



Original Research

Knowledge about the complications in healing of extraction wounds among dental students – A questionnaire-based study

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ABSTRACT:

Background: Extraction of teeth is the most common procedure carried out in oral surgery clinics. Uneventful healing of a post-extraction alveolus occurs in most cases following dental extraction. The hours after tooth extraction are critical, for if the blood clot is dislodged, the healing of tooth extraction maybe greatly delayed and extremely painful. Occasionally healing is complicated even in normal healthy patients. Complications in tooth extraction recovery includes alveolar osteitis, acutely inflamed alveolus, acutely infected alveolus, osteomyelitis, myospherulosis and fibrous healing of extraction wounds.

Aim: To assess the knowledge about the complications in healing of extraction sockets among dental students.

Materials and Method: 200 dental students were the participants of this questionnaire-based study on knowledge about complications in healing of extraction sockets. Percentage of knowledge about the complications was calculated individually among third year, final year and internship students and results were tabulated.

Results: In the present study, about of 65.8% third year students, 97.3% of final year students, 98.35% of interns are knowledgeable that complications may arise during extraction wounds healing. 58.15% of third year students, 68.9% of final year students and 76.82% of interns are aware about the risk factors of dry socket. 61.7% of third year students, 64.5% of final year students and 73.3% of interns have good knowledge about the signs & symptoms of dry socket. 81.7% of third year, 91.5% of final year students and 94.5% interns are familiar with prevention and management of dry sockets.

Conclusion: There is always an enhanced knowledge about all the aspects of dry sockets among the interns when compared to the third year and final year students, probably due to better clinical exposure.

Keywords: Healing of oral wounds, post extraction complications, dry socket, alveolar osteitis, awareness level.

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INTRODUCTION

Following dental extractions, a cascade of reactions happen that result in blood clot formation that eventually is organised to form granulation tissue and finally is replaced by mature bone. Complications following extractions may result in alveolar osteitis, acutely infected alveolus, and acutely inflamed alveolus^[1,2]. Others include myospherulosis, osteomyelitis and fibrous healing of sockets.

Commonest being the alveolar osteitis, also known as dry socket, is an extremely painful complication arising post extraction. The occurrence of dry socket is around 0.5-5% for all routine extractions, but accounts to 38% for extractions of impacted mandibular third molars^[3,4]. A localised fibrinolysis occurring within the socket and subsequent loss of the blood clot is believed to be the pathogenesis of alveolar osteitis^[5]. Many risk factors have been identified which may all precipitate into post-extraction complications.

Having a thorough understanding of the events that lead to healing following dental extractions are imperative for the dentist to avoid complications. Awareness about dry socket among dentists is important as the prevention and effective management of the sequelae can help in reducing postoperative morbidity as well as societal costs, which is the lost time from work and healthcare costs for the individuals. No previous study has been conducted to assess the knowledge about the complications that may arise during healing of extraction wounds among the dental students. This study describes the variation seen in the level of awareness about these complications among students belonging to three different years of study in dental school.

MATERIALS AND METHOD

This study recruited 200 participants among the students of a private dental college. The participants belonged to different year of study, including third year, final year and internship. The participants included 95 third year students, 75 final year students and 30 interns. Knowledge about complications in healing of extraction wound was assessed using a questionnaire, which had 15 questions, grouped into 4, including basic awareness that complications may arise following extraction, risk factors, signs & symptoms, prevention and treatment of dry socket. Percentage of knowledge about the complications was calculated individually among third year, final year and internship students. Overall level of knowledge about dry socket among all the students was also assessed and results were tabulated using SPSS software.

RESULTS

In the present study, of the total 200 participants, 95 were third year students, 75 were final year students, and 30 were interns. 65.8% of third year students, 97.3% of final year students and 98.35% interns have the basic knowledge that complications may arise during healing after extraction. [Table 1].

About 58.15% of third year students, 69% of final year students, and 76.82% of interns have good knowledge about the risk factors of dry socket which includes surgical extractions, female gender, smoking, use of oral contraceptives, and immunocompromised conditions. [Table 2]

Around 61.7% of third year students, 64.5% of final years and 73.3% of interns have good knowledge about the signs & symptoms of dry sockets which includes dull throbbing pain radiating to ear and neck lasting up to 4-8 days and foul odour or taste coming from extraction site, generally with no swellings. [Table 3]

81.7% of third years, 91.5% of final year students, 94.5% of interns have good knowledge that dry socket is preventable by proper post extraction protocol and managed by irrigation of the extraction site, dressing and by using drugs. [Table 4] Individual level of knowledge among the third year, final year students and interns about all the aspects of dry sockets are tabulated below, [Table1,2,3,4]

Table 1: Percentage of Awareness & Knowledge about Complications in Healing of Extraction wounds

| Questions | Response | III year students | IV year students | Interns | Overall Response |
|--|------------|-------------------|------------------|---------|------------------|
| Do you know that complications may arise? | Yes | 92.6% | 100% | 100% | 96.5% |
| | No | 7.4% | - | - | 3.5% |
| Most common Complication | Dry socket | 39% | 94.6% | 96.7% | 68.5% |
| | Others | 61% | 5.4% | 3.3% | 31.5% |
| Basic Knowledge about complications | | 65.8% | 97.3% | 98.35% | |

Table 2: Percentage of Knowledge about Risk factors associated with dry socket

| Questions | Response | III year Students | IV year students | Interns | Overall Response |
|---|---------------------|-------------------|------------------|---------|------------------|
| Occurrence | Surgical Extraction | 33.6% | 58.8% | 80% | 48.5% |
| | Others | 66.4% | 41.2% | 20% | 51.5% |
| Prevalence | Males | 64.2% | 64% | 40% | 60.5% |
| | Females | 35.8% | 36% | 60% | 39.5% |
| Do you think Smoking & Oral contraceptive usage is a risk factor? | Yes | 79% | 84% | 90% | 82.5% |
| | No | 21% | 16% | 10% | 17.5% |
| Do you think immunocompromised state is a risk factor? | Yes | 84.2% | 96.7% | 97.3% | 91% |
| | No | 17.8% | 3.3% | 2.7% | 9% |
| Knowledge about Risk factors of dry socket | | 58.15% | 68.9% | 76.82% | |

Table 3: Percentage of Knowledge about Signs & Symptoms of dry socket

| Questions | Response | III year students | IV year students | Interns | Overall Response |
|---|------------------|-------------------|------------------|---------|------------------|
| Common signs & Symptoms | Pain & Foul odor | 76.8% | 78.6% | 80% | 78.8% |
| | Swelling | 23.2% | 21.4% | 20% | 21.2% |
| Duration of pain | 4-8 days | 46.7% | 50.5% | 66.7% | 51.5% |
| | Only 2 days | 53.3% | 49.5% | 33.3% | 48.5% |
| Knowledge about Signs & symptoms of dry Socket | | 61.7% | 64.5% | 73.3% | |

Table 4 : Percentage of knowledge about Prevention & Treatment of dry socket

| Questions | Response | III year students | IV year students | Interns | Overall Response |
|---|----------|-------------------|------------------|---------|------------------|
| Is it preventable? | Yes | 94.7% | 98.6% | 100% | 97% |
| | No | 5.3% | 1.4% | - | 3% |
| Proper post extraction protocol - the best way for prevention | Yes | 90.5% | 98.6% | 100% | 95% |
| | No | 9.5% | 1.4% | - | 5% |
| Best treatment - Combination of irrigation, dressing & drugs | Yes | 60% | 77.4% | 83.4% | 70% |
| | No | 40% | 22.6% | 16.6% | 30% |
| Knowledge about Prevention & Treatment of dry socket | | 81.7% | 91.5% | 94.5% | |

DISCUSSION

Dry socket, a clinically significant post-extraction starts as severe pain on the second or third day post extraction. The generally accepted aetiology behind dry socket is the local fibrinolysis leading to disintegration of the clot ^[6]. Some anti fibrinolytic drugs can be used topically in the extraction site to reduce the incidence of dry socket ^[7]. Surgical trauma leads to liberation of certain tissue activators causing localized fibrinolytic activity which explains that surgical extraction produces dry socket with ten times higher incidence than non-surgical extractions ^[8]. Studies have reported a increased propensity for dry socket complications in smokers and also females more than males due to hormonal influences^[6]. Treatment for dry socket should include irrigation of the socket with a 0.12-0.2% chlorhexidine rinse, placement of an obtundent dressing such as zinc oxide, eugenol and lidocaine gel; or, a combination of these therapies and, where appropriate, the prescription of systemic antibiotics.

Awareness about dry socket among the dentists is a must as it can cause complications if not diagnosed and treated early. It has been reported in the literature that alveolar osteitis may lead to acute or secondary chronic osteomyelitis if untreated, as there are chances that bacteria may invade into the medullary and cortical bone. In order to prevent such severe complications, it is essential that dental students are aware about all the aspects of dry socket.

In the present study, 65.8% third year students,97.3% of final year students,98.35% of interns are knowledgeable that

complications may arise during extraction wounds healing. 58.15% of third year students, 68.9% of final year students and 76.82% of interns are aware about the risk factors of dry socket. 61.7% of third year students, 64.5% of final year students and 73.3% of interns have good knowledge about the signs & symptoms of dry socket. 81.7% of third year, 91.5% of final year students and 94.5% interns are familiar with prevention and management of dry sockets. There is always an enhanced knowledge about all the aspects of dry sockets among the interns when compared to the third year and final year students.

In this study it is found that about 96.5% have knowledge that complications may arise during healing of extraction wounds. G G Steiner et al reported in his study that considerable percentage of extraction sites may suffer post operative complications ^[9]. W L Adeyemo et al reported that of all the extraction site examined 11% showed healing complications [1]. Around 68.5% of the participants in the present study are knowledgeable that dry socket is the commonest among all the complications. Akota I and Blum IR et al described alveolar osteitis as the most common complication ^[10,11]. In the study done by M H A Younis et al overall frequency of dry socket was 3.2% ^[12].

Only 51.5% of all the participants in this study are unaware that surgical extractions are a risk factor for dry socket. But 80% of the interns are aware about this, which can probably be due to their experience of performing surgical extractions which later showed dry socket formation. Traumatic extractions are more frequently associated with dry sockets [7]. M H A Younis et al reported that incidence of dry socket following non-surgical extractions was 1.7% and 15% following surgical extractions [12]. Only 39.5% of all the participants in this study are aware that female gender is a risk factor for dry sockets. But 60% of the interns know about the predominance of dry socket in females, possibly due to adequate exposure of such cases. MacGreoger reported a higher incidence of dry socket in females with a male:female ratio of 2:3 in his study ^[13].

82.5% of all the participants in this study are aware that smoking and use of oral contraceptives are the contributing factors for dry socket formation. Sweet and Butler reported a dose dependent relationship between smoking and incidence of dry socket in one of their studies ^[14]. Also, they have reported that increase in use of oral contraceptives is correlated with dry socket formation ^[15]. 91% of students in this study know that immunocompromised patients are more prone to develop dry sockets. Torres-Largares, et al proposed that immunocompromised patients may develop dry socket due to altered healing [7].

97% of students in the present study are aware that dry socket is a preventable complication. The fact that dry sockets formation can be prevented has been largely discussed in the literature ^[16-18]. About 70% students in this study are aware that combination of treatment is the best way to manage dry socket. Management protocol suggested in the literature includes the traditional methods of normal saline irrigation, and placement of dressing along with prescriptions of analgesics and systemic antibiotics ^[19-21].

Even though the students are taught about the concepts of dry socket in the third-year syllabus, third year students

lack proper knowledge regarding the complications during healing of extraction wounds. There is increase in the level of knowledge as the students move on to final year and internship. This is probably because third year students have just entered clinical practice whereas the final year and interns would have more exposure to different clinical cases. There is no previous questionnaire-based study conducted to assess the knowledge about complications during healing of extraction wounds among dental students. This is the first study which has assessed the awareness level of dental students about extraction wound healing complications. From this study it is understood that clinical knowledge is equally important to theoretical knowledge, and so students should be exposed to cases of all kinds, to improve their ability on diagnosis and management of post extraction complications.

CONCLUSION

Clinical experience also plays an important role in diagnosis and management of post extraction complications, apart from theoretical knowledge about the complications that may occur during healing of extraction wounds.

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