International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 03, 2020
ISSN: 1475-7192

A RETROSPECTIVE STUDY ON EXTRACTION OF ROOT STUMP IN PATIENTS UNDER 35 YEARS AGE

Type of manuscript: Original study
Running title: Incidence of extraction of root stumps

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Abstract:*Root stumps are conditions where the crown structure is missing due to fracture and only the root is present in the socket. Most common causes include extensive untreated dental caries, negligence to seek dental care. This can cause infections if left untreated. Hence it is very important to get a root stump extracted. The aim of this study is to evaluate the incidence of root stump extraction in patients under 35 years of age visiting a Dental Hospital. All root stumps case sheets were downloaded from Dental Information Archiving System(DIAS) software, verified, copied to microsoft excel. Statistics were analysed in SPSS software and results were obtained. Total number of patients who underwent root stump extractions was 1695 patients. Patients under 35 years of age were 68 patients. Within the limits of this study it can be concluded that Incidence of root stumps extraction was higher in females than in male, and it is negatively correlated with age.*

Keywords: root stump, dental caries, extraction, age, incidence,

1. INTRODUCTION:

Root stumps can be defined as the retained root within the socket with loss of complete crown structure due to various reasons (Saunders and Meyerowitz, 2005). Many authors have reported that an increased presence of root stumps is due to longevity of life and definition.('Risk for root caries in older adults', 2016). Previously it was thought that negligence to treatment was imperative for the initiation of the root stump(Nelson, Eleazer and Ramp, 2014).

Presence of grossly decayed teeth, presence of cariogenic biofilm, fermentable carbohydrates is one of the etiological factors (Jesudasan, Wahab and Sekhar, 2015). The process of demineralisation is similar to coronal caries, but it is twice as rapid on root surfaces as on enamel making the root decay faster once affected(Kumar and Rahman, 2017). Like coronal caries, unfavorable balance on the remineralization leads to demineralization of root surfaces(Christabel et al., 2016; Kumar and Rahman, 2017).

The prevalence of root stumps is usually higher in older patients due to increased exposure to dental caries, underlying systemic illness, exposure of root surface causing extensive and fast spreading caries (Marimuthuet al., 2018). Many studies reported almost half of the participants with root stumps experience in institutionalised elders (Packiri, Gurunathan and Selvarasu, 2017; Marimuthuet al., 2018). Numerous factors interplay with the initiations and development of root

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stumps like age, medications, comorbidities, negligence to seek dental care, grossly decayed tooth, lifestyle factors like tobacco and alcohol consumption, low fluoride exposure which all leading to decayed teeth which untreated leads to root stump.(Kumar, 2017a)

There was paucity of literature on the incidence of root stump extractions. This study was done to evaluate the incidence of root stump extractions. This study was done to evaluate the incidence of extraction of root stumps for patients who underwent root stump extraction in an outpatient population visiting a Dental Hospital.

2. MATERIALS AND METHODS:

The patient record of 695 patients from June 2019 to April 2020 were obtained and the list had 68 patients who were between the age group 1-35 years who visited the Dental Hospital for extraction of root stumps were studied. Institutional ethics committee approval was obtained. with approval number SDC/SIHEC/2020/DIASDATA/0619-0320. Random samples and those with missing demographic data were cross verified by telephonic calls. Treatment data for patients who visited the college from June 2019 to April 2020.was retrieved from DIAS and analysed. Variables recorded were age, gender, site of extraction. Obtained data was entered into Microsoft excel. SPSS software was used to analyse statistics and results were obtained.

The internal validity of the study was established as the data was collected from a verifiable and standardised database. The external validity is established as the data is from a clinical setup which is duplicatable.

3. RESULTS AND DISCUSSION:

Over a period of ten months 695 patients underwent root stump extraction.out of which 68 patients were under 35 years age. The Average age of patients was 27 years. It was seen in 15.15% of patients between 1-15 years old, 27.27% of patients were between 16-25 years and 57.58% of patients were between 26-35 years old(figure 1).Among the patients , 29 (40%) were male and 39 (60%) were female.(figure 2). Association between the gender and age group was done. Majority of males (22.39%) in the age group between 26-35 years have undergone root stump extraction. Chi square analysis was done which showed no significant association between age and gender. Chi square test value is 0.745, df-2, p value is 0.15($p>0.05$). (figure 3).

Theoretically, root stumps is a preventable complication and can be arrested at any stage of coronal caries.(Patil et al., 2017) We aimed to evaluate the estimate of root stump prevalence among patients under 35 years.(Kumar and Sneha, 2016) 10% prevalence estimates constitutes to the pooled prevalence of root stumps analysis.similar to a study by lockett et al , it was common in female than in male patients (Patil et al., 2017; Rao and Santhosh Kumar, 2018)

Due to increasing life expectancy of the dentition, older patients are experiencing more caries putting them at a higher risk for root stumps(Abhinav et al., 2019). Whereas in patients under 35 years, root stumps majorly occur due to improper oral hygiene leading to caries(Patturaja and Pradeep, 2016) and its negligence causing root stumps (Kumar, 2017b). Risks are described in a number of levels, from socioeconomic status to salivary flow to presence of dentures (Munivenkataswamy, 2013). Previous literature has shown correlation to dietary and oral habits and other variables on root stumps (Sweta, Abhinav and Ramesh, 2019). There are several indicators that provide insight into incidence and prevalence of root stumps in healthy people and medically disabled conditions that play an individual at risk (Patturaja and

Pradeep, 2016; Sweta, Abhinav and Ramesh, 2019). Maintaining proper oral hygiene, seeking dental care at proper time can save teeth from fracture and root stump (Jain et al., 2019), (Abhinav et al., 2019)

Future studies can be done including other variables like socioeconomic status, habits, oral hygiene status, nutrition, systemic causes in a much wider population.

VALID AGE	FREQUENCY	PERCENTAGE
1-15	10	14.9
16-25	18	26.9
26-35	38	56.7
TOTAL	67	100

Table 1:chart showing increase in prevalence of root stump extraction with age.

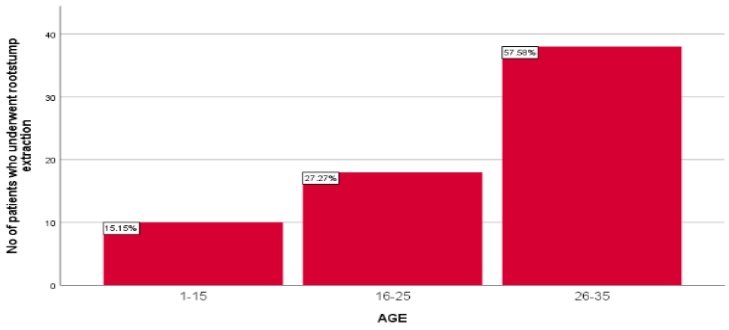

Figure 1: Bar graph represents the number of patients in different age groups. The x axis represents the different age and Y axis represents the number of patients. The graph shows that 15.15% of patients were between 1-15 years old, 27.27% of patients were between 16-25 years and 57.58% of patients were between 26-35 years old.

VALID GENDER	FREQUENCY	PERCENTAGE
FEMALE	38	56.7
MALE	28	41.8
TOTAL	67	100

Table 2: chart showing increase in prevalence of root stump extraction with gender

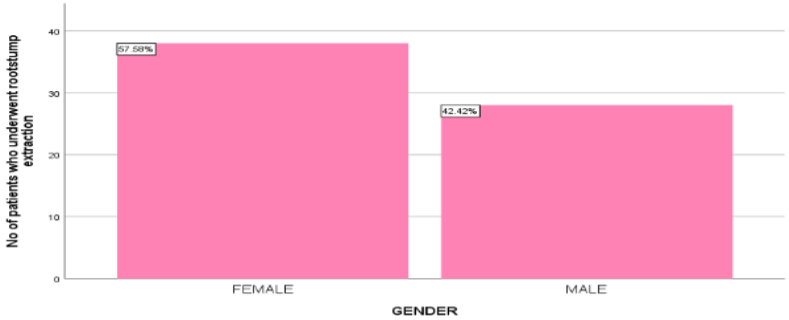

Figure 2: Bar graph represents the number of patients in each gender. The x axis represents gender and Y axis represents the number of patients. The graph shows that 57.58% were females, 42.42% were male.

AGE	FEMALE	MALE	TOTAL
1-15	7	3	10
16-25	10	8	18
26-35	21	17	38
TOTAL	38	28	67

Table 3: table showing age and gender cross tabulation.

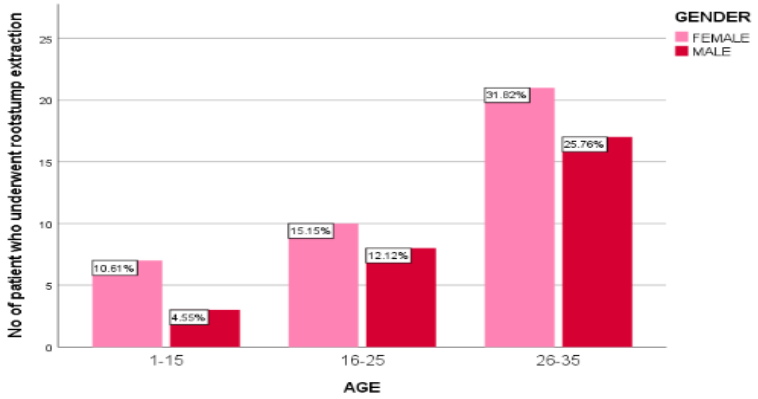

Figure 3: Bar graph represents the association between the gender and age group. X axis represents different age groups and the Y axis represents the number of patients. Chi square test value is 0.745, df-2, p value is 0.15(p>0.05); statistically not significant however majority of males (22.39%) in the age group between 26-35 years have undergone root stump extraction.

4. CONCLUSION:

Within the limits of this study, it can be concluded that age and extraction of root stumps are not correlated. Increase in age shows an increase in prevalence of root stumps. Female patients have undergone more root stump extractions than male patients under 35 years of age.

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