

Comparative Study of Two Different Techniques for Management of Dry Socket

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ABSTRACT

Background: Dry socket is the most common post-operative complication following extraction of teeth. Various risk factors have been mentioned for this complication including gender, age, amount of trauma during extraction, difficulty of surgery, inappropriate irrigation, infection, smoking, and oral contraceptive use. Traditional treatment of dry socket require frequent visit of patient to the dental hospital and is very inconvenient to the patient. **Objective:** The aim of the study was to assess outcome of the treatment using two different techniques for the management of dry socket. **Methods:** Patients with dry socket were randomly distributed among two treatment groups (21 patients in each group). Group A received irrigation of socket with diluted hydrogen peroxide and zinc oxide eugenol dressing was given and patients were followed for following consecutive days by replacing dressing each day until the pain subsides. Group B received irrigation of socket with diluted hydrogen peroxide, sockets and surrounding gingival tissue were debrided to promote the re-establishment of blood clot. The gingival margins were meticulously sutured to protect the clot formation. **Result:** 19 patients out of 21 in Group A, received two or more than two procedures to subside pain whereas in Group B, 19 out of 21 patients received just one procedure for successful treatment. **Conclusion:** There is reduction in duration of treatment in debridement group of patients when compared with those treated traditionally.

Key words: Dry socket, debridement approach, postoperative complication, traditional approach

INTRODUCTION

Dry Socket also called alveolar osteitis is a well known complication which occurs after tooth extraction. Its incidence ranges from 0.5-5% for all routine extractions, can reach up to 30% on extraction of impacted mandibular molars.¹ Dry socket occurs during healing phase of extraction sockets.^{2,3} It is associated with postoperative pain in and around the extraction site, accompanied by a partially or totally disintegrated blood clot within the alveolar socket, with or without halitosis. Dry socket generally arises between one to three days post extraction and the duration usually ranges from 5 to 10 days.

Several treatment modalities have been advocated to reduce the incidence of dry socket. They include the use of antiseptic mouth washes, antifibrinolytic agents, antibiotics, steroids, clot supporting agents and intra-alveolar dressings.^{4,5} Traditionally, copious irrigation of the socket with normal saline or diluted hydrogen peroxide and changing the medicated dressing every 24 to 48 hours for 3 to 6 days has been used.⁶ As this traditional method takes long duration with frequent visit

by the patient for the completion of treatment, it can be considered as productive time loss for both patient and doctor⁷.

Despite many studies and publications it was not possible to determine an ideal treatment protocol for dry socket. Thus justifying the research of new treatment which will give similar results with less cost and less undesirable effects. The introduction of debridement method for re-establishment of clot has opened up new lines of treatment plan in dry socket.

Hence the present study was undertaken with an aim to assess outcome of the treatment using two different techniques for the management of dry socket.

MATERIAL AND METHODS

This is a prospective study of 42 patients who presented with dry socket following forcep extractions. A total of 1320 patients underwent extraction of permanent teeth for various reasons since November 2012 to February 2014 at Dental department of Nepalgunj Medical College and Hospital.

Extraction of maxillary teeth was done either using infiltration anesthesia or middle superior alveolar nerve block or posterior superior and nasopalatine or greater palatine nerve block. Extraction of mandibular teeth was done by using inferior alveolar nerve block. Aseptic measures were taken during the extraction of teeth. Out of, 1320 patients 42 presented with DS.

Informed consent of the patients was taken after explaining risks and benefits associated with treatments. Intra oral periapical radiograph was taken to rule out the broken down

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root or any foreign body.

Inclusion Criteria

- 1-Good oral hygiene
- 2-Forcep extraction
- 3-Age: 11–60 years and
- 4-No allergies to local anesthetic agents.

Exclusion Criteria

- 1-History of systemic diseases
- 2-Pregnant or lactating women, women who use oral contraceptives and
- 3-Smoker patients

The diagnostic criteria for dry socket were based on history of extraction of two or more days and moderate to severe pain. Clinically, an empty socket which lacks a blood clot and exposed bone were seen, socket may be filled with food debris with or without halitosis.

Patients were randomly distributed among two treatment groups.

Group A patients (21 cases) were treated by copious irrigation of socket with diluted hydrogen peroxide to remove necrotic tissue and dressing with gauze impregnated with zinc oxide eugenol was done. Patients were followed for consecutive days by replacing dressing each day until the pain subsided.

Group B patients (21 cases) were treated by debridement. Local anesthesia was administered to achieve analgesia then the socket was irrigated with diluted hydrogen peroxide and the clot devoided socket was thoroughly curetted, both from the floor of the socket as well as from the bony walls, the sharp margins were trimmed, rounded and any foreign bodies if present were thoroughly removed simultaneously with irrigation to ensure bleeding. When free bleeding from all the dry areas of the bony socket as well from gingival margins was created, the gingival margins were sutured to protect the clot formation. Patients were advice to follow routine dental post extraction instructions. Patients were recalled next day for review.

Systemic administration of Ibuprofen (400mg) 8 hourly for 3 days along with regular warm saline mouth wash was recommended for the patients in both groups.

RESULTS

Out of 42 patients, 17 were males and 25 were females with a ratio of 1:1.4. Table I shows distribution according to gender of the patient that developed dry socket. In group A there were 10 (47.62%) males and 11 (52.38%) females and in group B there were 7 (33.33%) males and 14 (66.67%) females. Females were affected more than males in this study.

Gender	Group A		Group B	
	Case	%	Case	%
Male	10	47.62	7	33.33
Female	11	52.38	14	66.67
Total	21	100	21	100

Table I: Case distribution according to gender.

Table II shows distribution of age that developed dry socket. Age of the patient ranged from 11-60 years with the majority between from 2nd to 4th decade of life.

Age in years	Group A		Group B	
	Case	%	Case	%
11 - 20	2	9.52	1	4.76
21 - 30	6	28.57	7	33.33
31 - 40	8	38.09	9	42.85
41 - 50	4	19.04	3	14.28
51 - 60	1	4.76	1	4.76

Table II: Case distribution according to age.

Table III shows distribution of extraction socket affected by dry socket. Dry socket was more common in mandible than the maxilla. Both maxillary and mandibular molar sockets were mostly involved and no dry socket was found in anterior teeth.

Site	No. of patients	%
Mandible		
3 rd molar	9	21.42
2 nd molar	8	19.04
1 st molar	11	26.19
2 nd premolar	3	7.14
1 st premolar	2	4.76

Site	No. of patients	%
Maxilla		
3 rd molar	3	7.14
2 nd molar	2	4.76
1 st molar	2	4.76
2 nd premolar	1	2.3
1 st premolar	1	2.3

Table III: Distribution of dry socket according to site

Table IV shows distribution of patients in relation to number of treatment received in Group A. Majority of patient received two or more than two procedures for successful treatment.

Treatment no.	No. of patients	%
1	1	4.80
2	5	23.80
3	9	42.80
4	5	23.80
5	1	4.80

Table IV: Distribution of patients in relation to number of treatment received in Group A

Table V shows distribution of patients in relation to number of treatment received in Group B. Nineteen out of 21 patients were not only without pain, but was also comfortable both physically as well as psychologically from the very next day.

Treatment no.	No. of patients	%
1	19	90.47
2	2	9.52

Table V: Distribution of patients in relation to number of treatment received in Group B

DISCUSSION

Dry socket is an important clinical complication. The etiology of this complication is not absolutely clear but it is believed that an increased local fibrinolysis leading to breakdown of the clot and subsequent exposure to bone.⁸ Dry socket generally arises between 1-3 days post extraction, 95-100% of cases have been reported within a week and the duration usually ranges from 5-10 days.⁹

In the present study the difference in the prevalence of dry socket was noted more frequently in females than males due to possible hormonal cause.^{10,11}

Majority of the patients developing dry socket were found in second and third decade. Prevalence of dry socket in this age group can be attributed to more solid nature of bone which is relatively disease free (e.g. periodontal diseases) that can lead to difficult and hence traumatic extraction. It is widely accepted that prevalence of dry socket increases with increase in extraction difficulty¹² and surgical trauma.¹³

It occurs more commonly in the mandible than the maxilla, due to the relatively poor blood supply of the mandible and also due to higher tendency of food debris to stagnate in lower

sockets. It more commonly occurs in posterior sockets (molars) than anterior sockets (incisors and canine), possibly because of the size of the created surgical defect is relatively larger.¹⁴

The prevention of dry socket has in the past involved both pharmacologic and surgical approaches. Pharmacologic methods used have included use of antibiotic preparations placed in to the socket after extraction and antiseptic rinses. However, a number of authors recommend that the use of systemic antibiotics is not necessary¹⁴ due to the potential for development of resistant strains to the antibiotics and other side effects such as hypersensitivity.¹⁵

In the present study, traditional method for treatment of dry socket was used for group A patients. Out of 21 patient, majorities of patients required 3 visits to Dental OPD to relieve pain. It is just palliative aimed at relieving symptoms. Treatment involves symptomatic support while the socket healed by host defense. On average, duration of 5-7 days is required for exposed bone to become covered with new granulation tissue, and efforts must be made to relieve patient discomfort during this time period. However, it is important to remember that gauze impregnated with zinc oxide eugenol is nonresorbable dressing and acts a foreign body in the socket and will delay healing. The eugenol is also reported to cause local irritation and bone necrosis.¹⁶

In Group B, surgical intervention was done in the form of administering anesthesia, curettage and irrigation of the socket to cleanse it of necrotic bone, tooth fragments, induce bleeding and primary closure to protect the clot and enhance healing by primary intention. This procedure provided immediate pain relief and reduction in duration of treatment to the patient and less discomfort to the patient. 19 out of 21 patients came to the Dental OPD next day with no or minimal discomfort. There is no loss of productive time for the surgeon. Economic loss is also less as patients do not have to come to hospital every other day for treatment. Hence the economic loss to society is less.

CONCLUSION

Debridement procedure to treat dry socket is safe and reliable and can be used by practitioner who runs a busy clinic or to the patient who cannot come to the clinic every other day for the treatment. However there are some limitations of this study like small sample size and short term follow up period. Further investigations and well-designed studies are necessary to draw firm conclusions and to clarify this complication.

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