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Original Research

Assessment of risk factors associated with dry socket- A clinical study

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***ABSTRACT*:**
Background: The most frequent complication which follows the removal of impacted mandibular third molars is 'dry socket (DS)' or Alveolar Osteitis (AO). The present study was conducted to assess the risk factors of dry sockets. **Materials & Methods:** 460 patients requiring extraction of mandibular third molars of both genders were included. Risk factors such as smoking status, systemic diseases etc. were recorded. **Results:** Out of 460 patients, males were 280 and females were 180. Age group <18 years comprised of 110 males and 90 females, 18-28 years had 70 males and 40 females, 28-38 years had 60 males and 30 females and >38 years had 40 males and 20 females. The difference was significant (P< 0.05). Out of 280 males, 14 males and out of 180 females, 20 females had dry socket. Among dry socket patients, smokers were 30 and with systemic diseases were 26. The difference was significant (P< 0.05). **Conclusion:** Dry socket is commonly associated with extraction of mandibular third molar teeth. Risk factors were female gender, smoking and systemic diseases.
Key words: Dry socket, Female Smoking.

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INTRODUCTION

Extraction of teeth is indicated in case of non restorable teeth. The most common complication of extraction is dry socket which in turns depends upon various factors. The most frequent complication which follows the removal of impacted mandibular third molars is 'dry socket (DS)' or Alveolar Osteitis (AO).[1] It has been reported that the incidence of AO after the extraction of mandibular third molars is 10 times more than maxillary third molars. The incidence of AO after mandibular third molar surgery varies between 5 to 30 percent in different studies. The two most common explanations as to why the mandibular third molar site is the most affected by dry socket are increased trauma and increased risk of bacterial contamination.[2]

Dry socket (DS) is defined as "postoperative pain in and around the extraction site, which increases in severity at any time between one and three days after the extraction, accompanied by a partially or totally disintegrated blood clot within the alveolar socket, with or without halitosis." It is also known as "alveolitis sicca dolorosa" or "alveolalgia".[3]

Its incidence of DS reported to be 3% for all extractions and can reach over 30% for impacted mandibular third molars. Difficult or traumatic extractions, tobacco use, site of extraction, oral contraceptives and pre-existing infection are among few contributory factors favoring dry socket.[4] It occurs more frequently in females than males due to possible hormonal cause. Sweet and Butler reported that the incidence of dry socket in females is 4.1% compared to males

DS is characterized by severe and progressive pain, halitosis, regional lymphadenitis following tooth extraction.[5] Histological features of dry socket is comprised of remnants of the blood clot and a massive inflammatory response characterized by neutrophils and lymphocyte which may extend into the surrounding alveolus.[6] The present study was conducted to evaluate the risk factors associated with DS.

MATERIALS & METHODS

This study was conducted among 460 patients requiring extraction of mandibular third molars of both genders. All were informed regarding the study and written consent was obtained.

Patients' information such as name, age, gender etc. was recorded. Risk factors such as smoking status, systemic diseases etc. were recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 460		
Gender	**Male**	**Female**
Number	280	180

Table I shows that out of 460 patients, males were 280 and females were 180.

Table II Age wise distribution of patients

Age group (Years)	Male	Female	P value
<18 years	110	90	0.01
18-28	70	40	
28-38	60	30	
>38	40	20	
Total	280	180	

Table II, graph I shows that age group <18 years comprised of 110 males and 90 females, 18-28 years had 70 males and 40 females, 28-38 years had 60 males and 30 females and >38 years had 40 males and 20 females. The difference was significant (P< 0.05).

Graph I Age wise distribution of DS

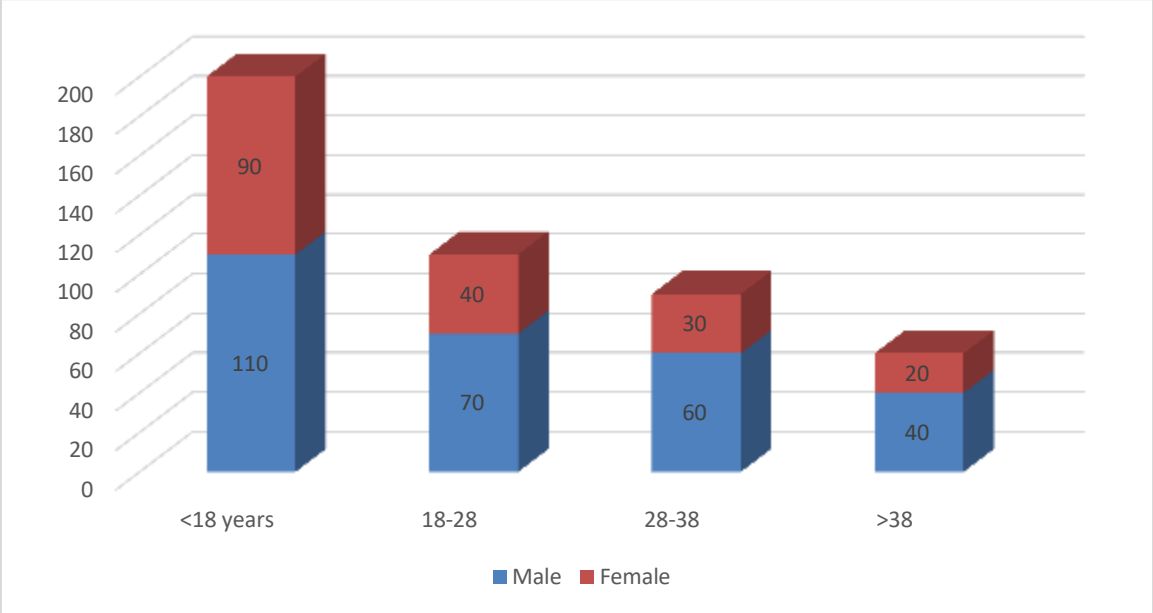

Table III Risk factors of dry sockets

Risk factors	Number	P value
Smoking	30	0.04
Female gender	20	
Male gender	14	
Systemic diseases	26	

Table III shows that out of 280 males, 14 males and out of 180 females, 20 females had dry socket. Among dry socket patients, smokers were 30 and with systemic diseases were 26. The difference was significant (P< 0.05).

DISCUSSION

Dry socket is the most common complication after surgical removal of impacted mandibular third molars.[7] Exact pathogenesis of dry socket is not known but possible pathogenesis of dry socket is high fibrinolytic activity in and around the alveolous.[8] Due to excessive trauma or infection or both, there may be bone marrow inflammation in the alveolus. Later on, they release stable tissue activator. This stable tissue activator is responsible to convert plasminogen into plasmin.[9] Finally, plasmin release kinins by two mechanisms, first mechanism explains that plasmin directly gets converted into kinins and in second mechanism they cause clot dissolution that is responsible for release of kinins, which induces violent pain in this disease.[10] Patients of DS experience pain after one to three days of extraction. There is halitosis, foul taste, and regional lymphadenitis. In the clinical examination, there exists no blood clot in the extraction socket and the alveolar bone is exposed. Higher fibrinolysis and increased plasmin activity along with higher amount of tissue activators in extraction socket of cases with DS.[11] The present study was conducted to evaluate the risk factors associated with DS.

In present study, out of 460 patients, males were 280 and females were 180. Turner et al[12] in their study a total of 1274 extractions carried out in a dry socket incidence of 2.6%. There was no sex predilection in the occurrence of dry socket. Incidence of dry socket formation was highest in the first and second molar region. Forceful infiltration of an extra 2 ml of local anesthetic into the tissues resulted in a higher incidence of dry socket; however this difference was not statistically significant. Dry sockets occured more frequently in difficult extraction cases as compared to routine extractions; this difference was statistically significant. However, when 20 teeth in difficult extraction cases were removed by the open surgical method there were no cases of dry socket formation. Teeth removed principally due to a periodontal involvement did not give rise to a single case of dry socket. Treatment of dry socket with intra-alveolar dressings did reduce the pain; however, the healing time was invariably prolonged. The best results, in the form of reduction of pain and rapid healing, were obtained with the surgical method of reflection of a flap and debridement of the socket.

Dry socket (DS) is a painful condition that may occur after a dental extraction and is often distressing to the patient. Although the exact pathogenesis of dry socket is not fully understood, it is thought to occur from increased fibrinolytic activity resulting in blood clot disintegration. Sharma et al[13] in their study, a total of 1073 teeth included in this study. 46.11% of patients were male and 53.89% were female. The mean age of participants was 32.68 ± 17.63 years. Total of 31 patients (2.89%) were diagnosed with dry socket. Smoking and oral contraceptives intake had significant association with incidence of DS. In contrast, age, gender, medical status, tooth location, number of anesthetic carpules, anesthetic technique, pre-extraction antibiotic consumption, and academic year of students had no significant association with the incidence of DS. All cases with DS treated and were followed until resolution of DS.

In present study, age group <18 years comprised of 110 males and 90 females, 18-28 years had 70 males and 40 females, 28-38 years had 60 males and 30 females and >38 years had 40 males and 20 females. Kaya et al[14] conducted a study with the aim to compare the effectiveness of Alvogyl, SaliCept and low-level laser therapy (LLLT) in pain reduction in dry socket, and concluded that LLLT performed superiorly to SaliCept and alvogyl and achieved a pain remission in the third day. The intensity of pain decreased more rapidly in all three treatment groups than in the control group.

CONCLUSION

Dry socket is commonly associated with extraction of mandibular third molar teeth. Risk factors were female gender, smoking and systemic diseases.

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