

An Overview of Dry Socket and it's Management

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Abstract: Dry Socket falls under the most common and serious complications which usually encounters after the extraction of Third molar.The pathophysiology, etiology, prevention and treatment of Dry Socket are of utmost important in the practice of Oral Surgery.The main aim of this article is to review and discuss each and every aspect of Dry Socket.

Date of Submission: 08-01-2022

Date of Acceptance: 23-01-2022

I. Introduction:

Crawford in the year of 1896 first time described the Dry Socket in the literature.Dry Socket is a post operative complication that occurs after a dental extraction. Some other terminologies for Dry Socket are as:- Alveolar osteitis,Localised Acute Alveolar Osteomyelitis,Alveolitis Sicca Dolorosa,Alveolalgia,Necrotic Socket,Fibrinolytic Osteitis, Fibrinolytic Alveolitis.

Definition:

Dry Socket is defined as a “postoperative pain inside and around the dental alveolus which increases in severity between first and the third day after a dental extraction.It is basically a focal Osteomyelitis in which the blood clot has disintegrated or been lost with the production of a foul smell along with throbbing type of pain but without supuration.

The condition derives its name from the fact that after the clot is lost,the socket has a dry appearance because of the exposed bone.The socket is a hole in the bone where the tooth has been extracted after which a blood clot forms in the socket to protect the bone and the nerves underneath.Sometimes the clot gets dislodged which further leaves the bone and the nerves exposed to air,fluid and anything else that enters the mouth.This leads to infection and severe pain that lasts for 5 to 6 days.

Incidence:

Dry Socket is observed commonly in patients of 40 to 45 years old and the incidence in all the extracted socket is one to four percentage.Mandible is affected more commonly than Maxilla.The frequency of dry Socket of mandibular third molar was found to be one percent to 37.5 percent. Extraction that has been performed either surgically or traumatically resulted in ten times higher incidence of Dry Socket.

Aetiopathogenesis:

After tooth extraction,an orderly sequence of events causes normal tissue healing.This sequence of normal healing does not always occur.In some cases, early clot formation in the socket is followed by premature clot necrosis, accompanied by pain and fetor oris.The classic triad of clot dissolution,pain and fetor oris is termed as Dry Socket.

Theories of Dry Socket:

- Birn's Fibrinolytic theory
- Bacterial theory

Birn's Fibrinolytic theory:

According to Birn laboratory and clinical studies have shown an increase of Fibrinolytic activity in the pathogenesis of Dry Socket.The fibrin disintegrated due to the effect of kinase liberated in the inflammation process or due to direct or indirect activation of plasminogen which affects the stability of clot and promotes the development of dry socket.Plasminogen,which is synthesized in the liver and then released in the circulation,is

then activated by proteolytic cleavage into active form plasmin. Plasmin further acts on fibrinogen and fibrin causing clot dissolution and together with that fibrin degradation.

Bacterial theory:

High amount of bacteria specially anaerobic bacteria are generally found at the extraction site in patients suffering from Dry Socket or alveolar osteitis. Alveolar pain is also found due to bacterial toxins on the nerve endings in the alveolus socket.

Dry socket is also found in patients suffering from pericoronitis, poor oral health and periodontal illness.

Actinomyces Viscosus, *Streptococcus mutans*, *Treponema denticola* increases Fibrinolytic activity.

Risk Factors:

1. Traumatic Extraction: Dry Socket most commonly due to bigger trauma which delays the alveolar healing and it could provoke a thrombosis of lesser resistance to infection in the alveolar bone
2. Oral contraceptives: Oestrogens and other drugs activate the fibrinolytic system in an indirect way, contributing to premature destruction of the clot and the development of dry socket
3. Hormonal changes : The changing levels of endogenous oestrogens during the menstrual cycle would also influence.
4. Habits: The mechanism through which tobacco interferes in alveolar healing is the incorporation of pollutants in the wound or the suction effect on the clot in formation.
5. Age: Old age people are more prone to chances of developing dry socket as compared to the younger group persons.
6. Gender: females are more prone in development of alveolar osteitis, when compared to the male patient.
7. Systemic disease: Conditions like hypertension, diabetes mellitus and others that alter the healing process, results in the formation of dry socket, due to defective or altered healing process.
8. Extraction site: Dry sockets occur more frequently in the mandible than the maxilla due to thick cortical bone resulting in poor perforation of blood supply to the mandible. It occurs more commonly in the extraction of the third molars.
9. Vasoconstrictor: Vasoconstrictors in the local anesthetics used for extraction may also contribute to the formation of dry socket. Vasoconstrictors cause temporary local ischemia which increase the risk of developing alveolar osteitis.
10. Infection : Dry socket is more frequent in patients with poor oral hygiene, pericoronitis or periodontal illness.
11. Curettage: If there is excessive curettage done at the extraction site along with excessive irrigation, that may hinder with the formation of blood clot and finally resulted in the formation of dry socket.
12. Inexperience : According to Larsen, the dentist who is inexperienced may lead to more amount of trauma i.e. soft tissue trauma as well as trauma to the alveolar bone, that too especially in case of surgical extraction. Oginni et al. also revealed in their study that there is higher incidence of alveolar osteitis or dry socket, when the extraction is done by an inexperienced dentist.

Clinical Features:

- Pain usually starts by the second or third postoperative day and lasts for 7-10 days.
- Pain is localized to the extraction socket which will be sensitive to even gentle probing.
- Pain may radiate to the ear and neck.
- Halitosis is invariably present.
- It may be associated with low grade fever and ipsilateral lymphadenopathy.
- The socket may contain decomposed food debris which gives the foul smell and taste.
- The exposed bone is necrotic, and sequestration of fragments is common.

Prevention and treatment

- The healing of dry socket is extremely slow and little can be done for the patient other than to relieve the subjective symptoms.
- Chlorhexidine in the concentration of 0.12 percent found to be very much effective when given prior to the surgical extraction starting from five days prior to the surgery as well as given perioperative, surely decreases the chances of occurrence of dry socket.
 - Gently irrigate the socket with 0.12 percent warmed chlorhexidine and all debris dislodged and aspirated.
 - Application of topical antibiotic paste is found to be effective in many studies, tetracycline is used as a local applied antibiotic and can be applied over the cotton swab and is found to be very much effective in the prevention or as a treatment modality for dry socket.

- Intra-alveolar pastes consisting of zinc oxide eugenol paste, anesthetic and an antibiotic (metronidazole) can be placed.
- Earlier investigation suggests that, the application of PHBA i.e. para hydroxyl benzoic acid topically at the extraction site, surely decreases the chances of occurrence of dry socket. Para hydroxyl benzoic acid is an anti-fibrinolytic agent and is commercially available in the market under the trade name Apérynl. Another anti-fibrinolytic agent, name tranexamic acid, also plays an important role in the treatment of dry socket by reducing the pain of the dry socket, when applied topically in the extraction site.

II. Conclusion:

The prevalence of dry socket is inevitable. It can be prevented by use of antibiotics, irrigation, and maintenance of oral hygiene. Though there is no specific treatment for alveolar osteitis, eugenol dressings and curettage cut back the incidence of it.

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Acknowledgments:

We thank Dr Soumya Kanti Bose, Medical officer, Darjeeling district hospital, for his guidance and support.

Dr. Divya Mukherjee, et. al. "An Overview of Dry Socket and its Management." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 21(01), 2022, pp. 34-36.