The effect of chlorhexidine mouth washes on the incidence of dry socket following teeth extraction


ABSTRACT
Background: Dry socket is the most common complication in the healing of wounds following the extraction of teeth, this study was performed to reduce the incidence of this complication.

Material and methods: 150 patients were involved in this study; they were divided into two groups, an experimental group in which the patient’s mouth was rinsed with chlorhexidine gluconate 0.2% preoperatively and postoperatively, and a control group in which the patient's mouth was rinsed with a normal saline.

Results: It had shown that the incidence was reduced from 4% in the control group to 1.3% in the experimental group.

Conclusion: Although the incidence of dry socket in this study was reduced to 1.3%, but complete prevention was difficult to obtain due to the fact that there are several factors play a role in the development of this condition.

Key words: Dry socket, prevention, chlorhexidine.

INTRODUCTION
Dry socket is a term probably introduced by Crawford 1896 (9), and since then many other names have been suggested as being more descriptive such as alveolalgia (11), alveolitis sicca dolorosa (3), fibrinolytic alveolitis (8), postoperative osteitis, postextraction osteomyelitic syndrome (5). It is the most common complication in the healing of wounds following tooth extraction (20,16).

Shafer et al (19) defined dry socket as afoveal osteomyelitis in which the blood clot has disintegrated or been lost with the production of a foul odour and severe pain but no suppuration. It started 2-3 days after the extraction of teeth and last from 10-40 days.

The incidence of dry socket following all teeth extractions is approximately 2.2% -4% (20,7,12,6), but in case of an impacted mandibular third molar the occurrence rises to 16%(10,15).

Probably the two most commonly cited etiological factors for clot lysis are the trauma inflicted during extraction of the teeth and the risk of infection (10,12,9). Other factors which have been claimed to have an important role in the development of the condition are sex, age, decreased blood supply of the surrounding bone, the use of large amount of local anesthetics with vasoconstrictor, general systemic condition of the patient, site and number of extracted teeth and increased fibrinolytic activity in or around the dental socket (12,9).

Most studies that have been attempted to reduce or prevent the dry socket have been related to antimicrobial measures (14), antifibrinolytic agents (3), systemic antibiotic have been successfully used in that case (5), chlorhexidine has been used as a rinse (13) also it used in combination with amoxicillin plus clavulanic acid and it was effective in the reduction of dry socket (2). Chlorhexidine gluconate 0.2% exerts its antibacterial action by disruption of the bacterial cell membrane, it is effective against many gram -ve and gram +ve microorganisms, also it exhibits a residual antibacterial effect with repeated use (21).

MATERIAL AND METHODS
The sample of the present study included 150 patients attending the clinic of exodontia in the department of oral and maxillofacial surgery, College of Dentistry, university of Baghdad, and private clinic of the investigator.

The criteria for the patient selection involved: A healthy adult patient who needs a simple forceps extraction of posterior tooth only, the patient that developed a complicated procedure that involved the use of elevators, chisels or sectioning of the tooth were excluded from the study.

A total of 150 patients 99 males and 51 females aged between 19-50 years old (age mean 35.3). The patients were divided into two equal groups:

1-Experimental group: The patients of this group were rinsed their mouth with 10 ml of chlorhexidine gluconate 0.2% (CORSODYL-GLAXOSMITHKLINE-UK.) thoroughly before the extraction of the tooth, and postoperatively the patient was instructed to start with

Oral and Maxillofacial Surgery and Periodontology 84
chlorhexidine mouth rinse after 24 hours two times daily for two days.

2-Control group: The patients of this group were rinsed their mouth with 0.9% normal saline preoperatively and post operatively as in the experimental group.

The extraction was done under local anesthesia using xylocaine 2% with adrenaline 180,000, 1.8 ml. carpoule was given to each patient. All patients have had cotton wall pressure packs applied postoperatively to their extraction sockets and for the same period of time which was one hour ,I prescribed ten 500 mg. acetaminophen tablets (panadol smithkline Becham- Ireland) to control postoperative pain . No antibiotics were used in this study; the patients were given the usual postoperative instruction ,The patients of both groups were checked at the fourth postoperative day for the diagnosis of dry socket.

The clinical criteria used for determining the presence of dry socket was; Severe pain at the extraction site started 3-4 days after extraction with clinical appearance of dry socket which is characterized by the absence of the blood clot.

RESULTS

The analysis of data revealed that the incidence of dry socket in the control group which involved 75 patients was 4% (3-cases), one case in the maxilla (1.3%) and two cases in the mandible (2.7%). While in the experimental group which involved 75 patients also only one patient developed dry socket i.e. the incidence was 1.3% and the case was in mandible .as shown in the table.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Maxillary teeth</th>
<th>Mandibular teeth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.of ext. teeth</td>
<td>No. of dry socket</td>
</tr>
<tr>
<td>Control group</td>
<td>26</td>
<td>1</td>
</tr>
<tr>
<td>Experiment group</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>1</td>
</tr>
</tbody>
</table>

DISCUSSION

The results of the present study revealed that chlorhexidine gluconate 0.2% mouth wash reduced the incidence of dry socket from 4% to 1.3% this is considered clinically as an acceptable limit. But complete prevention was not obtained, this is due to the fact that the most commonly etiological factors for the clot lysis and the development of dry socket are trauma and infection which causes inflammation of the marrow spaces of the alveolar bone, this gives rise to the liberation of tissue activators which converts plasminogen to plasmin, this dissolves the blood clot (2).

If the inflammation of the marrow spaces is caused by bacterial infection then antimicrobial agents will be effective, but the case is more difficult if the inflammation of the marrow spaces caused by trauma, in this case antiphlogistics may be effective but antimicrobials are useless, this explains why complete reduction of the number of dry socket never seen when antimicrobials was applied.

REFERENCES