

Prevalence of Root Stumps in Geriatric Patients

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ABSTRACT:

BACKGROUND: Tooth loss leads to the most significant oral health related negative quality of life for the elderly. Due to Increasing life expectancy of the dentition, geriatric patients are experiencing a lot of oral health problems, putting them at higher risk.

AIM:The aim of this study was to assess the Prevalence of Root Stumps in Geriatric patients.

MATERIALS AND METHODS: A Retrospective study was conducted using the records of the patients. Overall,149 case sheets were reviewed which were dated between june 2019 to march 2020.The data was collected by the patient records of Saveetha Dental College and Hospitals.Data was recorded in Microsoft excel and later exported to IBM SPSS (version 20.0 Chicago USA) and subjected to Statistical analysisThe statistical analysis between age, gender, teeth number was carried out in SPSS software.Chi square test was done to compare the parameters. The outcome was represented in a form of bar charts.

RESULTS:Age groups were divided into 56-65, 65-75, 75-85. Patients of age group 55-65 had 57.7% , 65-75 years of age had 37.9%, 75-85 years of age had 5.34% of the total proportion of root stumps.More number of root stumps were diagnosed in the age group of 55-65yrs both in male and female,however it is not statistically significant.(Pearson Chi square Test : $P=0.294, P>0.05$) . Male patients had more root stumps when compared to females.

CONCLUSION:Within the limits of the study,age and gender of the patients who were diagnosed with root stumps was negatively correlated. More number of root stumps was diagnosed in males when compared to females and the most frequent anatomical sites were right molar in geriatric patients.

KEYWORDS: Root stumps, Geriatric patients,Tooth loss.

INTRODUCTION

Dentists face a unique challenge of processing a specialized dental care for geriatric patients(Tan and Lo, 2014).Increased life expectancy and increase in population, creates high demand in dental care especially in the field of prosthodontics(Ashok and Suvitha, 2016),(Ashok *et al.*, 2014).The role of dental professionals is to promote oral health and dental esthetics(Arigaet *al.*, 2018).The risk of root stumps is infectious which can have negative consequences on the health and quality of life of elderly patients(Imazatoet *al.*, 2006). Among the oral ailments which one observes by dental practitioners in geriatric, root stumps is the significant one and is the major course of tooth loss in them(Chrysanthakopoulos, 2011),(Gunarsa, Tryanni and Iranwan, 2019).Few investigations revealed that problem of missing teeth continues to be more prevalent among elderly people than among other age groups.(Duraismy et *al.*, 2019),(Kannan and

Venugopalan, 2018) and also several studies revealed that Aged persons are frequently predisposed to various kinds of infections ,especially cellulitis(Vijayalakshmi and Ganapathy, 2016).Tooth loss can damage mastication,self-esteem and also social interactions due to its effects on appearance and the ability to have a conversation(Venugopalan *et al.*, 2014)(Ganapathy, Kannan and Venugopalan, 2017).

Many studies reported that poor oral health states and periodontal pocket, gingival recession, low buffering capacity, low salivary immunoglobulin, low salivary calcium and phosphate may also be linked to increased worries(Massler, 1980),1(Massler, 1980; Jyothi *et al.*, 2017). Low indices of socioeconomic status have been associated with elevation in caries and are also associated with reduced access to core geriatrics, reduced oral health aspirations, low self efficacy and health behaviours that may enhance caries risk in geriatrics(Kumara-Raja and Radha, 2016).There is a increasing incidence of periodontal diseases and development of antibiotic resistance in older adults, there is a global need for alternative treatment modalities that is safe, effective and economical. Aloe Vera is a medicinal plant which has greater medicinal value and vast properties for curing and preventing oral diseases(Subasree, Murthykumar and Dhanraj, 2016).

Root stumps refer to the partial root structure that remains in the Jaws. Root stumps are generally not associated with any symptoms or pathology and general studies have been conducted and results have shown that the majority of retained tooth fragments cause no harm to the patients('Risk for root caries in older adults', 2016)(Selvan and Ganapathy, 2016). Endodontically treated teeth exhibit greater brittleness and are more prone to fracture(Basha, Ganapathy and Venugopalan, 2018; Kannan and Venugopalan, 2018). Other reasons for loss of crown structure includes wanting diseases such as attrition and erosion that cause loss of the crown structure(Ganapathy *et al.*, 2016). Occlusal wear due to attrition is characterised by equal wear(Ranganathan, Ganapathy and Jain, 2017),(Ajay *et al.*, 2017).In children, root stumps of deciduous root are a psychological process that is a post of normal growth and development of the dentition, enabling exfoliation of deciduous dentition and encryption of permanent teeth.(Whitaker and Shankle, 1974),(Glickman, Pruzansky and Ostrach, 1947). The challenges faced by previous studies includes that there were not many studies conducted on the prevalence of root stumps.This research fulfills the prevalence of root stumps in geriatric patients.

Our team has rich experience in research and we have collaborated with numerous authors over various topics in the past decade (Subramanyam *et al.*, 2018)('Fluoride, fluoridated toothpaste efficacy and its safety in children - review', 2018; Ezhilarasan, 2018; Felicita, 2018; Kavarthapu and Thamaraiselvan, 2018; Krishnan *et al.*, 2018; Marimuthu *et al.*, 2018; Nair *et al.*, 2018; Padavala and Sukumaran, 2018; Pandian, Krishnan and Kumar, 2018; Rajeshkumar *et al.*, 2018; Rao and Kumar, 2018; VijayashreePriyadharsini, SmilineGirija and Paramasivam, 2018; Abhinav *et al.*, 2019; Keet *et al.*, 2019; Mehta *et al.*, 2019; Panchal, Jeevanandan and Subramanian, 2019; Ponnulakshmi *et al.*, 2019; Ramesh *et al.*, 2019; Sridharan *et al.*, 2019;

Sweta, Abhinav and Ramesh, 2019; Wuet *al.*, 2019; Palatiet *al.*, 2020; Paramasivam, VijayashreePriyadharsini and Raghunandhakumar, 2020).

Therefore, The aim of this study was to assess the prevalence of root stumps in geriatric patients above the age group of 55, who undergo a lot of oral health problems.

MATERIALS AND METHODS:

Study design and setting:

This study setting is mainly a type of the university based and a single centred study. A Retrospective study was conducted using the records of the patients. Overall, 149 case sheets were reviewed which were dated between June 2019 to March 2020. The data was collected by the patient records of Saveetha Dental College and Hospitals. The study population included geriatric patients who were diagnosed with root stumps. This was cross verified with the clinical photographs for errors. The main advantage of this type of study is that flexible data can be obtained immediately and less expensively but the drawback of this study is that they have geographical limitations and involve the people of the isolated population.

Inclusion criteria:

The study included only geriatric patients aged above 55 years who were diagnosed with root stumps.

Exclusion criteria:

Incomplete data without notes and photographs that did not give expected details were excluded.

Statistical analysis:

Data was recorded in Microsoft Excel and later exported to IBM SPSS (version 20.0 Chicago USA) and subjected to Statistical analysis. Chi Square test was then employed with level of significance set at $P < 0.05$. The statistical analysis between age, gender, teeth number was carried out in SPSS software. Chi square test was done to compare the parameters. The outcome was represented in a form of tables and bar charts. Ethical clearance was obtained. Ethical approval number SDC/SIHEC/2020/DIASDATA/0619-0320.

RESULTS & DISCUSSION :

From the above study, the age groups of patients who were diagnosed with root stumps divided into 55-65, 65-75 and 75-85 respectively. The mean age for patients who were diagnosed as root stumps was 2.122.57.06% of the patients are in the age group of 55-65 years, 37.58% of the patients are in the age group of 66-75 years and 5.37% of the patients are in the age group of 76-85 years as shown in (Graph 1)

Male patients showed high prevalence in the cases of root stumps which was 69.8%(n=104), while female patients was 30.2%(n=45) as shown in(Graph2). Most number of root stumps was seen in 46(8.11%) followed by 27(6.08%) and the least number of root stumps was seen in 11,23 and 34 (0.68%) as shown in(Graph3). More number of root stumps were diagnosed in the age group of 55-65yrs both in male and female, however it is not statistically significant. Pearson Chi square value:2.445, DF:2, p value:0.294(>0.05 which is not statistically significant) as shown in(Graph 4).

The study was aimed at finding out the prevalence of root stumps in geriatric patients visiting Saveetha Dental college and Hospitals. The Demand for dental services in the population of geriatrics patients is likely to increase. The most recent caries frequency clearly indicates a market increased in the prevalence of Dental caries. This global increase in core prevalence affects all individuals and all surfaces of teeth leads to root stumps and further leads to tooth loss. (Glickman, Pruzansky and Ostrach, 1947; Saunders and Meyerowitz, 2005).

In 2011, Daniel Gati and Sander. R. Vieira reported that the evaluation of a cohort of elderly people showed that nearly 96% had coronal decay experiences, 64% of individuals had root caries experiences. (Gati and Vieira, 2011)

AL-Hashimi et al, conducted a study on causes, consequences and treatment in the elderly people drugs and aging. They reported that medical conditions like sjogren syndrome, with xerostomic side effects and therapeutic radiation to the head and neck lower therapeutic salivary flow rate to pathological levels elevate older patients' risk of dental caries. (Al-Hashimi, 2005)

J.D. Beck conducted a study on Epidemiology of Root surface caries reported that older age is positively associated with prevalence of root caries and over half the individuals older than 61 years old have experienced root caries. These factors include not only oral factors but also medical behavioural and social factors. (Beck, 1990, 1993)

A study conducted by Jafaian et al, reported that the majority of root stumps were scanned in males when compared to females in the age group of 20-26 years of age. Here as age progresses, there is an increase in the prevalence of root stumps. (Jafarian and Etebarian, 2013)

Kharat D.V. Saint reported an increase in root stumps in the lower arch when compared to the upper arch. The possible reason is mostly poor dietary habits, poor oral hygiene, low socioeconomic status. It was reported also reported that molars both maxillary and mandibular extracted more when compared to other teeth. (Steele *et al.*, 2001; Jafarian and Etebarian, 2013)

Our institution is passionate about high quality evidence based research and has excelled in various fields ((Pc, Marimuthu and Devadoss, 2018; Ramesh *et al.*, 2018; VijayashreePriyadharsini, SmilineGirija and Paramasivam, 2018; Ezhilarasan, Apoorva and Ashok Vardhan, 2019; Ramadurai *et al.*, 2019; Sridharan *et al.*, 2019; VijayashreePriyadharsini, 2019; Chandrasekar *et al.*, 2020; Mathew *et al.*, 2020; R *et al.*, 2020; Samuel, 2021)

CONCLUSION

Within the limits of this current study, Increased numbers of root stumps was carried out in the age group of 55-65 years and the cases were more in Males when compared to females. Increased numbers of root stumps were seen in the lower right molar(46) in Geriatric patients. Preservation of natural tooth is considered to be one of the main aim of oral health care, but due to poor oral maintenance and poor socioeconomic status ,the knowledge and understanding the incidence of tooth extraction is very valuable for planning preventive oral health care. Furthermore research is needed to check the prevalence of root stumps in geriatric patients.

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CONFLICT OF INTEREST:

The authors would like to declare that there is no conflict of interests.

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LIST OF FIGURES:

Figure 1: Bar graph represents the distribution of the age group of the study participants.

Figure 2: Bar graph represents the frequency distribution of gender of the study participants.

Figure 3: Bar graph represents the distribution of teeth diagnosed with root stumps.

Figure 4: Bar graph represents the association between gender of the patients and age groups.

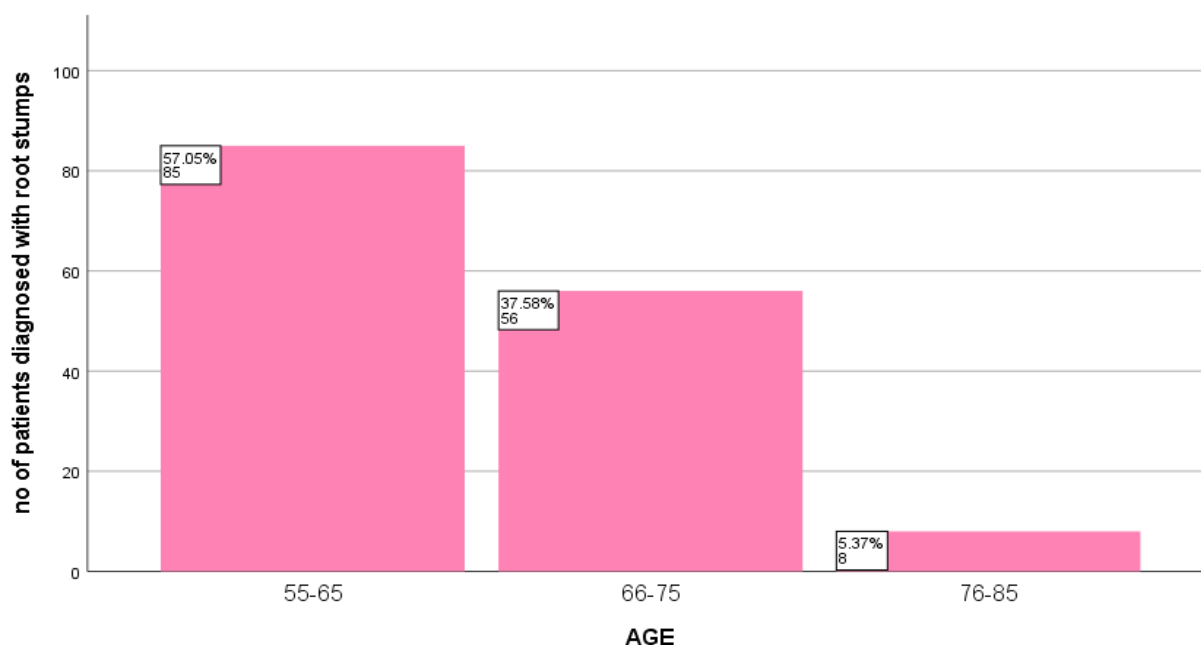


Figure 1: Bar graph represents the distribution of the age group of the patients. X-axis represents the age group of the patients (pink colour) and Y-axis represents the number of patients diagnosed with root stumps. 57.06% of the patients are in the age group of 55-65 years, 37.58% of the patients are in the age group of 66-75 years and 5.37% of the patients are in the age group of 76-85 years.

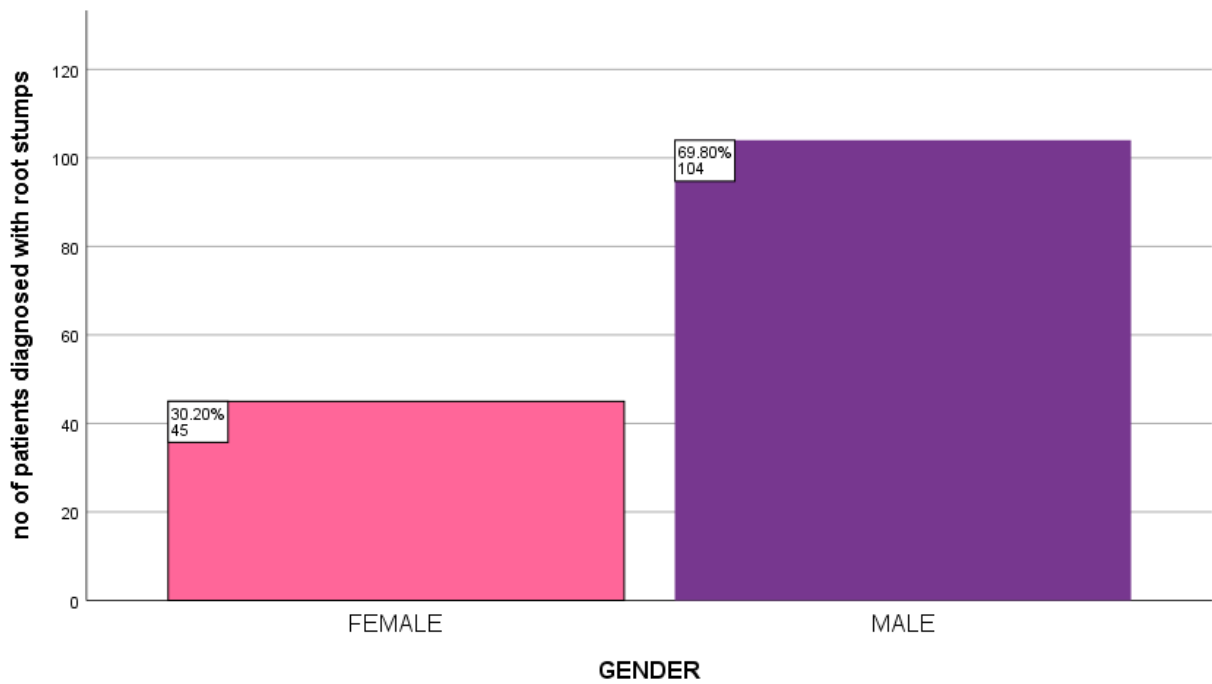


Figure 2:Bar graph represents the frequency distribution of gender of the patients. Pink colour denotes the female and violet colour denotes the male. X-axis represents the distribution of gender and Y-axis represents the number of patients diagnosed with root stumps.Among the study participants, 69.80% were males and 30.20% were females.

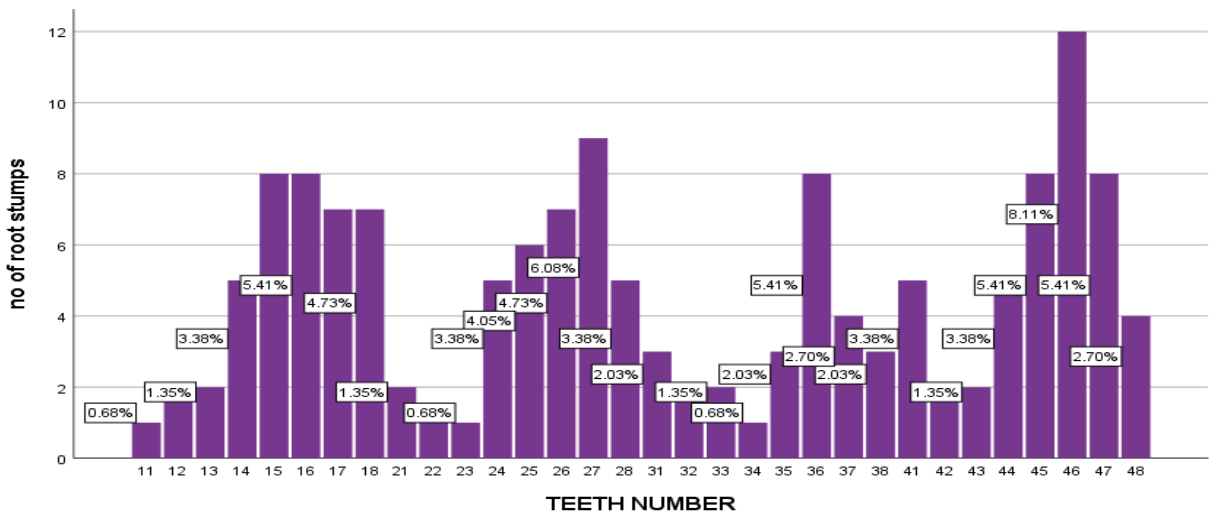


Figure 3:Bar graph represents the distribution of teeth diagnosed with root stumps, X-axis denotes the teeth number and Y-axis denotes the number of root stumps.Most number of root stumps was seen in 46(8.11%) followed by 27(6.08%) and the least number of root stumps was seen in 11,23 and 34 (0.68%).

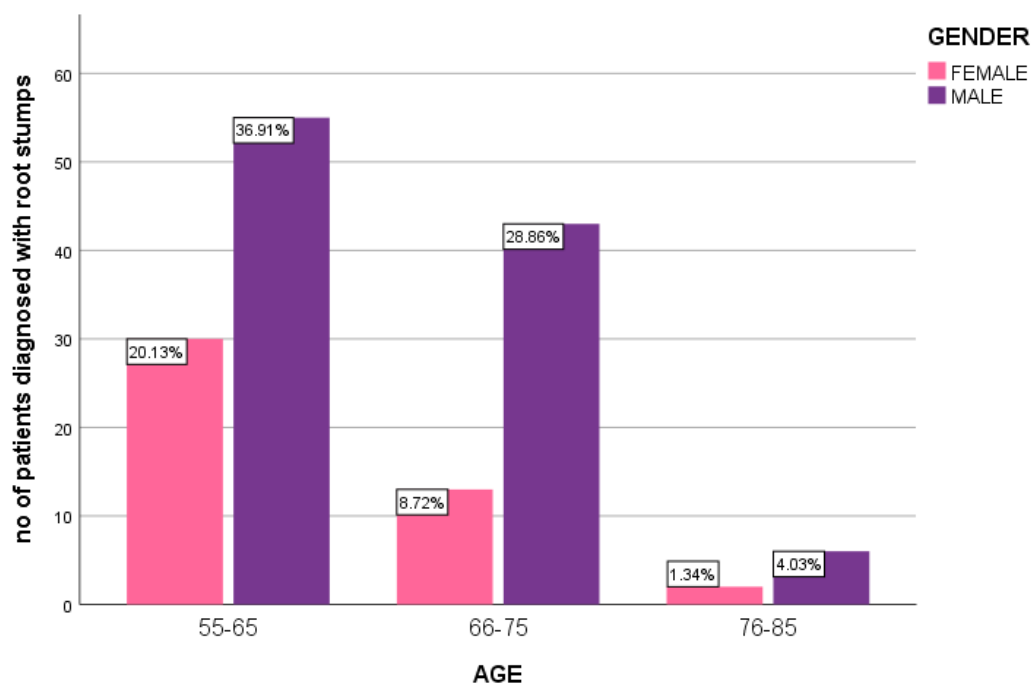


Figure 4: Bar graph represents the association between gender, age groups and number of patients diagnosed with root stumps, where pink colour denotes the female and violet colour denotes the male. X axis represents the distribution of age group and gender, while Y-axis represents the number of patients who were diagnosed with root stumps. In the 55-65 yrs age group, 36.91% were male and 20.13% were female, 65-75 yrs age group 8.72% were female and 28.06% were male, 75-85 yrs age group 4.09% were male and 1.34% were female. More number of root stumps were diagnosed in the age group of 55-65 years compared to the other age groups both in male and female, however it is not statistically significant. (Pearson Chi square Test : $P=0.294$, $P>0.05$).