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Original Research

Prevalence Of Dry Socket After Extraction Of Permanent Teeth At Riyadh Elm University, Riyadh, Saudi Arabia

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ABSTRACT

Aim: To investigate the incidence of dry socket and its correlation to systemic factor in Riyadh Elm University, Riyadh, Saudi Arabia. **Methods**: This retrospective study carried out in the dental clinics of Riyadh Elm University and on patients who had extractions of their tooth/teeth from December 2016 to November 2017. The following data and were recorded and analyzed : total number of permanent teeth extracted, total number of patients of dry sockets encountered, and type of extraction and associated risk factors such as contraception and systemic illnesses. **Results:** Of the 2370 number of teeth extracted, 39 (1.7%) extractions were complicated by dry socket. Most of dry socket cases occurred among female patients (n=22, 56.4%) and in the mandibular teeth extraction (n=24, 61.5%). The mandibular first molar (n=12, 30.8%) had highest incidence of dry socket occurrence. Advanced dental caries was the reason for extractions of most (n=34, 87.2%) of cases of dry socket. The majority of the cases affected dry sockets were irrigated with normal saline and Alvogyl packing were used on (n=27, 69.2%). **Conclusion**: The prevalence of dry socket after tooth extraction in Riyadh Elm University dental clinics was 1.7%. Atraumatic techniques, aseptic procedures, surgeon's skills, and good oral hygiene can lower the prevalence of dry socket.

INTRODUCTION

Alveolar osteitis (AO) was first described in 1896 1. It is a common post-operative complication following extraction of permanent teeth 2. It is also known as dry socket. It is defined as the total or partial loss/breakdown of the blood clot from the socket which results in a localized inflammatory response 3 and intense pain radiating to the auricular and temporal regions 4-5 The pain can increase in severity any time between one and three days after extraction. This is accompanied by a partially or totally disintegrated blood clot within the alveolar socket, with or without halitosis 2.

Many terms have been associated with this condition such as: localized osteitis, post-operative alveolitis, alveolalgia, alveolitis sicca dolorosa, septic socket, necrotic socket, localized osteomyelitis, and fibrinolytic alveolitis 2. The incidence of AO is 10 times more in the mandible when compared to the maxilla ranging from 1 to 4% of extractions, reaching 45% for mandibular third molars 6-7. The ratio of AO affecting women to men is 5:1 8. Incidence of AO is higher in women because of the presence of oestrogen in the body which is linked to the condition. So it does not affect only women who use oral contraceptives. Since the exact pathogenesis of AO is unknown, it can be said that increased fibrinolysis resulting in blood clot disintegration causes the condition 9.

The etiology of AO has not been explained yet. However, it is considered to have been linked to

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		Frequency (Percent)
Indications for extraction	Advanced dental caries	34 (87.2)
	Pericoronitis	4 (10.2)
	Impaction	1 (2.6)
Extraction technique	Simple elevation	23 (59.0)
	Root separation	15 (38.5)
	Flap with bone removal	1 (2.6)

Table 1. Distribution of the indications for extraction with the result of dry socket

various factors such as: age, gender, use of oral contraceptives, smoking, site of extraction, trauma due to difficult extractions, poor oral hygiene and vasoconstriction of local anesthetics used. (Akinbami and Godspower, 2014). After extractions, AO is one of the most common postoperative complications which is why researches are being conducted to find the best way to prevent it. Since there hasn't been agreement on a standard protocol for managing or preventing this condition, it remains a controversial topic. Hence, the aim of this study is to investigate the incidence of dry socket and its correlation to systemic factor in Riyadh Elm University, Riyadh, Saudi Arabia.

MATERIALS AND METHODS

This retrospective study carried out in Riyadh Elm University, Riyadh, Saudi Arabia. Case files of all patients those attended the dental clinics of Riyadh Elm University and had extractions of their tooth/teeth from December 2016 to November 2017 were collected. Patients who presented with dry socket at the facility were reviewed for the following data and were recorded: total number of permanent teeth extracted, total number of patients of dry sockets encountered, and type of extraction and associated risk factors such as contraception and systemic illnesses. All the data collected were entered onto the computer and analysed using Statistical package for social sciences (IBM SPSS, Version 22). Descriptive analysis was performed to present the overview of the findings.

RESULTS:

A total 2370 number of permanent teeth of patients were extracted. Of the 2370 number of teeth, 1264 (53.3%) were maxillary teeth and 1106 (46.7%) were mandibular teeth. Out of the 2108 number of total patients, 1184 (56.2%) patients were male and 924 (43.8%) patients were male. The mean (±SD) of the patients with dry socket was 35 (±12.0) years. A total of 39 (1.7%) extractions were complicated by dry socket in patients aged 15 to 60 years. Of the 39 cases of dry socket, 22 (56.4%) occurred in female patients and 17 (43.6%) occurred in male patients (Figure 1). The majority of the patients were medically fit (n=32, 82.1%) and were not under any medication (n=37, 94.9%). None of the patients were under oral contraceptives.

Most of dry socket cases occurred in the mandibular teeth extraction cases (n=24, 61.5%) than maxillary teeth extraction cases (n=15, 38.5%) (Figure 2). The mandibular first molar (n=12, 30.8%) had highest incidence of dry socket occurrence followed by mandibular third molar 7 (18%) and maxillary first premolars 5 (12.8%).

The indications for extraction and extraction technique of the total 39 number of dry socket cases are shown in table 1. Advanced dental caries was the reason for extractions of most (n=34, 87.2%) of cases of dry socket. Simple elevation (n=23, 59%) was the most common extraction technique used. Sutures were placed in only one quarter of the case (n=10, 25.6%).

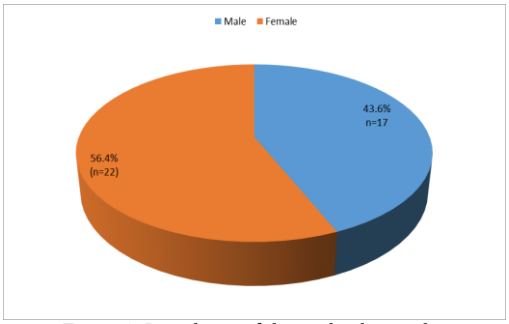

Figure 1. Prevalence of dry socket by gender

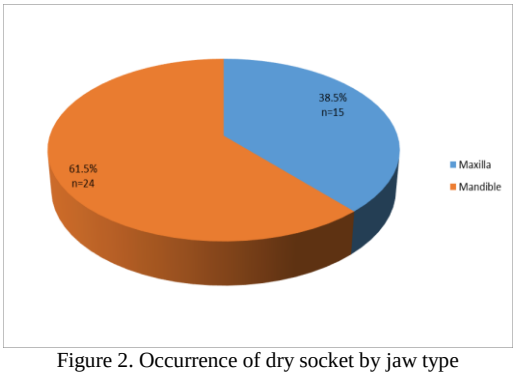

Figure 2. Occurrence of dry socket by jaw type

The most common technique of local anesthesia was inferior dental/lingual block (n=25, 64.3%) and labial/buccal and lingual palatal infiltration (n=14, 35.9%). In cases of impacted wisdom tooth (depth of impaction), one was partially erupted (2.6%) and another was bony impaction (2.6%). Postoperative instructions were given for 87.2% (n=34) of the cases. None of the cases were prescribed with postoperative medications.

The onset of symptoms was found to range from immediately to more than 24 hours after the extraction. Symptoms started 24 hours after the extraction in 2 (5.1%) cases, following 48 hours in 6 (15.4%) cases, 72 hours in 13 (33.3%) cases, 7 days in 17 (43.6%) cases, and 10 days in 1 (2.6%) case (Figure 3). The majority of the cases affected dry sockets were irrigated with normal saline and Alvogyl packing were used on 27 (69.2%) (Figure 4). None of the cases were prescribed medications.

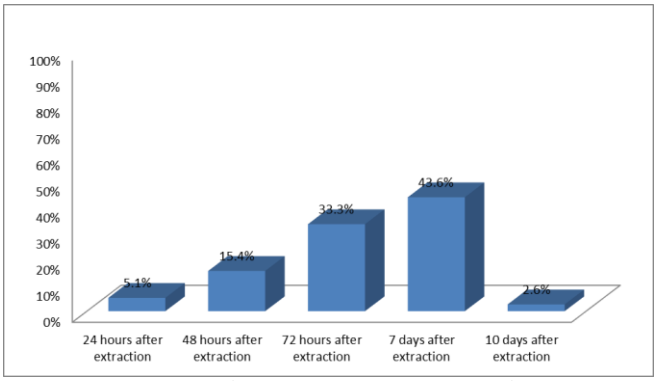

Figure 3. Frequency of dry socket according to onset of time

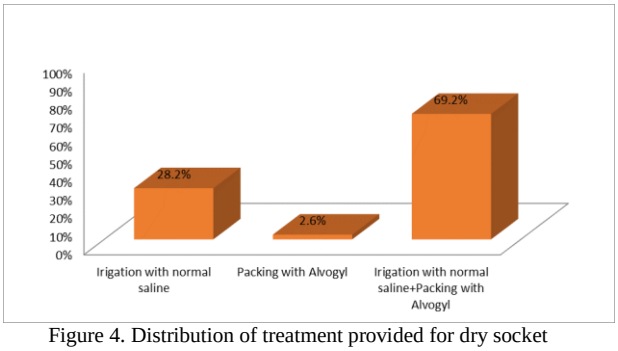

Figure 4. Distribution of treatment provided for dry socket

DISCUSSION

A dry socket is a painful and foul smelling postoperative condition that develops during the course of the first several days after a tooth extraction. An equivalent term for a dry socket is "alveolar osteitis". Dry sockets occur when either an adequate blood clot has failed to form in the extracted tooth's socket or else the blood clot that did form has been dislodged and lost 10. Since the formation of a blood clot is an important part of the healing process, the healing of the extraction site is disrupted and delayed. The term "dry socket" comes from the appearance of the wound. Since no blood clot is present, exposed bare bone is visible 11.

The result of the current study revealed that incidence rate of dry socket following non-surgical extraction of permanent teeth was 1.7%. This finding is in compliance with the incidence rate between 1 to 4% reported in some previous studies 2, 6. The findings of

the current study are in accordance with the results of later reports as no association was found between dry socket and gender 12-14. The incidence of dry socket in mandible extractions is 2.5-3 times more than maxilla 7, 15. However, the current study showed no significant association between dry socket and tooth location which was in compliance with the results of a previous study 14. However, in the present study the incidence of dry socket following mandibular extractions was higher than maxillary ones.

CONCLUSION

The prevalence of dry socket after tooth extraction in Riyadh Elm University dental clinics was not higher than other studies. Atraumatic techniques, aseptic procedures, surgeon's skills, and good oral hygiene can lower the prevalence of dry socket.

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