International Journal of Early Childhood Special Education (INT-JECSE)
DOI:10.9756/INTJECSE/V14I5.1096 ISSN: 1308-5581 Vol 14, Issue 05 2022

PREVALENCE OF IMPACTED TEETH ASSOCIATED WITH CYST

N.Naveenaa
Saveetha Dental College and Hospitals,
Saveetha Institute of Medical and Technical Sciences [SIMATS],
Saveetha University,
Chennai - 600077.

Kathiravan Selvarasu
Associate Professor
Department of Oral and Maxillofacial Surgery ,
Saveetha Dental College and Hospitals,
Saveetha Institute of Medical and Technical Sciences [SIMATS],
Saveetha University,
Chennai 600077.

Senthil Murugan Pandurangan
Associate Professor,
Department of Oral and maxillofacial surgery,
Saveetha Dental College and Hospitals,
Saveetha Institute of Medical and Technical Sciences [SIMATS],
Saveetha University
Chennai - 600077,
Tamil Nadu, India.

Vinod krishna Krishnaswamy
Associate Professor,
Saveetha Oral Cancer Institute,
Department of Oral and maxillofacial surgery,
Saveetha Dental College and Hospitals,
Saveetha Institute of Medical and Technical Sciences [SIMATS],
Saveetha University
Chennai - 600077,
Tamil Nadu, India.
Email id: vinodkrishna.sdc@saveetha.com
Contact number- +91-9884589410

ABSTRACT:
Introduction: An impacted tooth is a tooth which does not erupt due to lack of space or due to malpositioning in the jaw arch. An impacted tooth is a tooth which does not erupt due to lack of space or due to malpositioning in the jaw arch. The etiology of the impacted tooth could be multifactorial and this impacted teeth could be associated with dental caries, periodontal disease, odontogenic cyst and tumor, jaw fracture and pain of unexplained origin. Dentigerous cyst are commonly associated with jaw lesions like impaction of teeth which is followed by odonomas, unicystic ameloblastoma, keratocystic odontogenic tumor. Most of these lesions are commonly seen in the second decade of life. Studies have shown that there is low evidence of cyst associated with impacted teeth as most of the pathologies are left unnoticed as many of the practitioners leave the erupted tissues after a surgical removal of impacted teeth instead of sending the samples to histopathological examination
Aim: To assess the prevalence of impacted teeth associated with cyst
Materials and methods: The study was conducted among the outpatients of Saveetha dental college. The data was retrieved and analysed from a total number of 5,35,951 patients between June 2019 - February 2021 and the sample

size was n=100. The data was collected from record management software and statistically analysed using SPSS software.
Results: 65% of the male population and 35% of the female population had impacted teeth. From age groups 21-25 and 26-30 years were more prevalent in association with impacted teeth. But only 40% of the impacted teeth were associated with cyst whereas 60% were not associated with it.
Conclusion: There exists a negative correlation between the impacted teeth in association with cyst. It is important that the clinician when they encounter such conditions with lesions in association with impacted teeth, it is important to do a histopathological test and also consider the differential diagnosis which would help the clinicians to arrive at an appropriate diagnosis and treatment.

Keywords: Cyst, Impacted teeth, Pathological Change, innovative study

INTRODUCTION:

An impacted tooth is a tooth which does not erupt due to lack of space or due to malpositioning in the jaw arch (1). It is found to be one of the highly common chief complaints for those who visit a dentist and maxillofacial surgeon. Lack of appropriate dental arch space and length to erupt could be the main reason for this. Impacted teeth can be both in maxillary, mandible and could be any permanent tooth in the dental arch. Impacted teeth are generally painless but results in severe pain when infection of the surrounding tissue occurs. Studies have shown that mandibular last molar is the common tooth associated with impaction which is followed by maxillary third molar, then maxillary canine and maxillary premolar [1][2][3]. In certain instances multiple impactions are seen associated with certain syndromes like Gardener's syndrome, Yunis-Varon syndrome, Gorlin-Sedano syndrome [4][4,5][6]. The etiology of the impacted tooth could be multifactorial [7] and these impacted teeth could be associated with dental caries, periodontal disease, odontogenic cyst and tumor, jaw fracture and pain of unexplained origin [7,8]. Some of the causes could even include genetic predisposition.

The dental follicle is ectomesenchymal in origin which is found around the developing tooth germ. When seen under radiograph there will be a homogenous radiolucent space around the developing tooth in the crown which is called follicular space. This follicular space when it is less than 2.5 mm in width is normal [9] and not associated with any pathologies but this couldn't be an accurate method so the most accurate method would be histopathological examination of the tissue associated with impacted teeth. So the histopathological examination followed by the removal of impacted teeth can reduce the chances of development of cysts[10]. Dentigerous cyst are commonly associated with jaw lesions like impaction of teeth which is followed by odonomas, unicystic ameloblastoma, keratocystic odontogenic tumor. Most of these lesions are commonly seen in the second decade of life. Studies have shown that there is low evidence of cyst associated with impacted teeth as most of the pathologies are left unnoticed as many of the practitioners leave the erupted tissues after a surgical removal of impacted teeth instead of sending the samples to histopathological examination [11]. The most common cyst associated with the impacted tooth is dentigerous cyst which is about 70-100% incidence.

Impacted teeth in adolescents and children are quite rarely found to be associated with different pathological changes like cyst but the prevalence of these problems were found to be increasing now. So a proper careful follow up should be carried out in patients associated with impacted teeth. So the aim of the study is to assess the prevalence of impacted teeth associated with cyst.

MATERIALS AND METHODS:

This retrospective study was done in a university setting and predominantly covered Saveetha dental college. The main advantage could be the availability of the data and similar ethnicity and the disadvantage could be due to geographical limitations and the isolated population. The data collection was done from a total number of 5,35,951 case sheets from June 2019 - February 2021 where the case sheets are reviewed and analysed individually. The sample size was n=20 which included all patients with impacted teeth. Inclusion criteria for the study were mainly the patients with impacted teeth with or with association with cyst, which includes the age group 10-45 years. The exclusion criteria for this study were other medical complications, patients below 10 years, incomplete and censored data. To minimise sampling bias simple random sampling was done. The collected data was verified and was subjected to statistical analysis using SPSS software by IBM. The type of analysis used here is correlation and association.

RESULTS:

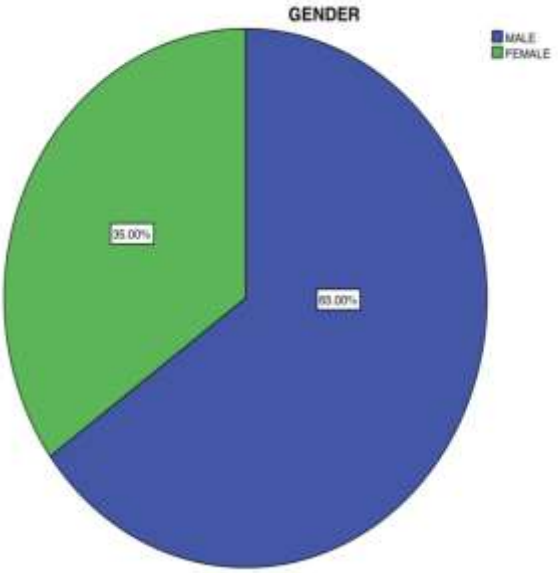

Figure 1: Pie chart depicting the prevalence and distribution of impacted teeth among different genders visiting private dental hospitals in Chennai. Blue color represents male patients with impacted teeth which is 65% and Green color represents female patients with impacted teeth which is 35%. It is evident that the prevalence of impacted teeth was more in male population.

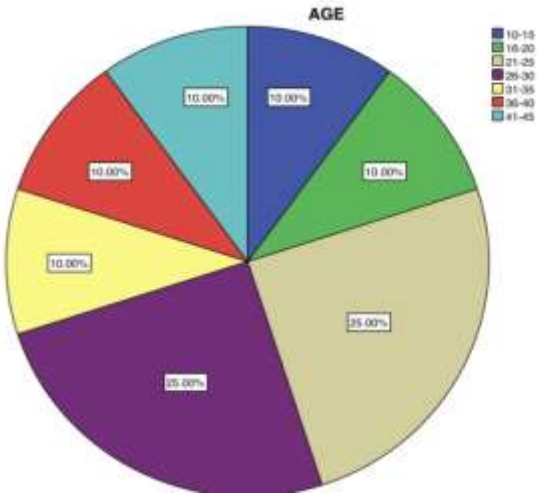

Figure 2: Pie chart depicting the prevalence and distribution of impacted teeth among different age groups visiting private dental hospitals in Chennai. Blue color represents individuals belonging to 10-15 years of age which is 10%, Green color represents individuals belonging to 16-20 years of age which is 10%, Brown color represents individuals belonging to 21-25 years of age which is 25%, Violet color represents individuals belonging to 26-30 years of age which is 25%, Yellow color represents individuals belonging to 31-35 years of age which is 10%, Red color represents individuals belonging to 36-40 years of age which is 10%, Light blue color represents individuals belonging to 41-45 years of age which is 10%. It is evident that impacted teeth were more prevalent in 21-25 and 26-30 years of age.
`

Figure 3: Bar graph depicting the prevalence and distribution of impacted teeth among different age groups visiting private dental hospitals in Chennai. The Y-axis represents the population with impacted teeth. The X axis represents the gender of the patients who have impacted teeth. The prevalence of impacted teeth in male belonging to age 10-15 years was 10%, 21-25 years was 20%, 26-30 years was 15%, 31-35 years was 5%, 36-40 years was 5%, 41-45 years was 10%. The prevalence of impacted teeth in females belonging to age 16-20 years was 10%, 21-25 years was 5%, 26-30 years was 10%, 31-35 years was 5%, 36-40 years was 5%. It is evident that impacted teeth were more prevalent at 21-25 years of age in male and 16-20 and 26-30 years of age in females. (Chi Square test; p value= 0.02 ; p<0.05 ; hence significant.

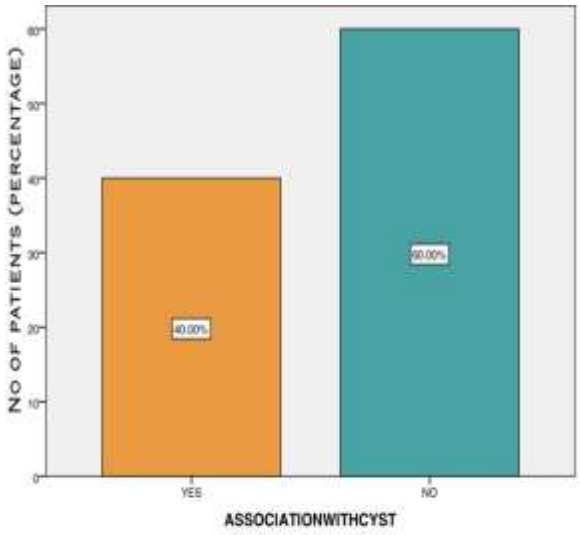

Figure 4: Bar graph represents the distribution of impacted teeth associated with cyst visiting private dental hospitals in Chennai. The Y-axis represents the population with impacted teeth. The X axis represents the association of impacted teeth with or without cyst. Orange colour denotes the patients with impacted teeth associated with cysts which is 40% and Green colour denotes the patients with impacted teeth with no association of cysts..So it is evident that impacted teeth is not associated with cysts (Chi Square test; p value= 0.02 ; p<0.05 ; hence significant.

DISCUSSION:

Various studies have been done to assess the prevalence of impacted teeth in association with cyst. (Figure 1) The results of the present study shows that male had a higher prevalence of impacted teeth with 65% and females with 35%. The similar findings of the study were that out of 896 patients with impacted teeth, 496 were found to be male and 400 participants were female with impacted teeth [3]. It was also shown that there was no association between the impacted tooth and the gender. And many of the researchers show that there is no gender prevalence. (Figure 2) the results of the present study shows that prevalence of impacted teeth was commonly seen in 21-25 and 26-30 years of age. The similar findings of the study were seen where the impacted teeth were highly prevalent in 20-30 years of age [12]. The most commonly selected age group was between 18-26 years which could be a significant reason behind the age factor associated with impacted teeth [13]. (Figure 3) The results of the present study shows

that the prevalence of impacted teeth was more prevalent at 21-25 years of age in male and 16-20 and 26-30 years of age in females. Majority of the patients associated with impacted teeth were belonging to younger age with more or less equal sex distribution.

(Figure 4) The results of the present study shows that 60% of the impacted teeth are not associated with cyst. Similar results were found where there was no significant difference found in relation with the cyst and impaction as there was no statistically significant association found between the cystic changes and the tmoqcted teeth [14]. But there were studies which contraindicated stating that there were high pathologic changes found in impacted teeth [15]. But these variations could be due to differences in the angulation pattern of impaction in association with cystic changes. In our present study there are lesser chances of cystic changes seen in association with impaction as the pathological condition might have involuted but not progressed to a state of detectable form which could be because of any age-related changes, the tissues might have undergone a change which could persist as histologic changes of less clinical significance. It is important that the diagnosis based on these pathologic changes must be evaluated and properly managed.

The study was geographically limited and predominantly consisted of the South Indian population. So the limitation of the study is unicentric with a limited demographic area of smaller sample size. By investigating the cause and prevalence of impacted teeth and cyst and its association with pathological conditions, this might help in broadening the existing knowledge about the epidemiology of impaction associated with cyst and to improve our clinical management to minimize false interpretation.

CONCLUSION:

Within the limitation of the study, there exists a negative correlation between impacted teeth and cystic changes.And the presence of impacted teeth were seen in the age groups 21-25 and 26-30 years and more commonly seen in the male population. It is important to improve diagnostic strategies in order to understand the relationship between these pathological changes and impacted teeth. Early diagnosis and prevention are important. It is important that the clinician when they encounter such conditions with lesions in association with impacted teeth, it is important to do a histopathological test and also consider the differential diagnosis which would help the clinicians to arrive at an appropriate diagnosis and treatment.

ACKNOWLEDGEMENT:

The authors are thankful to Saveetha Dental College for providing a platform to express our knowledge.

CONFLICT OF INTEREST:

Authors declare no potential conflict of interest.

FUNDING:

The present project is funded by:

- Saveetha Institute of Medical and Technical sciences
- Saveetha Dental College and Hospitals
- Saveetha University

REFERENCE:

1. Brakus I, Filipović Zore I, Borić R, Siber S, Svegar D, Kuna T. Analysis of impacted and retained teeth operated at Department of Oral Surgery, School of Dental Medicine, Zagreb. Coll Antropol. 2010 Mar;34 Suppl 1:229–33.
2. Al-Khateeb TH, Bataineh AB. Pathology Associated With Impacted Mandibular Third Molars in a Group of Jordanians [Internet]. Vol. 64, Journal of Oral and Maxillofacial Surgery. 2006. p. 1598–602. Available from: http://dx.doi.org/10.1016/j.joms.2005.11.102
3. Msagati F, Simon ENM, Owibingire S. Pattern of occurrence and treatment of impacted teeth at the Muhimbili National Hospital, Dar es Salaam, Tanzania [Internet]. Vol. 13, BMC Oral Health. 2013. Available from: http://dx.doi.org/10.1186/1472-6831-13-37
4. Waal I van der, van der Waal I. Diseases of the Oral Mucosa and Soft Tissues: General Aspects [Internet]. Atlas of Oral Diseases. 2016. p. 7–66. Available from: http://dx.doi.org/10.1007/978-3-662-48122-6_2
5. Hohoff A, Joos U, Meyer U, Ehmer U, Stamm T. The spectrum of Apert syndrome: phenotype, particularities in orthodontic treatment, and characteristics of orthognathic surgery [Internet]. Vol. 3, Head & Face Medicine. 2007. Available from: http://dx.doi.org/10.1186/1746-160x-3-10

6. Bayar GR, Ortakoğlu K, Sencimen M. Multiple Impacted Teeth: Report of 3 Cases [Internet]. Vol. 02, European Journal of Dentistry. 2008. p. 73–8. Available from: http://dx.doi.org/10.1055/s-0039-1697358
7. Saiar M, Rebellato J. Maxillary impacted canine with congenitally absent premolars. Angle Orthod. 2004 Aug;74(4):568–75.
8. Maglutac M, Sarmiento MA, Echiverre N. Impacted Maxillary Premolar: A Report of Two Cases [Internet]. Vol. 7, Emilio Aguinaldo College Research Bulletin. 2009. Available from: http://dx.doi.org/10.3860/eacrb.v7i1.869
9. Eliasson S, Heimdahl A, Nordenram Å. Pathological changes related to long-term impaction of third molars [Internet]. Vol. 18, International Journal of Oral and Maxillofacial Surgery. 1989. p. 210–2. Available from: http://dx.doi.org/10.1016/s0901-5027(89)80055-4
10. Adeyemo WL. Do pathologies associated with impacted lower third molars justify prophylactic removal? A critical review of the literature [Internet]. Vol. 102, Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology. 2006. p. 448–52. Available from: http://dx.doi.org/10.1016/j.tripleo.2005.08.015
11. Glosser JW, Campbell JH. Pathologic change in soft tissues associated with radiographically “normal” third molar impactions. Br J Oral Maxillofac Surg. 1999 Aug;37(4):259–60.
12. Vigneswaran AT, Shilpa S. The incidence of cysts and tumors associated with impacted third molars [Internet]. Vol. 7, Journal of Pharmacy and Bioallied Sciences. 2015. p. 253. Available from: http://dx.doi.org/10.4103/0975-7406.155940
13. Ryalat S, AlRyalat SA, Kassob Z, Hassona Y, Al-Shayyab MH, Sawair F. Impaction of lower third molars and their association with age: radiological perspectives [Internet]. Vol. 18, BMC Oral Health. 2018. Available from: http://dx.doi.org/10.1186/s12903-018-0519-1
14. Dongol A, Sagtani A, Jaisani MR, Singh A, Shrestha A, Pradhan A, et al. Dentigerous Cystic Changes in the Follicles Associated with Radiographically Normal Impacted Mandibular Third Molars. Int J Dent. 2018 Mar 20;2018:2645878.
15. Adaki S, Yashodadevi BK, Sujatha S, Santana S, Rakesh N, Adaki R. Incidence of cystic changes in impacted lower third molar [Internet]. Vol. 24, Indian Journal of Dental Research. 2013. p. 183. Available from: http://dx.doi.org/10.4103/0970-9290.116674
16. Nair, Anoop, Et Al. "Prospective Observational In Vivo Study On Zirconia And Titanium Dental Implants In An Indian Context." *International Journal Of Dental Research & Development (Ijdrd)* 7 (2017): 9-16.
17. Rabha, Arup Kumar, And Swargajyoti Das. "Efficacy Of Toothbrushes With And Without Dental Floss: A Comparative Study." *International Journal Of Dental Research & Development (Ijdrd)* 6.2 (2016).
18. Al-Somaiday, Humam Mahmoud, And Manar Eyad Al-Samaray. "Measuring The Extent Of Patients’satisfaction With The Quality Of Services Offered By Dentists In Iraq." *International Journal Of Business Management & Research (Ijbmr)* 5.1 (2015): 49-60.
19. Rafiqi, Haris, And Sana Farooq. "Upcoming Dentist: Wrap Up Your Marketing Skills With These Secret Ingredients." *International Journal Of Sales & Marketing Management Research And Development (Ijsmmrd)* 11 (2021): 11-14.
20. Patil, Vathsala, Et Al. "A Comparative Study On The Effect Of Stress In Dental Implant Structure Using Finite Element Analysis." *Int J Mech Prod Eng Res Dev* 9 (2019): 709-17.
21. Sivaranjani, Ss, Et Al. "Single Immediate Denture For A Diabetic Patient-A Case Report." *International Journal Of Dental Research & Development (Ijdrd) 6.6 (2016) 17* 22 (2016).