International Journal of Early Childhood Special Education (INT-JECSE)
DOI:10.9756/INTJECSE/V14I5.1064 ISSN: 1308-5581 Vol 14, Issue 05 2022

Incidence of Dry Socket after extraction in Private Dental College in Chennai

- **Aditi Chopra**

Research AssistantSaveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences,Saveetha University,Chennai,Tamil Nadu, India

- **Arun Murugaiyan***

Department of Oral Maxillofacial SurgerySaveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences,Saveetha University,Chennai,Tamil Nadu, India

ABSTRACT

Introduction: Dry socket, also termed fibrinolyticosteitis or alveolar osteitis, is a complication of tooth exodontia. A dry socket lesion is a post-extraction socket that exhibits exposed bone that is not covered by a blood clot or healing epithelium and exists inside or around the perimeter of the socket or alveolus for days after the extraction procedure. The prevention methods include avoiding smoking before and after surgery and traumatic surgery, the use of antibiotics, such as, azithromycin, can be considered, the other preventive measures such as chlorhexidine rinse or gel can be effective in the reduction of dry socket incidence.

Aim: To collect data and analyse the occurrence of dry socket after extraction in a private dental college in Chennai.

Materials and Methods: The retrospective study was conducted in a private dental college, Chennai, India. A total of 105 patients who reported with dry socket after getting extraction done were included in the study. Data was collected with parameters like age, gender and tooth number affected of the patient. The collected data was analysed using SPSS statistical software. Data analysis was done using chi square test and p value was set as 0.05 as level of significance.

Results and Discussion: the correlation between the gender and age of the patient and the gender and arch affected, are both statistically insignificant. AO has several contributing or aggravating factors. These include surgical trauma, mandibular third molars, systemic disease, oral contraceptives, smoking, physical dislodgement of the clot, bacterial infection, age of the patient, excessive irrigation/curettage of alveolus, saliva, local anesthetic with vasoconstrictor, multiple vs single extractions, use of sutures and remaining bone fragments in the wound.

Conclusion: It can be concluded from this study that more females are affected with dry socket. The most affected teeth are the mandibular teeth.

Keywords: Dry socket, Extraction, Alveolar Osteitis, Pain, Exodontia, Novel Analysis

INTRODUCTION

The unscientific term “dry socket” or scientifically “Alveolar Osteitis (AO)” refers to a post-extraction socket where some or all of the bone within the socket, or around the occlusal perimeter of the socket, is exposed in the days following the extraction, due to the bone not having been covered by an initial and persistent blood clot or not having been covered by a layer of vital, persistent, healing epithelium (1). The most recent defines AO as “postoperative pain inside and around the extraction site, which increases in severity at any time between the first and third day after the extraction, accompanied by a partial or total disintegrated blood clot within the alveolar socket with or without halitosis”(2). Other defining factors that have been reported are radiating pain towards the ear and temporal region, rare maxillary involvement in ocular and frontal regions, halitosis, seldom low-grade fever, inflamed gingival margin, bare bone, ipsilateral regional lymphadenopathy, and grayish discharge(3). The patient may not be able to prevent food particles or the tongue from mechanically stimulating the exposed bone, which is acutely painful to touch, resulting in frequent acute pain. All parts of a dry socket lesion, except the exposed bone, can be gently touched with a periodontal probe or an irrigation needle tip without causing acute pain. Dry socket lesions occur in approximately 1% to 5% of all extractions and in up to 38% of mandibular third molar extractions(4).

The frequency of AO has been the subject of many articles in the literature. The lack of objective clinical criteria leads to considerable variability in the reported frequency of AO. Poor study design, miscalculation of data, insufficient sample, or introduction of variables could also contribute to the variability that has been reported in the literature(5). For routine dental extractions, the incidence of AO has been reported in the range 0.5% to 5%. The incidence of AO after extraction of mandibular third molars varies from 1% to 37.5%(6). It has been well documented that surgical extractions result in about 10 times higher incidence of AO. Throughout the literature the onset of AO is considered to occur 1–3 day after tooth extraction. 95–100% of all cases of AO have been reported within a week(7).

Food particles that collect inside the socket may dislodge a blood clot. Bacterial biofilm and food particles inside a socket may also hinder the reformation of a dislodged blood clot by obstructing contact of a reforming blood clot with the exposed bone. Food particles and bacterial biofilm may hinder contact of the healing epithelium with the exposed bone, which may prolong the healing time of the dry socket lesion(8). Food particles that collect inside a dry socket can also ferment due to bacteria. This fermentation may result in the formation of toxins or antigens that may irritate the exposed

bone, produce an unpleasant taste or halitosis, and cause pain throughout the jaw. However, evidence suggests that bacteria is not the main cause of dry socket lesions(9).

The exact pathogenesis of AO is not well understood. Birn suggested that the etiology of AO is an increased local fibrinolysis leading to disintegration of the clot(10). The fibrinolysis is the result of plasminogen pathway activation, which can be accomplished via direct (physiologic) or indirect (nonphysiologic) activator substances. Direct activators are released after trauma to the alveolar bone cells. Indirect activators are elaborated by bacteria(11). The fibrinolytic activity is local because initial absorption of plasminogen into the clot limits the activity of plasmin. In fact, it was found that active plasmin is inactivated in the general circulation by antiplasmins.

Microscope-level magnification facilitates the observation of dry socket lesion anatomy such as exposed bone, either inside the socket or around the socket occlusal perimeter, areas of vital healing epithelium (which shows tensile strength when lightly probed), food particles or clumps of bacterial biofilm material within the socket, or inflamed gingival tissue, which may be sensitive to touch, but is not as sensitive as exposed bone(12,13). Our team has extensive knowledge and research experience that has translate into high quality publications(14),(15),(16),(17),(18–27)(28),(29–31).(32,33)

The aim of the study is to collect data and analyse the occurrence of dry socket after extraction in a private dental college in Chennai.

MATERIALS AND METHODS

The retrospective study was conducted in a private dental college, Chennai, India. Ethical approval was obtained from the Institutional review board prior to the start of the study. Data was collected from the records of the incidence of dry socket post extraction between September 2020 and February 2021. A total of 105 patients reported having dry socket after getting their teeth extracted, out of the total of 12,629 extractions done in the time period. Data was collected with parameters like age, gender and tooth number affected of the patient. The collected data was analysed using SPSS statistical software. Data analysis was done using chi square test and p value was set as 0.05 as level of significance.

RESULTS

A total of 105 patients who reported having dry sockets were included in this study. From the discussed graphs, 42.86% are males and the remaining 57.14% are females. Out of the 105 patients, 4.76% are in the 0-10 year age group, 19.5% are in the 10-20 year age group, 42.86% are between 20-30 years of age, 11.43% are between 30-40 years of age, 13.33% are between 40-50 years of age, and 8.57% are between 50-60 years of age. For further investigations crosstabs were put up comparing the important parameters.

Figure 1. Shows the gender distribution of the patients who presented with dry socket post extraction. 57.14% are females whereas the remaining 42.86% were males.

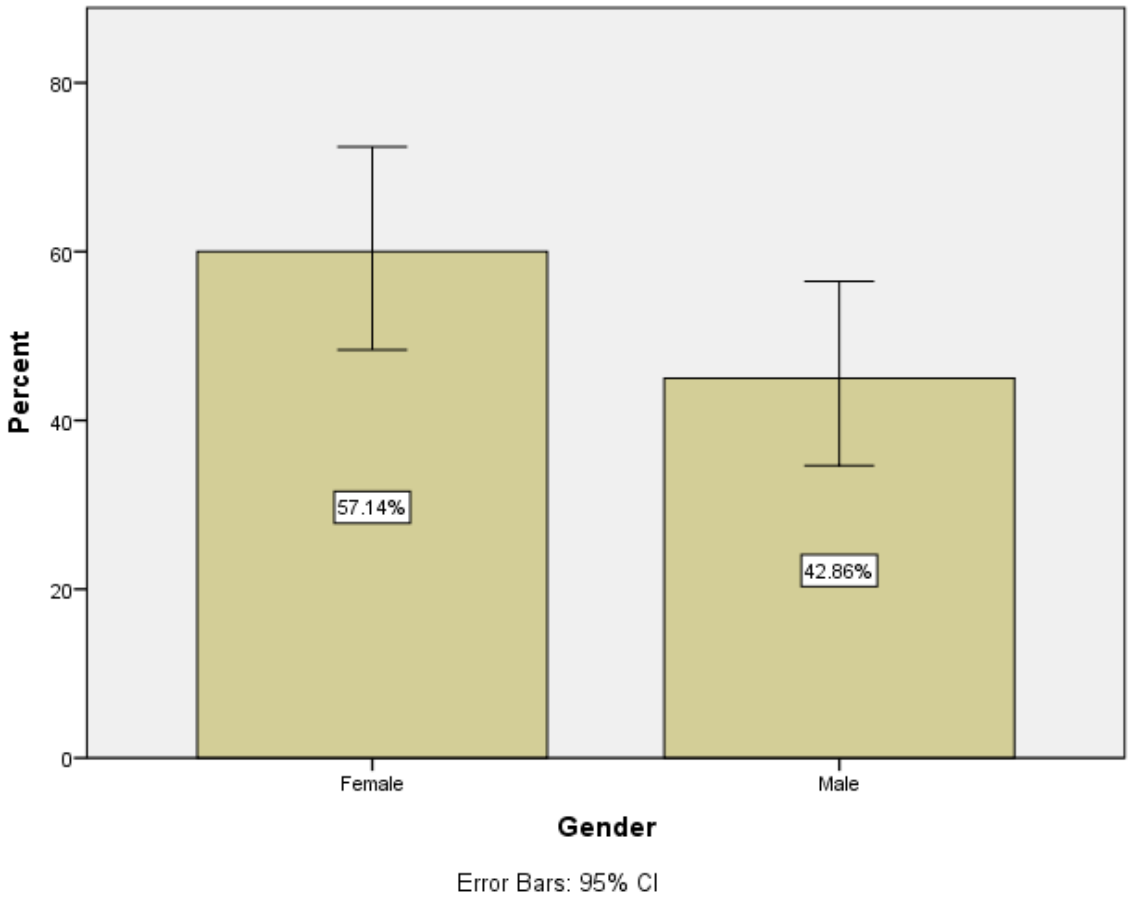


Figure 2. Shows the distribution of the tooth number which was extracted and resulted in a dry socket.

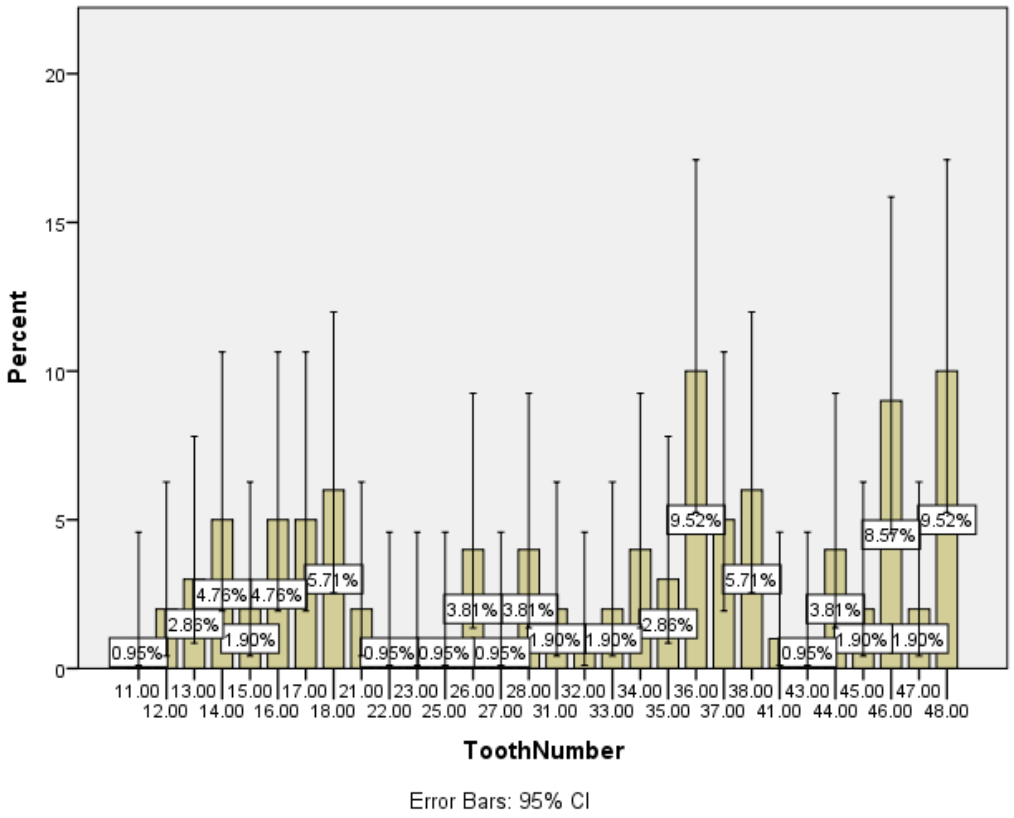


Figure 3. Shows the age distribution of the patients who presented with dry sockets to the private clinic. Out of the 105 patients, 4.76% are in the 0-10 year age group, 19.5% are in the 10-20 year age group, 42.86% are between 20-30 years of age, 11.43% are between 30-40 years of age, 13.33% are between 40-50 years of age, and 8.57% are between 50-60 years of age.

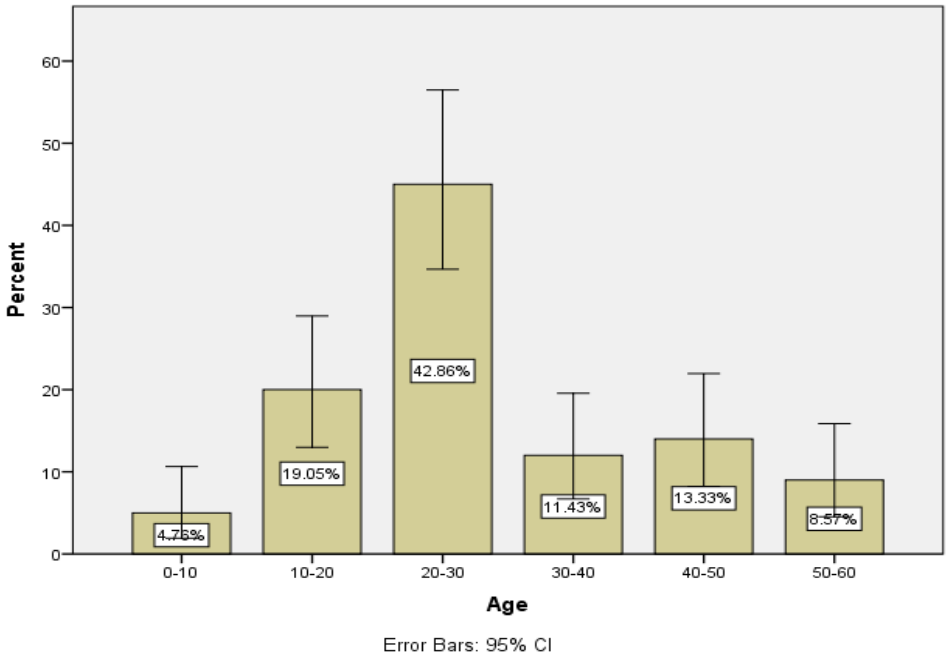


Figure 4. Shows the correlation between the gender and the age of the patients. The blue colour denotes the female population whereas the green colour denotes the male population. The p value observed is 0.126 (p>0.05), which is considered statistically insignificant.

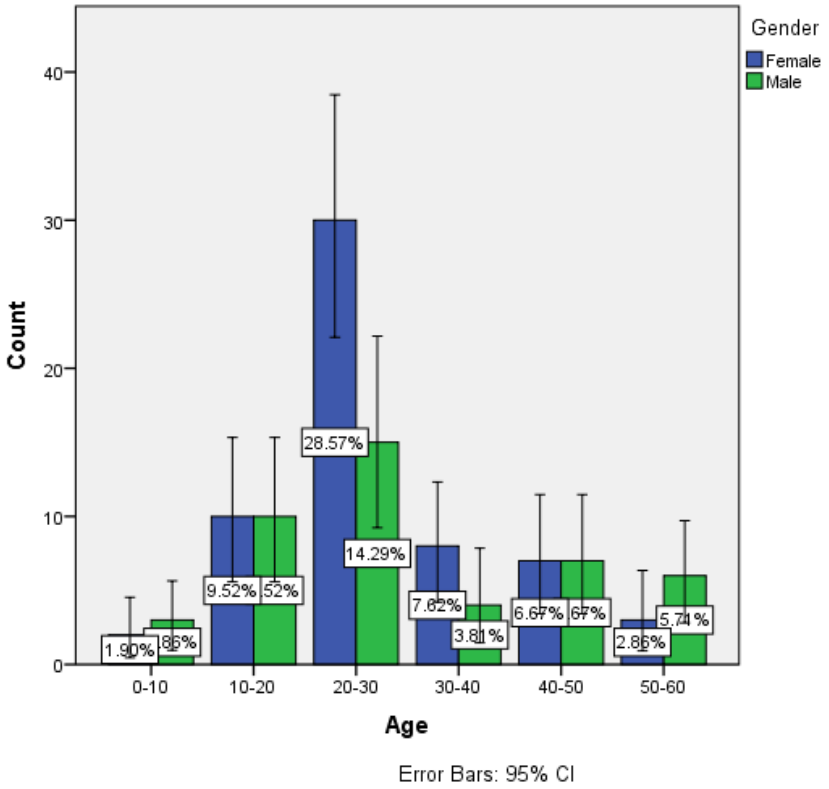
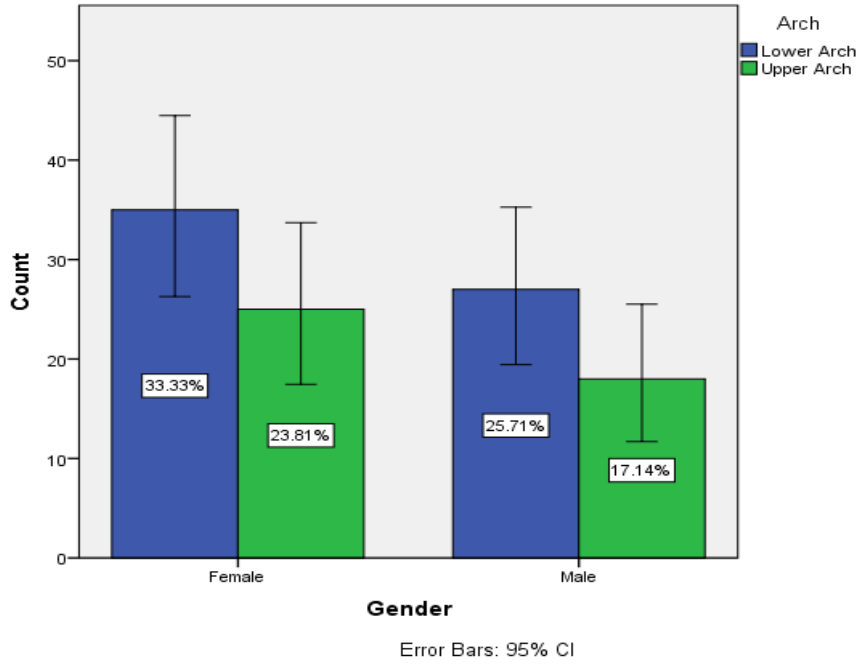


Figure 5. Shows the correlation between the gender and the arch affected of the patients. The blue colour denotes the lower arch whereas the green colour denotes the upper arch. The p value observed is 0.115 (p>0.05), which is considered statistically insignificant.



DISCUSSION

It can be observed from the above graphs that more females are affected with dry sockets than males. This is supported by an article which states that females were 2.37 times more prone to dry socket as compared to males(34). It also states that dry socket was found 2.94 times more common in mandibular extractions as compared to maxillary. This is supported by the present study in which both males and females had a higher occurrence of dry socket in the mandibular arch than maxillary arch. Chi square analysis shows that the correlation between the age group and gender as well as the gender and arch, both are statistically insignificant because their p value > 0.05.

AO has several contributing or aggravating factors. These include surgical trauma, mandibular third molars, systemic disease, oral contraceptives, smoking, physical dislodgement of the clot, bacterial infection, age of the patient, excessive irrigation/curettage of alveolus, saliva, local anesthetic with vasoconstrictor, multiple vs single extractions, use of sutures and remaining bone fragments in the wound.

Most authors agree that surgical trauma and difficulty of surgery play a significant role in the development of AO. This could be due to more liberation of direct tissue activators secondary to bone marrow inflammation following the more difficult, hence, more traumatic extractions. Surgical extractions, in comparison to nonsurgical extractions, result in a 10-fold increase incidence of AO(35). Lilly et al. found that surgical extractions involving reflection of a flap and removal of bone are more likely to cause AO(36). It has been shown that alveolar osteitis is more common following the extraction of mandibular third molars. Some authors believe that increased bone density, decreased vascularity, and a reduced capacity of producing granulation tissue are responsible for the site specificity(37). Some researchers have suggested that systemic disease could be associated with alveolar osteitis. One article proposed immunocompromised or diabetic patients being prone to development of alveolar osteitis due to altered healing(37,38). But no scientific evidence exists to prove a relationship between systemic diseases and AO. Oral contraceptives are the only medication associated with developing AO. Sweet and Butler found that this increase in the use of oral contraceptives positively correlates with the incidence of AO(39). Estrogen has been proposed to play a significant role in the fibrinolytic process. It is believed to indirectly activate the fibrinolytic system (increasing factors II, VII, VIII, X, and plasminogen) and therefore increase lysis of the blood clot. Catellani et al. further concluded that the probability of developing AO increases with increased estrogen dose in the oral contraceptives. Multiple studies demonstrated a link between smoking and AO(40). A dose dependent relationship between smoking and the occurrence of alveolar osteitis has been reported. Blum speculated that this phenomenon could be due to the introduction of foreign substances that could act as a contaminant in the surgical site.Although a very commonly discussed theory, no evidence exists in the literature verifying that physical dislodgement of the blood clot caused by manipulation or negative pressure created via sucking on a straw would be a major contributor to AO(41).Most studies support the claim that bacterial infections are a major risk for the development of AO. It has been shown that the frequency of AO increases in patients with poor OH, pre existing local infection such as pericoronitis and advanced periodontal disease(42). Attempts have been made to isolate specific causative organisms. A possible association of Actinomycesviscosus and *Streptococcus mutans* in AO was studied by Rozantis et al. , where they demonstrated delayed healing of extraction sites after inoculation of these microorganisms in animal models. It has been suggested that the use of local anesthesia with vasoconstrictors increases the incidence of AO. Lehner found that AO frequency increases with infiltration anesthesia because the temporary ischemia leads to poor blood supply(43). Some authors have suggested that bone/root fragments and debris remnants could lead to disturbed healing and contribute to development of AO(44). Simpson, in his study, showed that small bone/root fragments are commonly present after extractions and these fragments do not necessarily cause complications as they are often externalized by the oral epithelium(45).

Since AO is the most common postoperative complication after extraction, many researchers have attempted to find a successful method for prevention. Numerous methods and techniques are proposed such as systemic antibiotics (penicillins, clindamycin, erythromycin, and metronidazole), topical antibiotics, chlorhexidine, para hydroxybenzoic acid, eugenol, lavage, etc(46).

The management of AO is less controversial than its etiology and prevention. Most agree that the primary aim of dry socket management, as indicated by Fazakerley, is pain control until commencement of normal healing, and in the majority of cases local measures are satisfactory. In some instances, systemic analgesics or antibiotics may be necessary or indicated(47). The use of intra-alveolar dressing materials is widely suggested, although it is generally acknowledged that dressings delay healing of the extraction socket(48). Alvogyl has been widely used in the management of AO and is frequently mentioned in the literature. Alvogyl contains butamben (anesthetic), eugenol (analgesic), and iodoform (antimicrobial). Some authors noted retardation of healing and inflammation when the sockets were packed with Alvogyl. They did not recommend its use in extraction sockets(49).

CONCLUSION

It can be concluded from this study that more females are affected with dry socket in the age group 20-30 than males in any other range of age. The most affected teeth are the ones present in the lower arch. The need for more research is required with increased sample size to overcome the limitations of the study and provide a more accurate result.

ACKNOWLEDGMENT

The authors would like to thank the Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science, Saveetha University, Department of Oral Pathology and study participants for their participation and kind cooperation throughout the study.

CONFLICT OF INTEREST

The authors declare that there were no conflicts of interest in the present study.

SOURCE OF FUNDING

The present study was supported by the following agencies

- Saveetha Dental College and Hospitals
- Saveetha Institute of Medical and Technical Science
- Saveetha University
- Lighthouse Search

REFERENCES

1. Mehra P, D'Innocenzo R. Manual of Minor Oral Surgery for the General Dentist. John Wiley & Sons; 2015. 312 p.
2. Schuurs A. Pathology of the Hard Dental Tissues. John Wiley & Sons; 2012. 456 p.
3. Blum IR. Contemporary views on dry socket (alveolar osteitis): a clinical appraisal of standardization, aetiopathogenesis and management: a critical review [Internet]. Vol. 31, International Journal of Oral and Maxillofacial Surgery. 2002. p. 309–17. Available from: http://dx.doi.org/10.1054/ijom.2002.0263
4. Pejicic R, Bichsel D, Valdec S. [Management of the dry socket with Socketol® paste]. Swiss Dent J. 2021 Jul 19;131(7-8):607–9.
5. Otake H, Sato Y, Nakatani E, Hawke P, Takei S, Ogino A, et al. Oxytetracycline-hydrocortisone ointment reduces the occurrence of both dry socket and post-extraction pain after third molar extraction: An observational study. PLoS One. 2021 Jul 2;16(7):e0254221.
6. Khooharo TS, Hassan SU, Shaikh AH. Prevention of dry socket in mandibular 3rd molars with single preoperative oral dose of metronidazole and amoxicillin compared to conventional therapy. J Pak Med Assoc. 2021 Feb;71(2(B)):585–9.
7. Keshini MP, Shetty SK, Sundar S, Chandan SN, Manjula S. Assessment of Healing Using Alvogyl and Platelet Rich Fibrin in Patients with Dry Socket - An Evaluative Study. Ann Maxillofac Surg. 2020 Jul;10(2):320–4.
8. Soundia A, Hadaya D, Chau Y, Gkouveris I, Bezouglaia O, Dry S, et al. Local RANKL delivery improves socket healing in bisphosphonate treated rats. Bone. 2021 Jul;148:115945.
9. Quercus Corporation. Assisting with Suture Placement, Removing Sutures and Treatment of Dry Sockets. 1976. 87 p.
10. Yeon SH, Shu T, Rogers EA, Song H, Hsieh T-H, Freed LE, et al. Flexible Dry Electrodes for EMG Acquisition within Lower Extremity Prosthetic Sockets. Proc IEEE RAS EMBS IntConf Biomed Robot Biomechatron. 2020 Nov;2020:1088–95.
11. M A, AlHindi M. Dry Socket Following Teeth Extraction: Effect of Excessive Socket Saline Irrigation [Internet]. Vol. 1, Journal of Oral Health and Dental Science. 2017. Available from: http://dx.doi.org/10.18875/2577-1485.1.105
12. Incidence of Dry Socket after Extraction Done in Private College and Hospital-A Retrospective Study [Internet]. Indian Journal of Forensic Medicine & Toxicology. 2020. Available from: http://dx.doi.org/10.37506/ijfmt.v14i4.12559
13. Nimma VL. Holistic Healing Through Herbs: Effectiveness of Aloe Vera on Post Extraction Socket Healing [Internet]. JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH. 2017. Available from: http://dx.doi.org/10.7860/jcdr/2017/21331.9627
14. J PC, Pradeep CJ, Marimuthu T, Krithika C, Devadoss P, Kumar SM. Prevalence and measurement of anterior loop of the mandibular canal using CBCT: A cross sectional study [Internet]. Vol. 20, Clinical Implant Dentistry and Related Research. 2018. p. 531–4. Available from: http://dx.doi.org/10.1111/cid.12609
15. Wahab PUA, Abdul Wahab PU, Madhulaxmi M, Senthilnathan P, Muthusekhar MR, Vohra Y, et al. Scalpel Versus Diathermy in Wound Healing After Mucosal Incisions: A Split-Mouth Study [Internet]. Vol. 76, Journal of Oral and Maxillofacial Surgery. 2018. p. 1160–4. Available from: http://dx.doi.org/10.1016/j.joms.2017.12.020
16. Mudigonda SK, Murugan S, Velavan K, Thulasiraman S, Krishna Kumar Raja VB. Non-suturing microvascular anastomosis in maxillofacial reconstruction- a comparative study. Journal of Cranio-Maxillofacial Surgery. 2020 Jun 1;48(6):599–606.
17. Narayanasamy RK, Muthusekar RM, Nagalingam SP, Thyagarajan S, Ramakrishnan B, Perumal K. Lower pretreatment hemoglobin status and treatment breaks in locally advanced head and neck squamous cell carcinoma during concurrent chemoradiation. Indian J Cancer. 2021 Jan;58(1):62–8.

18. Wang H, Chinnathambi A, Alahmadi TA, Alharbi SA, Veeraraghavan VP, Krishna Mohan S, et al. Phyllanthin inhibits MOLT-4 leukemic cancer cell growth and induces apoptosis through the inhibition of AKT and JNK signaling pathway. J BiochemMolToxicol. 2021 Jun;35(6):1–10.
19. Li S, Zhang Y, Veeraraghavan VP, Mohan SK, Ma Y. Restorative Effect of Fucoxanthin in an Ovalbumin-Induced Allergic Rhinitis Animal Model through NF-κB p65 and STAT3 Signaling. J Environ PatholToxicolOncol. 2019;38(4):365–75.
20. Ma Y, Karunakaran T, Veeraraghavan VP, Mohan SK, Li S. Sesame Inhibits Cell Proliferation and Induces Apoptosis through Inhibition of STAT-3 Translocation in Thyroid Cancer Cell Lines (FTC-133). Biotechnol Bioprocess Eng. 2019 Aug 1;24(4):646–52.
21. Bishir M, Bhat A, Essa MM, Ekpo O, Ihunwo AO, Veeraraghavan VP, et al. Sleep Deprivation and Neurological Disorders. Biomed Res Int. 2020 Nov 23;2020:5764017.
22. Fan Y, Maghimaa M, Chinnathambi A, Alharbi SA, Veeraraghavan VP, Mohan SK, et al. Tomentosin Reduces Behavior Deficits and Neuroinflammatory Response in MPTP-Induced Parkinson's Disease in Mice. J Environ PatholToxicolOncol. 2021;40(1):75–84.
23. Zhang C, Chen Y, Zhang M, Xu C, Gong G, Veeraraghavan VP, et al. Vicenin-2 Treatment Attenuated the Diethylnitrosamine-Induced Liver Carcinoma and Oxidative Stress through Increased Apoptotic Protein Expression in Experimental Rats. J Environ PatholToxicolOncol. 2020;39(2):113–23.
24. Gan H, Zhang Y, Zhou Q, Zheng L, Xie X, Veeraraghavan VP, et al. Zingerone induced caspase-dependent apoptosis in MCF-7 cells and prevents 7,12-dimethylbenz(a)anthracene-induced mammary carcinogenesis in experimental rats. J BiochemMolToxicol. 2019 Oct;33(10):e22387.
25. Saravanakumar K, Park S, Mariadoss AVA, Sathiyaseelan A, Veeraraghavan VP, Kim S, et al. Chemical composition, antioxidant, and anti-diabetic activities of ethyl acetate fraction of Stachysriederi var. japonica (Miq.) in streptozotocin-induced type 2 diabetic mice. Food ChemToxicol. 2021 Jun 26;155:112374.
26. Veeraraghavan VP, Hussain S, PapayyaBalakrishna J, Dhawale L, Kullappan M, Mallavarapu Ambrose J, et al. A Comprehensive and Critical Review on Ethnopharmacological Importance of Desert Truffles: Terfeziaclaveryi, Terfeziaboudieri, and Tirmanianivea. Food Rev Int. 2021 Feb 24;1–20.
27. Wei W, Li R, Liu Q, DevanathadesikanSeshadri V, Veeraraghavan VP, Surapaneni KM, et al. Amelioration of oxidative stress, inflammation and tumor promotion by Tin oxide-Sodium alginate-Polyethylene glycol-Allylisothiocyanatenanocomposites on the 1,2-Dimethylhydrazine induced colon carcinogenesis in rats. Arabian Journal of Chemistry. 2021 Aug 1;14(8):103238.
28. Sathya S, Ragul V, Veeraraghavan VP, Singh L, NiyasAhamed MI. An in vitro study on hexavalent chromium [Cr(VI)] remediation using iron oxide nanoparticles based beads. Environmental Nanotechnology, Monitoring & Management. 2020 Dec 1;14:100333.
29. Chandrasekar R, Chandrasekhar S, Sundari KKS, Ravi P. Development and validation of a formula for objective assessment of cervical vertebral bone age. ProgOrthod. 2020 Oct 12;21(1):38.
30. Ramakrishnan M, Dhanalakshmi R, Subramanian EMG. Survival rate of different fixed posterior space maintainers used in Paediatric Dentistry – A systematic review [Internet]. Vol. 31, The Saudi Dental Journal. 2019. p. 165–72. Available from: http://dx.doi.org/10.1016/j.sdentj.2019.02.037
31. Felicita AS, Sumathi Felicita A. Orthodontic extrusion of Ellis Class VIII fracture of maxillary lateral incisor – The sling shot method [Internet]. Vol. 30, The Saudi Dental Journal. 2018. p. 265–9. Available from: http://dx.doi.org/10.1016/j.sdentj.2018.05.001
32. Su P, Veeraraghavan VP, Krishna Mohan S, Lu W. A ginger derivative, zingerone-a phenolic compound-induces ROS-mediated apoptosis in colon cancer cells (HCT-116). J BiochemMolToxicol. 2019 Dec;33(12):e22403.
33. Wan J, Feng Y, Du L, Veeraraghavan VP, Mohan SK, Guo S. Antiatherosclerotic Activity of Eriocitrin in High-Fat-Diet-Induced Atherosclerosis Model Rats. J Environ PatholToxicolOncol. 2020;39(1):61–75.
34. Ogunlewe MO. Incidence And Pattern of Presentation Of Dry Socket Following Non-Surgical Tooth Extraction [Internet]. Vol. 17, Nigerian Quarterly Journal of Hospital Medicine. 2008. Available from: http://dx.doi.org/10.4314/nqjhm.v17i4.12691
35. Murthi M, Dhasarathan P, Rajendran D. Retrospective Study of the Prevalence of Dry Socket in Patients with Mandibular Third Molar Extraction [Internet]. Vol. 11, World Journal of Dentistry. 2020. p. 425–30. Available from: http://dx.doi.org/10.5005/jp-journals-10015-1766
36. Rakhshan V. Common risk factors of dry socket (alveolitis osteitis) following dental extraction: A brief narrative review [Internet]. Vol. 119, Journal of Stomatology, Oral and Maxillofacial Surgery. 2018. p. 407–11. Available from: http://dx.doi.org/10.1016/j.jormas.2018.04.011
37. Gadicherla S, Smriti K, Roy S, Pentapati K-C, Rajan J, Walia A. Comparison of Extraction Socket Healing in Non-Diabetic, Prediabetic, and Type 2 Diabetic Patients. ClinCosmetInvestig Dent. 2020 Jul 20;12:291–6.
38. Shen L-H, Xiao E, Wang E-B, Zheng H, Zhang Y. High-Throughput Sequencing Analysis of Microbial Profiles in the Dry Socket. J Oral Maxillofac Surg. 2019 Aug;77(8):1548–56.

39. Aulestia-Viera PV, Gontijo SML, Gomes ADM, Sinisterra RD, Rocha RG, Cortés ME, et al. Guaiacol/β-cyclodextrin for rapid healing of dry socket: antibacterial activity, cytotoxicity, and bone repair-an animal study. Oral Maxillofac Surg. 2019 Mar;23(1):53–61.
40. Mamoun J. Dry Socket Etiology, Diagnosis, and Clinical Treatment Techniques. J Korean Assoc Oral Maxillofac Surg. 2018 Apr;44(2):52–8.
41. Juodzbalys G. Instrument for extraction socket measurement in immediate implant installation [Internet]. Vol. 14, Clinical Oral Implants Research. 2003. p. 144–9. Available from: http://dx.doi.org/10.1034/j.1600-0501.2003.140202.x
42. Shepherd J. Rinsing with chlorhexidine may reduce incidence of dry socket after third molar surgery [Internet]. Vol. 6, Evidence-Based Dentistry. 2005. p. 36–36. Available from: http://dx.doi.org/10.1038/sj.ebd.6400333
43. Sylla P. Dry socket [Internet]. Head, Neck and Dental Emergencies. 2005. Available from: http://dx.doi.org/10.1093/med/1.1.med-9780198529101-div1-138
44. Mohn CE, Troncoso GR, Bozzini C, Conti MI, Solari JF, Elverdin JC. Changes in PGE2 signaling after submandibulectomy alter post-tooth extraction socket healing [Internet]. Vol. 26, Wound Repair and Regeneration. 2018. p. 153–62. Available from: http://dx.doi.org/10.1111/wrr.12625
45. Shah N. BROWN TUMOURS: A CASE OF A NON-HEALING EXTRACTION SOCKET [Internet]. Available from: http://dx.doi.org/10.26226/morressier.578e3b4ed462b8029238230b
46. Park W-J, Park IK, Shin KS, Choi EJ. Post-extraction pain in the adjacent tooth after surgical extraction of the mandibular third molar. J Dent Anesth Pain Med. 2019 Aug;19(4):201–8.
47. Alsaleh MK, Alajlan SS, Alateeq NF, Alamer NS, Alshammary F, Alhobeira HA, et al. Alveolar Osteitis: Patient's Compliance with Post-extraction Instructions Following Permanent Teeth Extraction. J Contemp Dent Pract. 2018 Dec 1;19(12):1517–24.
48. Porter BT. The effect of smoking on immediate post-extraction socket filling with blood and on the incidence of painful socket [Internet]. Vol. 47, Journal of Oral and Maxillofacial Surgery. 1989. p. 543. Available from: http://dx.doi.org/10.1016/0278-2391(89)90305-4
49. Faizel S, Thomas S, Yuvaraj V, Prabhu S, Tripathi G. Comparision between neocone, alvogyl and zinc oxide eugenol packing for the treatment of dry socket: a double blind randomised control trial. J Maxillofac Oral Surg. 2015 Jun;14(2):312–20.