incidence of dry socket being found to be dependent upon the site of the tooth extracted, the relative difficulty of the extraction and upon the integrity and size of the blood clot in the extraction socket<sup>18</sup>.

This study observed a greater incidence of dry socket in females with 2 out of 36 females developing dry socket. Only 1 male out of 44 developed post extraction alveolar osteitis. This relation however was not statistically significant with P value of .25 {table 2}. M H Khandker et al carried out a search for the incidence of dry socket. Five hundred and thirty six (536) impacted third molars were surgically removed among 435 patients. Each patient was examined clinically and radiographically before surgery. 108 impacted teeth were removed for prophylactic and 428 for therapeutic reasons. A standard operating procedure was performed for each case and pre-operative and post-operative regimens was employed. After surgery each case was followed to determine the absence or presence of signs and symptoms of dry socket. It was found that total incidence of alveolar osteitis (dry socket) was 10.26%<sup>19</sup>.

The present study found a greater incidence of dry socket in the mandibular arch as compared to maxillary arch. Only 1 case of extraction of impacted maxillary third molar out of 33 cases developed dry socket. In mandibular third molar disimpaction 2 out of 47 cases developed dry socket {table3}. M Eshghpour et al evaluated the incidence of DS among surgical removal of impacted third mandibular molar in an Iranian Oral and Maxillofacial Clinic and also identifying the background risk factors. A total of 189 patients with a total of 256 surgeries entered this study. Surgeries to remove impacted third mandibular molar teeth between April 2009 and August 2010 were included in this study. A questionnaire containing two sections was designed; in the first section demographic data along with smoking status, oral contraceptive use, menstrual cycle phase, systemic disorders, and use of antibiotics prior to surgery

collected; in the second section data regarding difficulty of surgery according to radiograph and surgeon perception after surgery, length of surgery, and number of anesthetic carpules along with data regarding cases returning with DS recorded. Data were reported descriptively and analyzed with Fisher's exact test and Chi-square with the confidence interval of 95%. The incidence of DS was 19.14%. Age, gender, systemic disorder, and antibiotics use prior to surgery revealed no significant associations with DS ( $P > 0.05$ ). However, incidence of DS was significantly relevant to smoking, oral contraceptive use, menstruation cycle, difficulty of the surgery according to pre-surgery radiograph evaluation and perception of surgeon post-surgery, length of surgery, and number of carpules used to reach anesthesia ( $P < 0.05$ ). It was recommended to identify high risk groups when performing extraction surgeries to consider measures in order to reduce postoperative complications<sup>20</sup>.

### CONCLUSION

From the above study the author concluded that the incidence of dry socket is higher in extraction of impacted mandibular third molars and males and females are almost equally affected. Further studies are recommended.

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