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Original Research

Assessment of Risk Factors of Dry Socket

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ABSTRACT:

Background: This study aimed to identify risk factors associated with dry socket.

Material and Methods: A total of 100 patients undergoing tooth extraction were enrolled. The primary objective was to determine the prevalence of dry socket and assess associated risk factors. All participants were informed about the study, provided written consent, and were included. Demographic data were recorded, and findings were organized into tables. Statistical analysis was performed using SPSS software.

Results: Of the 100 participants, 20 (20%) developed dry socket (Group 2), while 80 (80%) did not (Group 1). The most frequent risk factor was smoking (8 cases), followed by traumatic extraction (5 cases), infection at the extraction site (4 cases), previous dry socket history (2 cases), and poor oral hygiene (1 case).

Conclusion: The incidence of dry socket in this study was 20%, with smoking, prior dry socket history, extraction site infection, traumatic extraction, and poor oral hygiene identified as major contributing risk factors.

Keywords: Risk Factors, Dry Socket, Extraction

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INTRODUCTION

The term “dry socket,” although lacking a precise scientific definition, describes a post-extraction condition in which part or all of the socket bone, including the occlusal margin, becomes exposed within days after tooth removal due to the absence or premature loss of the initial blood clot and lack of epithelial coverage. This exposed bone is extremely sensitive to tactile stimuli, leading to recurrent episodes of acute pain, often aggravated by mechanical irritation from food debris or the tongue. Except for the exposed bone, all components of a dry socket lesion can be gently examined with a periodontal probe or irrigation needle tip without eliciting acute pain[1,2]. The condition affects approximately 1%–5% of all extractions, with rates reaching up to 38% in mandibular third molar removals.

Existing literature provides extensive reviews on the potential etiologies and predisposing factors for dry socket. One proposed mechanism involves bacterial activity contributing to the onset or persistence of the lesion; however, evidence supporting the routine use of postoperative antibiotics to reduce dry socket incidence remains limited[3–5]. The present study was undertaken to evaluate the risk factors associated with dry socket occurrence.

MATERIAL AND METHODS

This study included 100 patients who underwent tooth extraction, aiming to determine the prevalence and identify risk factors for dry socket. All participants were informed about the study protocol and provided written consent. Demographic data were documented, and the occurrence of dry socket along with its associated risk factors was evaluated and tabulated. Statistical analysis was conducted using SPSS software.

RESULTS

Table 1: Prevalence of dry socket

Prevalence	Number of subjects	Percentage
Absent	80	80
Present	20	20
Total	100	100

In this research, it was noted that from a total of 100 participants who underwent tooth extraction, 20 (20%) exhibited signs of dry socket. Conversely, 80 (80%) participants did not experience dry socket following the extraction procedure.

Table 2: Group-wise distribution of subjects

Groups	Number of cases	Percentage
Group 1(Control)	80	80
Group 2(Dry socket)	20	20
Total	100	100

In group 1, there were 80 control subjects who did not present with dry socket. In group 2, there were 20 subjects who displayed dry socket after the extraction.

Table 3: Risk factors of dry socket

Risk factors	Number of cases
Smoking	08
Poor oral hygiene	01
Previous history of dry socket	02
Traumatic extraction	05
Infection at the extraction site	04

The most common risk factor for dry socket in this study was smoking (8 cases) followed by traumatic extraction (5 cases) and infection at the extraction site (4 cases). Other factors were poor oral hygiene (1 case) and previous history of dry socket (2 cases).

DISCUSSION

The pathogenesis of dry socket (DS) remains incompletely understood; however, fibrinolytic dissolution of the post-extraction blood clot is widely recognized as the principal mechanism[6]. Multiple factors have been implicated in elevating DS risk, though their relative significance remains debated. These include difficult or traumatic extractions, suboptimal oral hygiene, tobacco use, female gender, younger age, extraction site, and prior DS history[7]. Emerging metagenomic studies have also suggested that affected sockets may harbor a distinct microbial profile, indicating that bacterial colonization could influence DS development.

In the present study, among 100 individuals undergoing tooth extraction, 20 (20%) developed DS (Group 2), while 80 (80%) did not (Group 1). The most prevalent risk factor was smoking (8 cases), followed by traumatic extraction (5 cases), infection at the extraction site (4 cases), previous DS history (2 cases), and poor oral hygiene (1 case).

Abu Younis MH et al.[8], in a one-year observational study at the Dental Teaching Center of Al-Quds University, reported an overall DS incidence of 3.2% in 805 patients (1,305 extractions). The incidence was higher in surgical extractions (15%) compared to non-surgical (1.7%, $p < 0.005$) and significantly higher in smokers (12%) than non-smokers (4%, $p < 0.005$). Single extractions had a higher DS rate (13%) than multiple extractions (5%, $p = 0.005$). Smoking, surgical trauma, and single extractions were identified as key risk factors, whereas age, sex, systemic health, extraction site, anesthetic volume, and operator experience showed no significant effect.

Cardoso RB et al.[9] conducted a prospective, multicenter, observational study including 1,357 patients, reporting a 1% DS prevalence. DS was more common in patients under 50 years, in longer or more complex surgeries, and when surgical accidents occurred, with smoking further amplifying the risk in these scenarios. Persistent postoperative pain beyond two days was noted as a potential clinical warning. Antibiotic use reduced DS risk by 36% (absolute risk reduction = 0.63%). Findings underscored the multifactorial nature of DS, influenced by demographic, surgical, and behavioral variables, often acting in combination.

Akinbami BO et al.[10], in a Nigerian tertiary hospital study over four years, analyzed 1,182 patients (1,362 teeth extracted) and found a DS incidence of 1.4%. Most cases occurred in the fourth decade of life, with mandibular molars—especially third molars and retained roots—being most affected. Significant associations were found with female gender, poor oral hygiene, and mandibular extractions. Symptomatic

relief was achieved using normal saline irrigation and zinc oxide–eugenol dressings.

CONCLUSION

In the present study, the incidence of dry socket was 20%, with smoking, previous dry socket history, extraction site infection, traumatic extraction, and poor oral hygiene identified as the predominant associated risk factors.

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