

# The Internship Dentists Knowledge About Dry Socket

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## ABSTRACT

**Objective:** To assess the knowledge of dry socket among internship dentists, and to reduce the incidence in future.

**Study Design:** Cross-sectional study

**Place and Duration of Study:** This study was conducted at the Oral Pathology department, Foundation University college of Dentistry and Hospital, Foundation University Islamabad from March 2021 to June 2021.

**Materials and Methods:** A quantitative cross-sectional study was conducted on dental internee residents of Rawalpindi & Islamabad. A questionnaire-based Performa was distributed among 200 dental internees. An informed consent was obtained from the participants. Inclusion & exclusion criteria were chalked out and followed. Results were recorded in Microsoft excel sheet and analyzed by SPSS version 20 software.

**Results:** 74.5% of internees considered traumatic extraction whereas 25.5% considered bacterial infection as a cause of dry socket. 86% of internees agreed that dry socket occurs more frequently in mandible than maxilla. 14.5% of participants considered analgesics not to be effective in management whereas 19.5 % of participants lacked in their knowledge regarding analgesics.

**Conclusion:** Within the confines of our study, the knowledge of our dental internees about alveolar osteitis is acceptable. But we need a proper integration of different subjects to enhance student's knowledge, concepts and their implementation in patient management under the umbrella of a separate Dental education department.

**Key Words:** Alveolar Osteitis, Oral Contraceptives, Patient management

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## INTRODUCTION

Dry socket also known as "Alveolar Osteitis" occurs when the blood clot in the extraction socket fails to develop, dissolves or dislodges before wound healing has occurred<sup>1</sup>. Dry socket is a common complication of tooth extraction<sup>2</sup>. Pain is one of the most important symptom of dry socket<sup>2</sup>.

Blum (2002) has described dry socket as "post-op pain in and around the extraction site which increases in severity at any time between 1 and 3 days after the extraction". Dry socket was first described by Crawford in 1896<sup>3</sup>. Occurrence of dry socket is approximately 1% - 5% of all extractions and up to 38% of impacted mandibular 3rd molar extractions<sup>4</sup>. Dry socket more commonly occurs in mandibular molar region because of high bone density and less vascularity of the mandible.

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The pathogenesis of dry socket is associated with the increased fibrinolytic activity that results in disintegration of the blood clot<sup>5</sup>. Many factors are associated with the breakdown of blood clot. One of these is the presence of higher pre- and post-operative microbial counts particularly anaerobic bacteria seen in patients with poor oral hygiene and presence of pre-extraction periapical infection, pericoronitis or periodontitis<sup>6</sup>.

Traumatic extractions are also a major causative factor. Birn (1973) proposed that there is an increased localized inflammation due to trauma during extraction. This leads to release of tissue activators which increase the levels of plasmin leading to increase in fibrinolytic activity<sup>7</sup>.

Tobacco smoking is also a predisposing factor to dry socket due to increased vasoconstrictive activity of nicotine<sup>5</sup>. Alveolar osteitis is more commonly seen in females than males due to the possible hormonal cause. Females using oral contraceptives are more commonly affected due to the increased fibrinolytic activity of estrogen present in oral contraceptives. Other factors that increase the risk of dry socket are inadequate irrigation following extraction that does not effectively decontaminate the extraction socket by bacteria and local anesthesia with vasoconstrictors that causes temporary local ischemia<sup>8,9</sup>.

Following extraction of a tooth patient does not immediately develop signs and symptoms of dry socket. Patient usually reports after 24 hours with severe,

throbbing pain which becomes more severe over time and can radiate to ear. Accumulation of food particles or mechanical stimulation of the exposed bone by the tongue results in acute pain<sup>4</sup>. The pain increases in intensity till 3-4 post op days. It is usually associated with foul taste and halitosis. Clinically, whitish bone is visible in the socket instead of the dark blood clot. Socket is filled with saliva and debris. The mucosa around the socket is red and tender. There are no visible signs of infection i.e. suppuration, fever or swelling<sup>9</sup>.

Pre-operatively, patient should be asked about any previous history of dry socket as some patients are more susceptible to develop this post-extraction complication. The most common predisposing factors for developing dry socket are patient's age, history of previous infection & difficult or traumatic extraction<sup>10</sup>. It is reported that 0.12% chlorhexidine rinse prior to extraction and one week post-extraction prevents the occurrence of dry socket<sup>3</sup>. Extractions should be carried out with minimal trauma to prevent damage to bone. Following extraction, socket edges should be squeezed together for a few minutes to assist clot formation<sup>9</sup>. Topical placement of anti-fibrinolytic agents in the extraction site may also contribute in reduced incidence of dry socket<sup>11</sup>.

Post-operatively the use of straws that produces suction movement of cheek muscles should be avoided as this may dislodge the blood clot. Patient should avoid spitting forcefully till 2-3 post op days. Avoid smoking and tobacco for at least 48 hours following extraction and when resumed, inhale very gently. Maintenance of adequate oral hygiene to prevent breaking down of the blood clot from germs and infection also prevents the occurrence of dry socket.

Management of dry socket can range from simple irrigation to surgical intervention and dressing placement<sup>12</sup>. Food particles and bacteria in the socket are irrigated with normal saline. After irrigation a medicated dressing that contains eugenol and a topical anesthetic is placed in the socket that provides immediate relief from pain, usually within 5 minutes. Depending on the severity of pain, dressing is changed every alternate day for the next 3-5 days. Post-operatively analgesics are prescribed such as NSAIDs, e.g. Ibuprofen or a mixture of narcotic with acetaminophen in case of severe pain<sup>13</sup>. Patient is advised warm saline rinses and maintenance of oral hygiene to promote healing of the socket<sup>14</sup>.

To prevent the occurrence of dry socket in susceptible patients, primary closure of the socket is advised to enhance healing by primary intention<sup>12</sup>.

The basic treatment of dry socket is to irrigate bacterial material, debris & food particles out of the socket and subsequently filling the socket with a medicament having obtundent properties<sup>4</sup>.

The objective in treating a dry socket is to optimize the lesion in such a way that the socket is capable of

forming a layer of epithelium that covers the exposed bone and contributes in healing of the socket<sup>4</sup>.

## MATERIALS AND METHODS

The current study was conducted on dental interneer residents of Twin cities Rawalpindi & Islamabad from March 2021 – June 2021. Ethical approval was obtained from Ethical Approval Committee FUMC, FUI Islamabad. A questionnaire-based Performa was distributed among 200 dental interneer targeting dental institutes of Rawalpindi & Islamabad. An informed consent was obtained from the participants & confidentiality of information collected was taken care of. Interneer in FUCD, MIHS, IMDC, IIDC and AFID were included in this study.

Inclusion & exclusion criteria is as follows:

- Dental interneer, living in Rawalpindi and Islamabad were eligible for this study.
- Post Graduate trainee were not included.

Results were recorded in Microsoft excel sheet and analyzed by SPSS version 20 software.

## RESULTS

This was a descriptive type of study which included dental interneer from various colleges of Rawalpindi & Islamabad. Data was collected from 200 dental interneer. 81.5% of the participants were females and 18.5% were males. All of the participants were aware of alveolar osteitis. 92% of the interneer agreed with the fact that pain in dry socket increases in severity usually at 3<sup>rd</sup> post-operative day. 98% of the interneer were in favor of the opinion that dry socket is caused by disintegration of the blood clot within the extraction socket. 95.5% of the participants considered whitish bone whereas 4.5% considered blood clot as content of dry socket. Halitosis was considered as a common finding of dry socket by 90% of the participants. Lack of compliance in following post-operative instructions and smoking tobacco was also considered as a contributing factor for dry socket by 96% of interneer.

74.5% of interneer considered traumatic extraction whereas 25.5% considered bacterial infection as a cause of dry socket. 86% of interneer agreed that dry socket occur more frequently in mandible than maxilla whereas 10% of the participants were unsure about their answer. 73.5% agreed that females are more susceptible in developing a dry socket but 22% of the participants were unclear in their answer. 80% of participants considered that vasoconstrictors increase the risk of developing a dry socket, 8% disagreed and 12% were not sure about the effect of vasoconstrictors on dry socket. 70% of the participants agreed that chlorhexidine if used as a pre-operative irrigant reduces the risk of dry socket, 13.5% considered it as a risk factor in developing dry socket and 16.5% of the

participants didn't have significant knowledge regarding use of chlorhexidine.

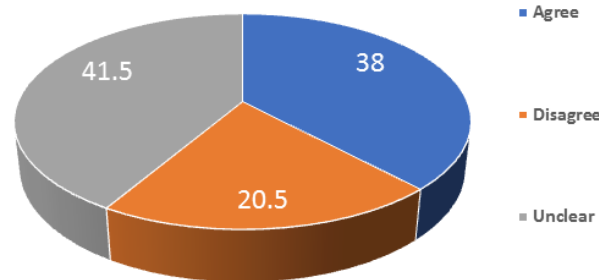
Effect of use of oral contraceptives and antibiotics on the incidence of dry socket is presented in Figure 1 & Table 1 respectively.

Regarding management 91.5% considered zinc oxide and eugenol dressing an effective remedy for dry socket & 66% of participants considered the use of analgesics that can range from NSAIDs to narcotics to be effective. 14.5% of participants considered analgesics not to be effective in management whereas 19.5 % of participants lacked in their knowledge regarding analgesics.

**Table No.1: Erythromycin and metronidazole are effective in prevention of dry socket**

	Frequency	Percentage
Agree	55	27.5
Disagree	62	31
Unclear	83	41.5

Dry socket occurred three times less frequently in females on oral contraceptives than in those who are not taking them



**Figure No.1: Effect of use of oral contraceptives and antibiotics on the incidence of dry socket is presented in.**

## DISCUSSION

Dry socket also known as 'Alveolar osteitis' is the most common sequelae of extraction of teeth leading to discomfort and pain for the patients and also a constant source of annoyance for the dentists.

In our study most of the interneers agreed to the fact that dry socket is caused by disintegration of the blood clot within the extraction socket due to the fibrinolysis activity leading to clot dissolution, this is also depicted in<sup>15,16</sup>.

Another finding in our study that relates to other studies is that dry socket is complemented with a whitish bony socket<sup>3</sup>, halitosis is an important finding of dry socket agreed on by most of our participants which narrates to studies<sup>10</sup>.

Another important fact that is addressed by various authors in literature is the role of atraumatic extraction technique as it may hinder wound and socket healing later on. In our study most of the participants emphasized on this fact and it is also stressed upon in literature<sup>17</sup>.

In relation to anatomical socket the prevalence of dry socket is more in lower jaw as compared to upper jaw reason being dense bone, reduced blood supply and decreased granulation tissue formation in mandible and was agreeable to most of our participants which falls in accordance to literature<sup>15,16</sup>.

Yogesh Losch et al. proposed in their literature that dry socket is more common in females than males<sup>18</sup>. In another study of AlHindi M, the results showed that out of 7 patients having dry socket, female to male ratio was 6:1<sup>19</sup>. Our study also shows similar results.

As stated by John Mamoun and other researchers that smoking and use of oral contraceptives contribute in the occurrence of dry socket as they both reduce blood circulation in the extraction socket<sup>4,6,20</sup>.

In a study conducted on dental interneers in Al Farabi dental college KSA, 94.8 % of the participants agreed with the statement that risk of dry socket is significantly higher in smokers as compared to non-smokers<sup>3</sup>. Similarly, in the current study 96% of interneers consider smoking as a major risk factor of dry socket lesions.

Rahul Sharma et al. in their research article stated that estrogen levels are raised due to oral contraceptives<sup>21</sup>. Increased fibrinolytic activity of estrogen as described by AlHindi M<sup>19</sup> contributes in occurrence of dry socket<sup>21</sup>. In the present study only 20.5% of the interneers agree with this correct information that dry socket occurs more frequently in females on oral contraceptives<sup>6,18,20,22</sup>. Another study done by Mazen Doumani et al shows similar results<sup>3</sup>. Hence, dental interneers are lacking in their knowledge regarding use of oral contraceptives and their effect on healing of extraction socket.

In the current study the use of vasoconstrictors is considered to significantly increase the risk of dry socket. Similar results are found in the study of Rahul Sharma et al<sup>21</sup>. However the study of Mazen Doumani et al. shows that the interneers are not well aware of vasoconstrictor use<sup>3</sup>.

Another finding in our study that correlates with other studies is that Chlorhexidine when used pre-operatively reduces the risk of dry socket<sup>3,23,24</sup>.

In our study very few interneers agreed with the statement that antibiotics e.g. erythromycin, metronidazole etc. are effective in prevention of dry socket, this result is also consistent with another local study<sup>24,25</sup>. However in a study conducted by Mazen Doumani et al. many internship dentists considered role of antibiotics crucial in prevention of dry socket<sup>3</sup>. Another international study shows same results<sup>22</sup>.

In our study, almost all the participants considered zinc oxide eugenol dressing effective in management of dry socket lesions due to its anti-bacterial and obtundent properties, this result is also established in literature<sup>3,22,24</sup>.

As dry socket is a painful condition, analgesics play a very important role in its management. Results of our study agreed with the significance of use of analgesics and this result is also consistent with other studies<sup>3</sup>.

## CONCLUSION

Within the confines of our study, the knowledge of our dental interneers about alveolar osteitis is acceptable, except for a few points. The reason being lack of integration of different subjects during under graduate education in dental institutes, resulting in poor translation of knowledge and execution in clinical practice. So, we need a proper integration of different subjects to enhance students' knowledge, concepts and their implementation in patient management under the umbrella of a separate Dental education department.

### Author's Contribution:

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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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