

ORIGINAL RESEARCH

An observational study for evaluating the incidence and risk factors associated with dry socket

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ABSTRACT

Background: 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. The present observational study for evaluating the incidence and risk factors associated with dry socket.

Materials & methods: A total of 200 patients were enrolled in the present study. Only those patients were enrolled which were scheduled to undergo dental extractions. Complete demographic and clinical details of all the patients was obtained. A questionnaire was made detailed information about patients' biodata, oral hygiene status, systemic factors, diagnoses and indications for teeth extraction, teeth extracted was recorded. All the patients were recalled for follow-up after two days and then subsequently on sixth day and were evaluated for occurrence of dry socket during follow-up. Dry socket was diagnosed based on the presence of severe pain from the socket and the absence of clot in the socket.

Results: A total of 200 patients were analyzed. Out of these 200 patients, dry socket was found to be present in 7.5 percent of the patients. Poor oral hygiene was seen in 46.67 percent of the patients with dry socket. Positive previous history of dry socket and positive smoking habit was seen in 13.33 percent and 40 percent of the patients respectively while history of trauma during dental extraction was seen in 20 percent of the patients.

Conclusion: Positive smoking habit, trauma sustained during surgery or extraction, and poor oral hygiene are all significant risk factors for dry socket and should be taken into account both before and after tooth extractions.

Key words: Dry socket, Risk factors

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INTRODUCTION

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.¹ ²The occurrence of dry socket in an everyday oral surgery or dental practice is unavoidable. The risk factors are smoking, surgical trauma, single extractions, age, sex, medical history, systemic disorder, extraction site, amount of anaesthesia, operator experience, antibiotics use prior to surgery, difficulty of the surgery and the previous surgical site infection in addition to oral Contraceptives, menstrual cycle and immediate postextraction socket irrigation with normal saline.³⁻ ⁵The exact pathogenesis of alveolar osteitis is not well understood. Birn's classic series of articles between

1963 and 1977 provided a better understanding of the likely pathophysiology. Birn suggested that the etiology of alveolar osteitis is an increased local fibrinolysis leading to disintegration of the clot. The fibrinolysis is the result of plasminogen pathway activation, which can be accomplished via direct (physiologic) or indirect (nonphysiologic) activator substances. Direct activators are released after trauma to the alveolar bone cells. Indirect activators are elaborated by bacteria. The fibrinolytic activity is local because initial absorption of plasminogen into the clot limits the activity of plasmin. In fact, it was found that active plasmin is inactivated in the general circulation by antiplasmins.⁶ ⁷Hence; the present observational study for evaluating the incidence and risk factors associated with dry socket.

MATERIALS & METHODS

The present observational study for evaluating the incidence and risk factors associated with dry socket. A total of 200 patients were enrolled in the present study. Only those patients were enrolled which were scheduled to undergo dental extractions. Complete demographic and clinical details of all the patients was obtained. A questionnaire was made detailed information about patients' biodata, oral hygiene status, systemic factors, diagnoses and indications for teeth extraction, teeth extracted was recorded. All the patients were recalled for follow-up after two days and then subsequently on sixth day and were evaluated for occurrence of dry socket during follow-up. Dry socket was diagnosed based on the presence of severe pain from the socket and the absence of clot in the socket. All the results were recorded in

Microsoft excel sheet followed by statistical analysis using SPSS software.

RESULTS

A total of 200 patients were analyzed. Out of these 200 patients, dry socket was found to be present in 7.5 percent of the patients. Mean age of the patients with and without dry socket was 48.3 years and 41.9 years respectively. Poor oral hygiene was seen in 46.67 percent of the patients with dry socket. Hypertension and diabetes were seen in 13.33 percent and 6.67 percent of the patients respectively. Positive previous history of dry socket and positive smoking habit was seen in 13.33 percent and 40 percent of the patients respectively while history of trauma during dental extraction was seen in 20 percent of the patients.

Table 1: Incidence of dry socket

Dry socket	Number	Percentage
Present	15	7.5
Absent	185	92.5
Total	200	100

Table 2: Risk factors of dry socket

Risk factors	Number	Percentage
Poor oral hygiene	7	46.67
Hypertension	2	13.33
Diabetes	1	6.67
Allergy	1	6.67
Previous history of dry socket	2	13.33
Trauma drying extraction	3	20
Positive smoking habit	6	40

Table 3: Location and dry socket

Location	Number	Percentage
Anterior	2	13.33
Premolars	3	20
Molars	10	66.67
Total	15	100

DISCUSSION

Dry socket is an acute inflammation of the alveolar bone around the extracted tooth and it is characterized by severe pain, breakdown of the clot formed within the socket making the socket empty (devoid of clot), and often filled with food debris. There is mild swelling and redness of the gingival, halitosis, bone exposure, and severe tenderness on examination. Its incidence is approximately 3% for all routine extractions and can reach over 30% for impacted mandibular third molars, and many factors have been cited as contributing to the occurrence of dry socket including difficult or traumatic extractions, female sex, tobacco use, oral contraceptives and preexisting infection. It has been suggested that an increased local fibrinolytic activity is the main etiological factor of dry socket. The increase in fibrinolytic activity could result in a premature loss of the intraalveolar blood

clot after extraction.⁸⁻¹⁰ A previous audit showed that a wide range of treatments are being used in the treatment of dry socket: rinsing of the socket with chlorhexidine (74%) or saline (26%); placement of a non-resorbable obtundant dressing (56%); and, instruction in home rinsing of the socket with chlorhexidine (44%).¹¹ Hence; the present observational study for evaluating the incidence and risk factors associated with dry socket. A total of 200 patients were analyzed. Out of these 200 patients, dry socket was found to be present in 7.5 percent of the patients. Poor oral hygiene was seen in 46.67 percent of the patients with dry socket. Hypertension and diabetes were seen in 13.33 percent and 6.67 percent of the patients respectively. Relative prevalence of dry socket after tooth extraction was assessed in a previous study conducted by Momeni, H et al. Over the two-month period of the study, among of 4,779

patients, 28 patients returned with dry socket phenomena. Their results showed that the incidence of dry socket was 0.6% and females were more common involved than males (0.08% versus 0.04%). The ratio of mandible to maxilla was 2.5 to 1 and mandibular third molars were more often involved than other teeth. Trauma, poor oral hygiene and smoking had increased the incidence of dry socket.¹²In another similar study conducted by Taberner-Vallverdú Met al, authors determined the possible presence of risk factors in patients who have suffered a previous episode of dry socket. A mandibular location of the extracted tooth, poor oral hygiene, difficult extraction, and previous dry socket increased the risk of developing this complication. In patients with dry socket in the past, the risk of developing the same complication again, adjusted for difficulty of extraction, was seen to increase 11.45-fold.¹³In the present study, positive previous history of dry socket and positive smoking habit was seen in 13.33 percent and 40 percent of the patients respectively while history of trauma during dental extraction was seen in 20 percent of the patients. Based on a meta-analysis conducted by Kuśnierek, W et al, tobacco smokers had a more than three-fold increase in the odds of dry socket after tooth extraction. Overall, the combined incidence of dry socket in smokers was found to be about 13.2% and in non-smokers about 3.8%. Despite the heterogeneity of the included studies, cigarette smoking was related to an increased risk of dry socket after tooth extraction.¹⁴Taberner-Vallverdú M et al, in another previous study, analyzed the influence of different factors upon the appearance of dry socket in patients attended in the primary care setting. A mandibular location of the extracted tooth, poor oral hygiene, difficult extraction, and previous dry socket increased the risk of developing this complication. In patients with dry socket in the past, the risk of developing the same complication again, adjusted for difficulty of extraction, was seen to increase.¹⁵Mamoun J et al, describes dry socket lesions; reviews the basic clinical techniques of treating different manifestations of dry socket lesions; and shows how microscope level loupe magnification of 6× to 8× or greater, combined with co-axial illumination or a dental operating microscope, facilitate more precise treatment of dry socket lesions. Although the clinical techniques for treating dry socket lesions seem empirically correct, more evidence is required to determine the causes of dry socket lesions.¹⁶Akinbami BO et al, study was to investigate the incidence of dry socket in recent times in a Nigerian Tertiary Hospital. The incidence of dry socket in was lower than previous reports. Oral hygiene status, lower teeth, and female gender were significantly associated with development of dry socket. Treatment with normal saline irrigation and ZnO eugenol dressings allowed relief of the symptoms.¹⁷

CONCLUSION

Positive smoking habit, trauma sustained during surgery or extraction, and poor oral hygiene are all significant risk factors for dry socket and should be taken into account both before and after tooth extractions.

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