

ORIGINAL RESEARCH

Analysis of risk factors associated with formation of dry socket

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ABSTRACT

Background: Dry socket is the most frequent extraction-related complication, and it depends on a number of variables. The present study was conducted to evaluate the risk factors associated with formation of dry socket. **Materials & Methods:** 250 patients requiring extraction of mandibular third molars of both genders were enrolled. Risk factors such as gender, smoking, and systemic diseases etc. were recorded. **Results:** Out of 250 patients, males were 140 and females were 110. The age group <18 years comprised of 60 males and 30 females, 18-28 years had 25 males and 35 females, 28-38 years had 35 males and 28 females and >38 years had 20 males and 17 females. The difference was non-significant ($P < 0.05$). Among dry socket patients, smokers were 42. Out of 140 males, 38 males and out of 110 females, 24 females had dry socket. Systemic diseases were seen in 35 patients. The difference was significant ($P < 0.05$). **Conclusion:** Mandibular third molar tooth extraction is frequently linked to dry socket. Risk factors included smoking, being a woman, and having systemic disorders.

Key words: Dry socket, mandibular third molars, Smoking

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INTRODUCTION

When a tooth cannot be restored, extraction is recommended. Dry socket is the most frequent extraction-related complication, and it depends on a number of variables.¹ After the extraction of impacted mandibular third molars, "dry socket (DS)," also known as alveolar osteitis (AO), is the most common consequence. According to reports, mandibular third molar extractions result in ten times the incidence of AO compared to maxillary third molar extractions.² According to several studies, the incidence of AO following surgery on the mandibular third molar ranges from 5 to 30 percent. The mandibular third molar location is most commonly affected by dry socket, and the two most common explanations for this are higher trauma and increased risk of bacterial contamination.³

For all extractions, the incidence of DS is reported to be 3%, but for impacted mandibular third molars, it might rise to nearly 30%.⁴ A few contributing factors that encourage dry socket include oral contraceptives, tobacco usage, the extraction location, difficult or traumatic extractions, and pre-existing infections. It

may be hormonal in nature, but it affects women more often than men.⁵ According to Sweet and Butler, women experience a 4.1% higher incidence of dry socket than men do. Severe and increasing pain, halitosis, and localized lymphadenitis after tooth extraction are the hallmarks of DS. Dry socket histological markers include blood clot remnants and a large inflammatory response that may extend into the surrounding alveolus and is characterized by neutrophils and lymphocytes.⁶ The present study was conducted to evaluate the risk factors associated with formation of dry socket.

MATERIALS & METHODS

This study was conducted among 250 patients requiring extraction of mandibular third molars of both genders. All were informed regarding the study and their 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- 250		
Gender	Male	Female
Number	140	110

Table: I shows that out of 250 patients, males were 140 and females were 110.

Table: II Age wise distribution of patients

Age group (Years)	Male	Female	P value
<18 years	60	30	0.81
18-28	25	35	
28-38	35	28	
>38	20	17	

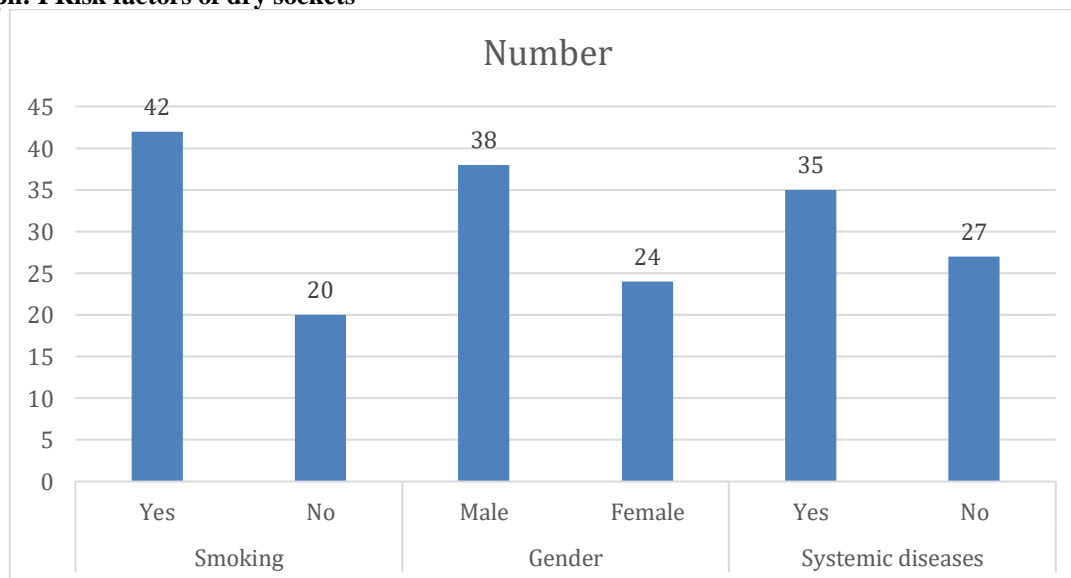
Table: II shows that age group <18 years comprised of 60 males and 30 females, 18-28 years had 25 males and 35 females, 28-38 years had 35 males and 28 females and >38 years had 20 males and 17 females. The difference was non-significant (P< 0.05).

Table: III Risk factors of dry sockets

Risk factors	Variables	Number	P value
Smoking	Yes	42	0.01
	No	20	
Gender	Male	38	0.01
	Female	24	
Systemic diseases	Yes	35	0.74
	No	27	

Table III, graph I shows that among dry socket patients, smokers were 42. Out of 140 males, 38 males and out of 110 females, 24 females had dry socket. Systemic diseases were seen in 35 patients. The difference was significant (P< 0.05).

Graph: I Risk factors of dry sockets



DISCUSSION

A partially or completely dissolved blood clot within the alveolar socket, with or without halitosis, is accompanied with post-operative pain in and around the extraction site, which develops in severity at any point between one and three days after the extraction.⁷ This condition is known as dry socket (DS). Other names for it include "alveolitis sicca dolorosa" and "alveolalgia."⁸ The most frequent side effect following surgical extraction of impacted mandibular

third molars is dry socket. Although the precise cause of dry socket is unknown, increased fibrinolytic activity in and around the alveolus may be a contributing factor. The alveolus may have inflamed bone marrow as a result of severe trauma, infection, or both. They later release a tissue activator that is stable.⁹ It is this stable tissue activator that is in charge of plasminogen conversion to plasmin. Ultimately, plasmin releases kinins by two different methods.¹⁰

The first mechanism explains how plasmin is directly converted into kinins, and the second mechanism involves causing clot breakup, which releases kinins and causes excruciating agony in patients with this condition. Pain sets in many DS patients one to three days following extraction. Regional lymphadenitis, bad taste, and halitosis are present.¹¹ The alveolar bone is visible during the clinical examination, and there isn't a blood clot in the extraction socket. In the extraction socket of cases with DS, there was greater fibrinolysis, elevated plasmin activity, and a greater concentration of tissue activators.¹² The present study was conducted to evaluate the risk factors associated with dry socket.

We found that out of 250 patients, males were 140 and females were 110. The age group <18 years comprised of 60 males and 30 females, 18-28 years had 25 males and 35 females, 28-38 years had 35 males and 28 females and >38 years had 20 males and 17 females. In order to examine the efficacy of low-level laser therapy (LLLT), SaliCept, and Alvogyl in treating dry socket pain, Kaya et al¹³ conducted a study. The study's findings showed that LLLT outperformed SaliCept and Alvogyl and produced a pain remission by the third day. Compared to the control group, all three treatment groups experienced a faster decrease in pain severity.

We observed that among dry socket patients, smokers were 42. Out of 140 males, 38 males and out of 110 females, 24 females had dry socket. Systemic diseases were seen in 35 patients.

In their study, Turner et al¹⁴ examined 1274 extractions with a 2.6% incidence of dry socket. There was no discernible sex preference in the incidence of dry socket. The first and second molar regions had the highest incidence of dry socket development. A higher incidence of dry socket was observed after forcing an additional 2 milliliters of local anesthetic into the tissues; however, this difference was not statistically significant. When comparing difficult extraction cases to routine extractions, there was a statistically significant increase in the frequency of dry sockets. Nevertheless, there were no instances of dry socket formation when 20 teeth in challenging extraction cases were extracted using the open surgical technique.

There were a total of 1073 teeth in this investigation, according to Sharma et al.¹⁵ Of the patients, 53.89% were female and 46.11% were male. The participants' average age was 32.68 ± 17.63 years. A total of 31 individuals (2.89%) received a diagnosis of dry socket. The incidence of DS showed a strong correlation with smoking and oral contraceptive use. On the other hand, there was no significant correlation found between the occurrence of DS and the following factors: students' academic year,

anesthetic technique, number of anesthetic carpules, age, gender, medical status, tooth position, and pre-extraction antibiotic usage. Every DS case was attended to and monitored until the condition was resolved.

CONCLUSION

Mandibular third molar tooth extraction is frequently linked to dry socket. Risk factors included smoking, being a woman, and having systemic disorders.

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