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DURATION OF HOSPITAL STAY FOR PATIENTS UNDERGOINGSURGICAL REMOVAL OF CYST IN ORAL & MAXILLOFACIALREGION IN A PRIVATE DENTAL COLLEGE OF CHENNAI

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ABSTRACT

Aim:

This study was aimed at patients in the ward and undergoing the oral and maxillofacial procedure performed in the Oral and Maxillofacial Department of Saveetha Dental College. This in turn would provide valuable information to build up the focus of attention, to develop a future strategy plan, to improve its clinical care and extend the academic and research field. The world wide pattern of oral and maxillofacial surgical conditions has rarely been reported despite its significance in ensuring quality of care.

Methodology:

Data was collected from patients' dental records from the department of oral and maxillofacial surgery to meet the inclusion and exclusion criteria. A total of 50 records of patients who had undergone surgical removal of cyst were selected by random sampling and were compared with the duration of ward stay based on age and gender. Descriptive analysis and chi-square tests wereperformed.

Results: 18% of the patients diagnosed with radicular cyst had the least time required for recovery which was 2 days. This correlated with our previous results and showed that the most commonly occurring cyst was radicular cyst and it had the least recovery time showing a feasibleduration of hospital stay.

Conclusion: From the above study we can conclude that the duration of hospital stay can be reduced if we follow the above discussed principles regarding patient selection and observation.

Keywords: age; cyst; incidence, gender; prevalence; innovative study

INTRODUCTION

Oral and maxillofacial surgeries can be performed in office-based clinical settings, outpatient facilities or any hospital. Except for office-based sites, every facility may require an overnight stay in a hospital. Patient selection is very important for day surgeries performed in an outpatient facility and provides it always is a safer approach, whereas adverse events that require hospitalization may occur after surgery which inturn increases the rate of unanticipated hospital admissions.

A recent study that investigated unexpected hospital admissions showed a rate of 0.13% in patients after dental surgery which suggests that careful preoperative evaluations must be performed to select patients and considering the need for an overnight hospital stay to reduce patient morbidity. It has also been suggested that lack of availability of an overnight hospital stayhad the potential for worse patient outcomes.

Cysts are often the result of a problematic tooth or distressed gingival tissues and might contain infectious substances. Dental cysts can be found around the root apices of non-vital/infected teeth, within the gingiva,

around impacted third molars in maxillary sinuses or within the jawbone. Cysts form on the insides lips, cheeks, tongue, palate and floor of the mouth. PeriapicalCyst or odontogenic cyst or radicular cyst is the most common odontogenic cyst. Necrosis of thepulp tissue inside the tooth, which stems from tooth decay or trauma will cause this type of cyst. The process of pulpal necrosis causes inflammation and the release of toxins at the apex. Commonly treated by conservative endodontic therapy. In case the endodontic treatment is not effective, the extraction of the tooth is done and the place of the cyst is cleaned and filled with the artificial bone wax.
Dentigerous cyst or follicular cyst is an odontogenic cyst associated with the crown of an impacted, embedded, unerupted or developing tooth. It is the second most common type of odontogenic cysts accounting for 14% to 24% of all jaw cysts according to recent scientific progression ('Oral pathology: Clinical pathologic correlations (ed 3)', 1999). Although these cysts occur more frequently during the second and third decades of life, they can also be found in children and adolescents in the mixed dentition stage (Rubin, Vedrenne and Portnof, 2002) . Males are slightly more likely to develop dentigerous cysts than females according to a study by Murakami A,.et al (Murakami *et al.*, 1995) . Most frequently, they are found associated with the crowns of mandibular third molars, followed by maxillary canines, maxillary third molars, maxillary and mandibular premolars (Miyawaki *et al.*, 1999).

Dentigerous cysts have also been reported in association with impacted deciduous teeth((Delbem *et al.*, 2006) (Boyczuk, Berger and Lazow, 1995). Clinically, patients with dentigerous cysts are generally`phs or when films are obtained to determine why a tooth has failed to erupt or when anacute inflammation or infective exacerbation occurs.(Prabhu, Rebecca and Munshi, 1996) The usual radiographic feature is characterized by a symmetric, well-defined, usually unilocular radiolucent lesion surrounding the crown of an unerupted tooth. Generally there is a distinct, dense periphery of reactive bone (condensing osteitis) with a radiolucent centre. These cysts can also manifest as multilocular entities and occasionally may be associated with resorption of the roots of adjacent erupted teeth (Scholl *et al.*, 1999) (Weber, 1993) (Bodner, Woldenberg and Bar-Ziv, 2003).

Radicular cysts are the most common jaw cysts occurring in the general population and are inflammatory rather than developmental in origin.(Jones, Craig and Franklin, 2006) However, in the pediatric population, developmental dentigerous cysts predominate and tend to occur around impacted or unerupted teeth. This development occurs because newly erupted permanent teeth are unlikely to have been subjected to infectious decay or trauma that is responsible for cyst formation due to inflammation (Manor *et al.*, 2012) (Iatrou, Theologie-Lygidakis and Leventis, 2009).

Odontogenic keratocyst are highly proliferative lesions that can result in substantial osseous destruction without proper surgical management (Meara *et al.*, 1996). Although rare, a present potential of malignancy also necessitates a thorough evaluation of pathological specimens at the time of definitive jaw cyst management. Multiple surgical approaches are performed including decompression, marsupialization, enucleation with or without adjunct such as cryotherapy and resection.

It is often difficult to distinguish cystic-appearing mandibular lesions from one another with radiography. In this article, the clinical and radiographic appearances of odontogenic lesions without mineralization, odontogenic lesions with mineralization, and nonodontogenic lesions that mimic odontogenic lesions are presented.

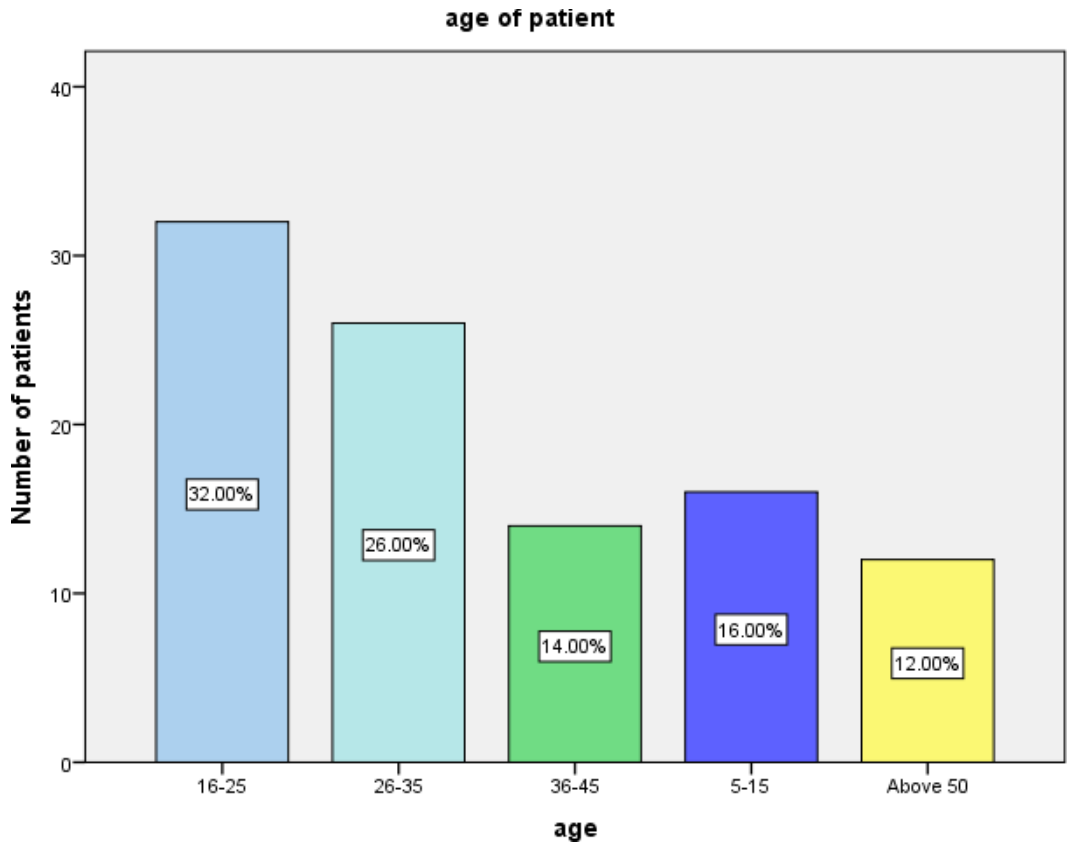
Our team has extensive knowledge and research experience that has translate into high quality publications (J *et al.*, 2018),(Wahab *et al.*, 2018),(Mudigonda *et al.*, 2020),(Narayanasamy *et al.*, 2021),(Gan *et al.*, 2019; Li *et al.*, 2019; Ma *et al.*, 2019; Bishir *et al.*, 2020; Zhang *et al.*, 2020; Fan *et al.*, 2021; Saravanakumar *et al.*, 2021; Veeraraghavan *et al.*, 2021; Wang *et al.*, 2021; Wei *et al.*, 2021) (Sathya *et al.*, 2020),(Felicita and Sumathi Felicita, 2018; Ramakrishnan, Dhanalakshmi and Subramanian, 2019; Chandrasekar *et al.*, 2020).(Su *et al.*, 2019; Wan *et al.*, 2020)

The aim of this study was to correlate the different type of cyst occurence in patients with their duration of hospital stay during the surgical removal . This study will help in knowledge about the duration of hospital stay of patients undergoing removal of cyst with the type of cyst .

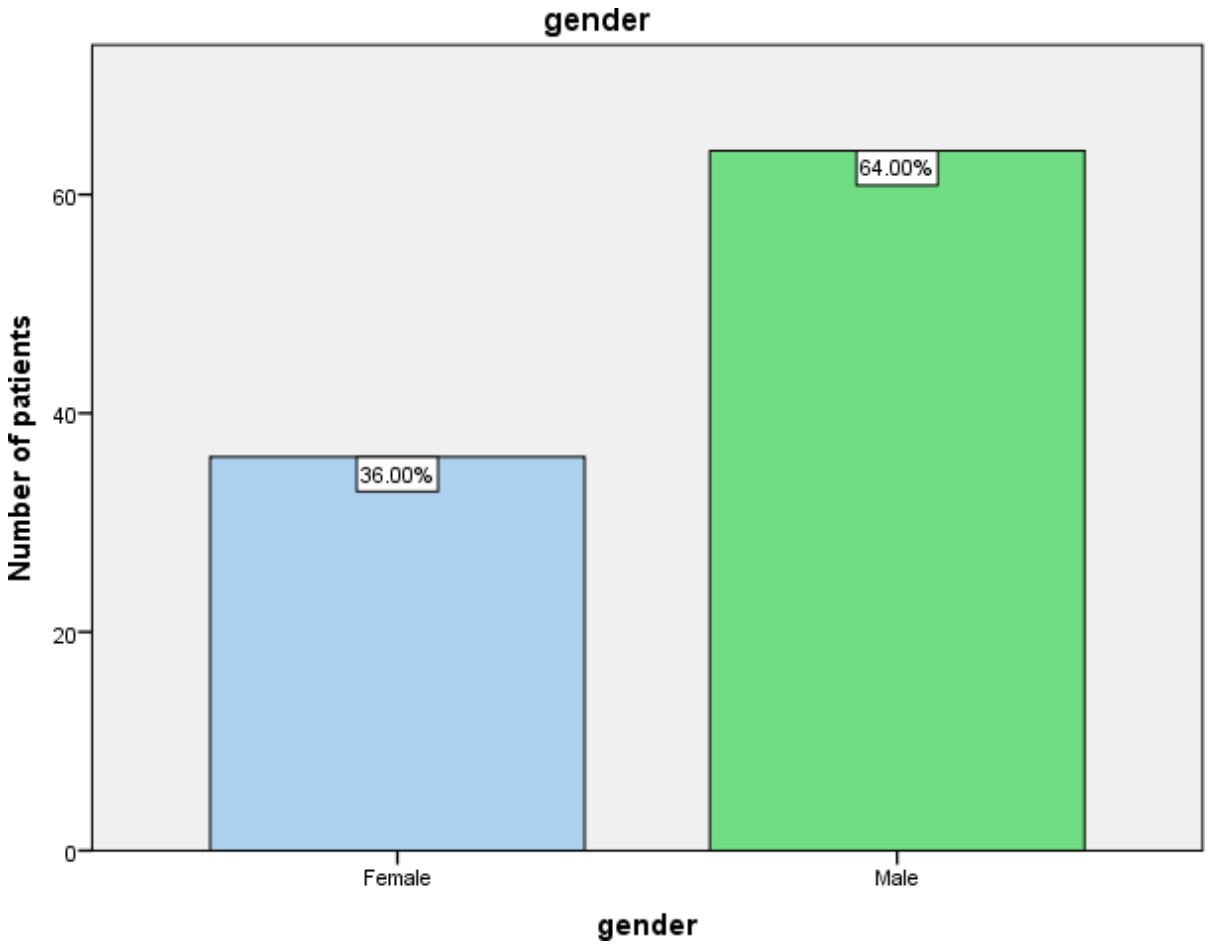
MATERIALS AND METHODS

This is a retrospective study, conducted in a university setting. The study was approved by the institutional ethical committee. The ethical clearance for the study was obtained from the Institutional Scientific Review Board. The treatment records of patients who had undergone treatment in Saveetha Dental college between 2019 to 2021 were assessed for this study.
cross checking of data including digital entry and intraoral photographs was done by an additional reviewer, and as a measure to minimise sampling bias, samples for the group were picked by the simple random sampling method. Digital entry of clinical examination and intraoral photographs were assessed.
The extracted data was tabulated in a spreadsheet (Excel 2017: Microsoft Office) and analysedusing SPSS 19.0 version software (SPSS, Inc., Chicago). Descriptive statistics and chi-square tests were performed with the level of significance at 5% ($P<0.05$).

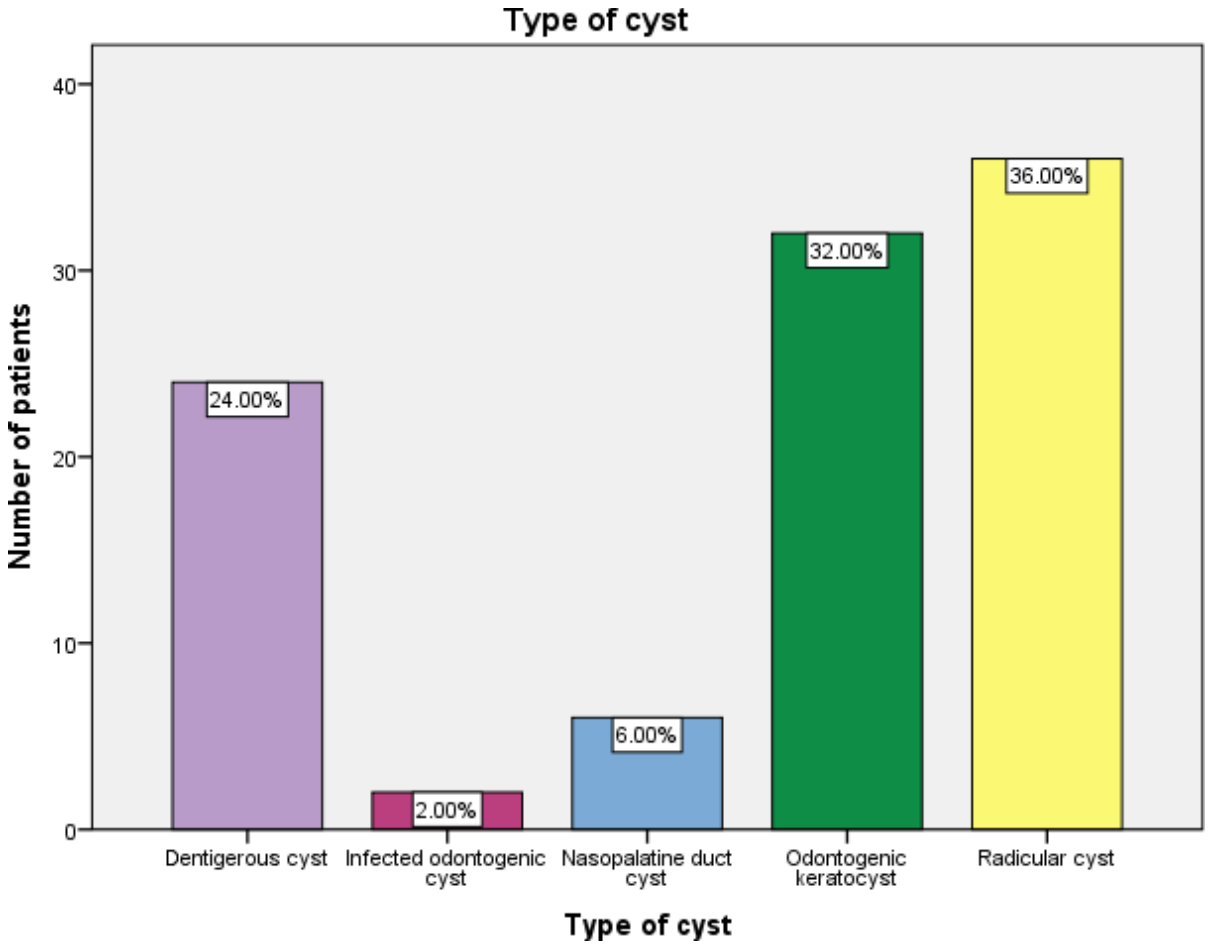
RESULT



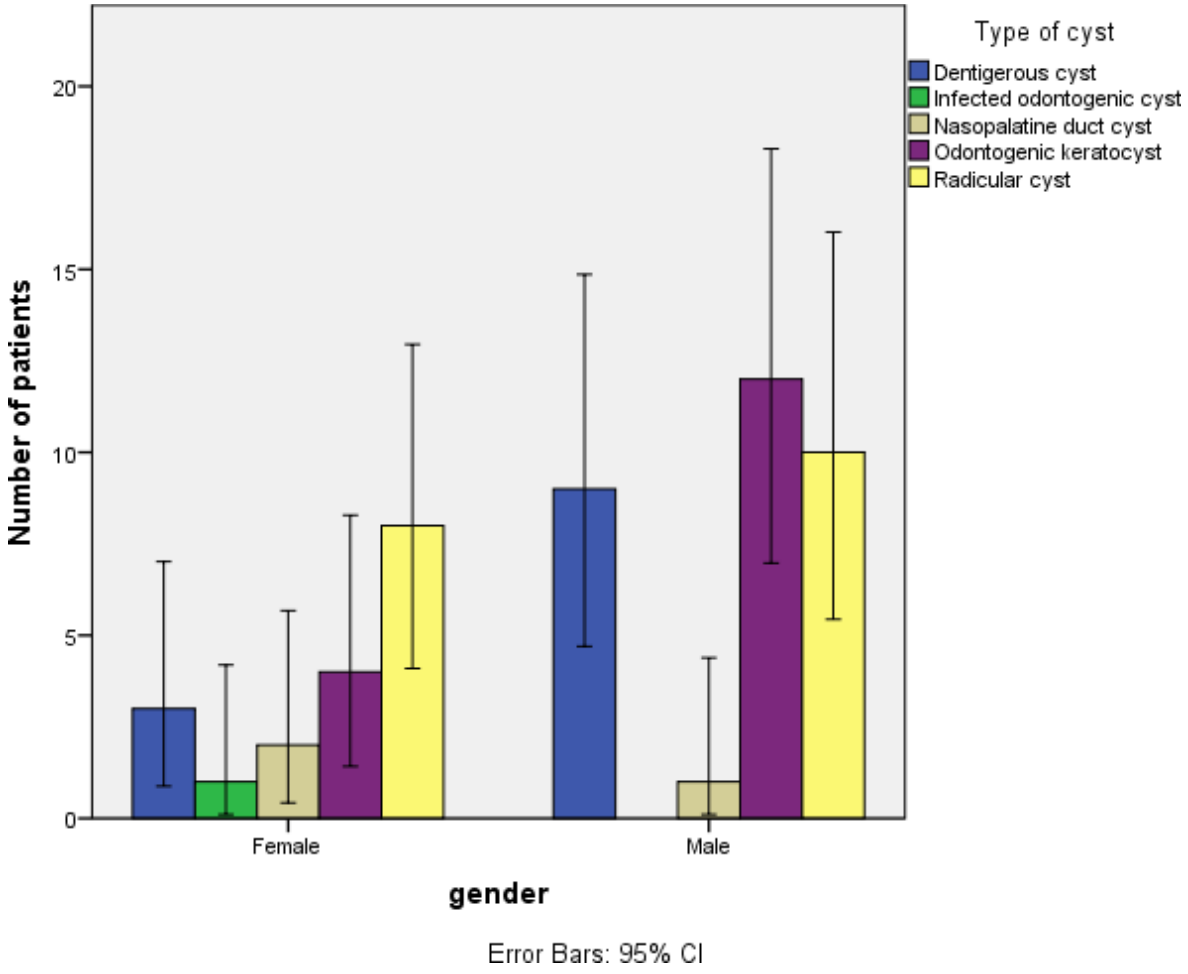
Graph 1- Bar chart depicting the age group involved in the study. Age groups between 16-25years was 32%, age group between 26-35 was 26%, age group between 36-45 was 14%, age group 5-15 was 16% and 12% in the above 50 age group category.



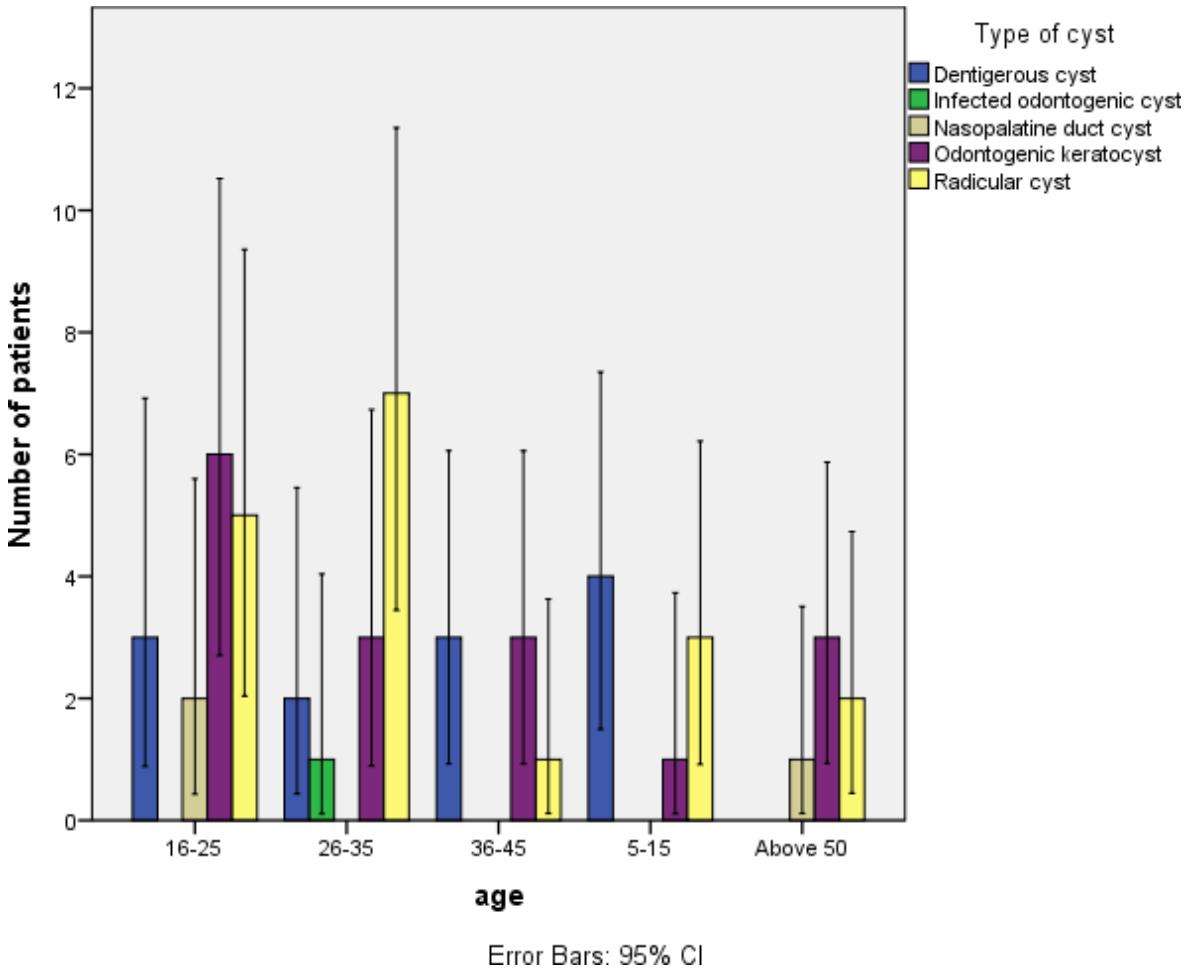
Graph 2 : Bar chart depicting the gender population involved in the overall study out of which 64% were males and 36% were females. The population of males were found to be higher compared to females.



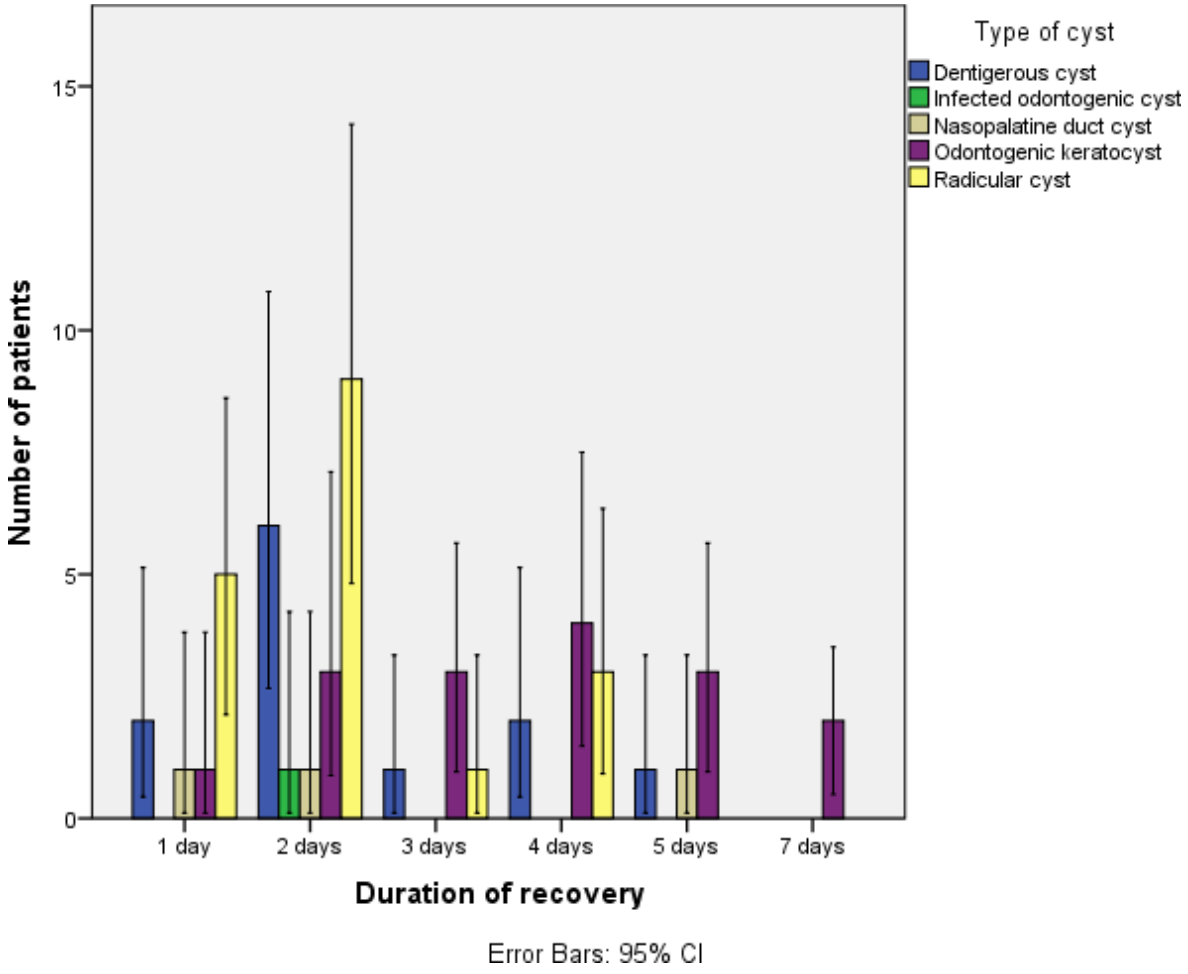
Graph 3: Bar graph depicting type of cyst involved in the overall study ,24% of the patient had dentigerous cyst , the purple bar showing 2% had infected odontogenic cyst ,the blue bar showing 6% had nasopalatine cyst ,the green bar showing 32% had odontogenic cyst ,and yellowbar showing 36% had radicular cyst. Radicular cyst was the most common among the other cyst that were seen in patients



Graph 4 : This graph represents the association between the type of cyst and gender. X axis represents the gender of the patients and Y axis represents the type of cyst. It was seen that in females the most commonly occurring cyst is radicular cyst which is 16% and in males the most commonly occurring cyst was odontogenic keratocyst which was 24%. Chi square test was done (p value= 0.002), and it was found to be significant. Proving that there was significant correlationbetween gender and type of cyst.



Graph 5 : This graph represents the association between the type of cyst and age. X axis represents the age of the patients and Y axis represents the type of cyst. It was seen that in the age group 16-25 the highest occurring cyst was odontogenic keratocyst which is 12%, in the age group 26-35 radicular cyst was the highest occurring cyst which was 14%, in the age group 36- 45 the highest occurring cyst is dentigerous cyst which is 8%,in the age group 5-15 radicular cystwas most common which is 6% and the most commonly occurring cyst in the age group above 50 was odontogenic keratocyst which was 6%. Chi square test was done (p value= 0.413), and it was found to be insignificant. Proving that there was no significant correlation between age and type of cyst.



Graph 6: This graph represents the association between the type of cyst and duration of hospital stay after surgical management of cyst. X axis represents the duration of hospitalstay and Y axis represents the type of cyst. It was seen that the time for recovery was highest in odontogenic keratocyst (4%) which was 7 days. Chi square test was done (p value= 0.384), and it was found to be insignificant.

DISCUSSION

Duration of hospital stay and patient's age were found to be the two most important variables affecting treatment planning, while factors such as size of the lesion and site of the lesion did not have any major impact on treatment planning.

According to our results, 32% patients within the age group 16-25 years were observed with more prevalence of diagnosed cyst whereas 12% of the patients above 50 had the least prevalence.

Age as the most important clinical variable attests to the importance duly given by operators to the patients' quality of life, while keeping options for recurrence management.(Martínez-Pérez and Varela-Morales, 2001) (Young, Pogrel and Schmidt, 2007) (Stoelinga, 2001).

Our results also showed that a major part of the outpatients were 64% males who were diagnosedwith cyst and the least was 36% females diagnosed with the same. This shows higher prevalence among males.

As per our results, it was seen the highest occurring cyst is dentigerous cyst which is 8% in the age group 5-15 years, in the age group 16-25 the highest occurring cyst was odontogenic keratocyst which is 12%, infected odontogenic cyst has highest occurrence among the age group 26-35 years which was 2%, the nasopalatine duct cyst is most commonly occurring cyst in the age group above 50 which was 2%, radicular cyst was highest observed in 26-35 years which was 14%. This shows that the most commonly diagnosed cyst was the radicular cyst among the adults in the age group 26-35.

Previous surgery history of the patients plays an important part of the progress and planning ., onthe other hand, seems to warn operators to treat the lesion aggressively, giving precedence to longevity and prognosis of treatment.

Our results portrayed that the time for recovery was highest for odontogenic keratocyst (4%) which was 7 days. 18% of the patients diagnosed with radicular cyst had the least time required for recovery which was 2 days. This correlated with our previous results and showed that the most commonly occurring cyst was radicular cyst and it had the least recovery time showing a feasible duration of hospital stay.

Clinico-radiological diagnosis coincided with the histopathological diagnosis in 80% cases, highlighting the simplicity of cyst diagnosis with careful history taking and clinical examination. Any deviation from these pathognomonic features of oral or maxillofacial cysts was seen to tilt the operators' minds towards aggressive and/or adjunctive procedures. Incidentally, radiological pictures other than simple unilocular ones also tended to be clustered with more advanced clinical features. Most of these lesions turned out to be dentigerous cyst lesions, radicular cysts and traumatic cyst.

Enucleation has once again been validated as the most suitable modality for almost all cysts, with various adjunctive procedures (as deemed necessary in each case). Relatively complicated procedures were chosen more due to the age, presenting a picture, relatively aggressive clinical course or poorly accessible site of lesions, rather than their histopathological diagnosis *per se*, further underlining the need for and relevance of custom made treatment plans for each patient.

Periapical cyst (odontogenic cyst or radicular cyst)- is the most common odontogenic cyst andhas various names, including radicular cyst, apical periodontal cyst, root end cyst, or dental cyst.

CONCLUSION

Although cysts in relation to the oral and maxillofacial region are common, symptoms such as swelling could indicate potential pathologic findings and require panoramic examination. Management of different types of cysts should consider the biologic behavior of the cyst, maxillofacial development, and growth. Enucleation combined with pharmacologic therapy is a promising strategy for the management of such cysts.

From the above study we can conclude that the duration of hospital stay can be reduced if we follow the above discussed principles regarding patient selection and observation.

Conflicts of Interest The authors declare that there are no conflicts of interest regarding thepublication of this article.

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