A CLINICO-PATHOLOGICAL STUDY OF ORO-DENTAL DISEASES PRESENTING TO A TEACHING DENTAL HOSPITAL IN PESHAWAR."A PROSPECTIVE STUDY"

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ABSTRACT

Objective: *The aim of the this study was to create a profile of oral diseases presenting to the paedodntics department in a local dental hospital in Peshawar and to try and data compare itto similar available data.*

Materials and Methods: *This prospective, cross sectional study was conducted in the Paed-odontics department of Sardar Begum Dental Hospital, Peshawar. Data was collected by usingnon-probability convenience sampling from January 2019 through to August 2019. All pediatricpatients aged 0-17 years after clinical assessment and initial diagnosis were included in the study.The sample size was 775 patients. The patients were examined by a single operator on the dentalunit after taking informed , verbal consent from their parents /guardians. The data was analyzed*
SPSS 20 and frequency of diseases according to age and genders were calculated on that basis.The analysis involved descriptive statistics and the Pearson's chi-square.

Results: *A total of 775 patients were included in this study. Out of these 53% were males and46.3% were females. The ages of patients seen were subdivided into 3 groups. The group mostfrequently presenting with oral and dental lesions was the 6-12 age group. The highest numberof lesions 65.8% was present in being group 1. The deciduous first molars were most frequentlyaffected by pathologies 272 closely followed by the deciduous second molars 219,the first per-manent molars affected in 93 cases and finally the deciduous central incisors 65 were affectedby different pathologies. The next most frequent problem was infection associated with externalresorption in 215(27.7%) cases. There were 143 (18.45%) retained teeth, 63 teeth with infectionand internal resorption,17 supernumary teeth, 16 cases of trauma, 15 pulp polyps, 10 mucoceles,7cysts and 6 granulomas. (15%).*

Conclusion: *The data collected was from a single institute, over a period of 8 months. The vastmajority of oro-dental diseases comprised of caries and its associated problems. Infections werethe major cause of external and internal resorption. A few cysts were associated with the teethas were granulomas and pulp polyps. Supernumeraries, peg laterals, dilacerations and doubleteeth were also present in the paediatric population Soft tissue lesions included mucoceles only.*
Results from this study should form part of a larger nation-wide data collection study.

Keywords:*Oro-dental diseases, external and internal resorption, pathologies.*

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INTRODUCTION

Awareness of oral and dental diseases through epidemiological studies play a very important role

in public health, due to the fact that they make you aware of the prevalence, incidence, ultimate progress and treatment of the diseases which affect children in a particular region.

There is a considerable difference between the paediatric and adult populations with regards to the kind of lesions that affect them.[1]

Despite the fact that there is always a deep concern with regards to oral diseases in paediatric populations, very few publications are available in this field.[2]

Paediatric patients, most frequently present with dental pathologies, the specimens of which are then submitted for histopathological examination, this is due to the very frequent presence of dental caries. A Global Burden of Disease 2010 study listed caries in permanent teeth as being responsible for a global prevalence of 35% of the diseases for all ages combined[3,4]. Malignancies rarely occur and comprise less than 1% of paediatric pathology samples. Other pathologies such as mucoceles are often reported as the most common soft tissue pathology. According to a WHO report oral cancer and caries have considerably increased from around 45.6% from 1990 to 2010 in along with the major non-communicable diseases like diabetes by 69.0%[3,4]. The prevalence of diseases found in various studies is vital to educate oral health professionals on the prevalence of oral pathologies and lesions in the field of paediatric dentistry.[3] The purpose of this study is to create a profile of the oral lesions presenting in a paediatric population.

MATERIALS AND METHODS

A prospective cross sectional study was carried out in the Department of Paedodontics at Sardar Begum Dental College, Peshawar. Data was collected by using non-probability convenience sampling from January 2019 through to August 2019. Cooperative patients aged 0-17 years of both genders, reporting for the first time to Department of Paedodontics were included in the study. Uncooperative children or those that were handicapped or had systemic disease were excluded. The patients were examined by a single operator on the dental unit after taking informed , verbal consent from their parents /guardians. Lesions were diagnosed after histopathological evaluation.

SPSS V 20 was used for analysis. Statistical significance was considered at p-value less than 0.05

RESULTS

A total of 775 patients were included in this study. Out of these 416(53%) were males and 359(46.3%) were females.(Figure 1) The ages of patients seen were subdivided into 3 groups with ages 0-5 being group 1, 6-12 group 2 and 13-17 group 3.(Figure 2) The group most frequently presenting with oral and dental lesions was the 6-12 age group. The highest number of lesions 65.8% were present in this group followed by the 13-17 year age group with 22.1% of the lesions and last was the 0-5 year age group with 12% of the lesions. The maxilla was involved in 406 cases whereas the mandible was involved in 368 cases. With regards to the teeth the deciduous first molars were most frequently affected by pathologies 272 closely followed by the deciduous second molar 219.The next most frequently affected tooth was the first permanent molar 93 were affected and then the deciduous central incisors 65 were affected by different pathologies.(Figure3) The most frequent presenting problem was grossly carious teeth 261(33.6%),next most frequent problem was infection associated with external resorption in 215(27.7%) cases. There were 143 (18.45%) retained teeth, 63 teeth with infection and internal resorption,17 supernumary teeth, 16 cases of trauma, 15 pulp polyps, 10 mucoceles ,7 cysts and 6 granulomas. Apart from these a few cases of natal teeth, double teeth, peg laterals, missing teeth and dilacerations were also present.(Table 1) A strong association

Table 1: Condition of the tooth.

Condition Of Tooth	Frequency	Percentage
Grossly Carious	261	33.7%
Infection (External)	215	27.7%
Trauma	16	2.1%
Retained	143	18.5%
Cyst	7	0.9%
Supernumery/Supplemental	17	2.2%
Infection (Internal)	63	8.1%
Natal	2	0.3%
Pulp Polyp	15	1.9%
Double Tooth	4	0.5%
Granuloma	6	0.8%
Peg Laterals	4	0.5%
Missing Teeth	3	0.4%
Dilaceration	4	0.4%
Mucocele/Ranula	11	1.3%

Table 2: Age of child * tooth involved Crosstabulation

Count		tooth involved												
		a	b	c	d	e	6	1	2	3	4	5	7	Total
age of child	0 to 5	16	9	0	53	13	0	1	0	0	0	0	0	92
	6 to 12	43	17	9	183	188	29	16	10	1	2	3	0	501
	13 to 17	6	2	13	36	18	64	9	3	5	1	1	6	164
Total		65	28	22	272	219	93	26	13	6	3	4	6	757

Table 3: Chi-square test of age with tooth involved.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.687E2a	22	.000
Likelihood Ratio	247.219	22	.000
Linear-by-Linear Association	78.792	1	.000
N of Valid Cases	757		

a. 18 cells (50.0%) have expected count less than 5. The minimum expected count is .36.

Table 4: Chi square test of Gender with oral condition.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	52.061a	16	.000
Likelihood Ratio	57.279	16	.000
Linear-by-Linear Association	.933	1	.334
N of Valid Cases	771		

Table 5: Chi square test of age of child and oral condition.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.617E2a	32	.000
Likelihood Ratio	175.351	32	.000
Linear-by-Linear Association	5.962	1	.015
N of Valid Cases	771		

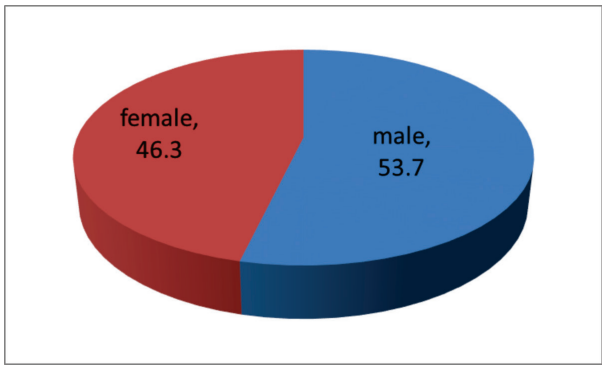

Figure 1: Gender of patients.

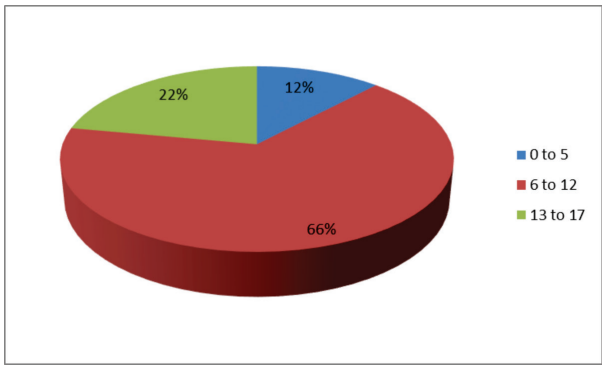

Figure 2: Age groups of patients involved.

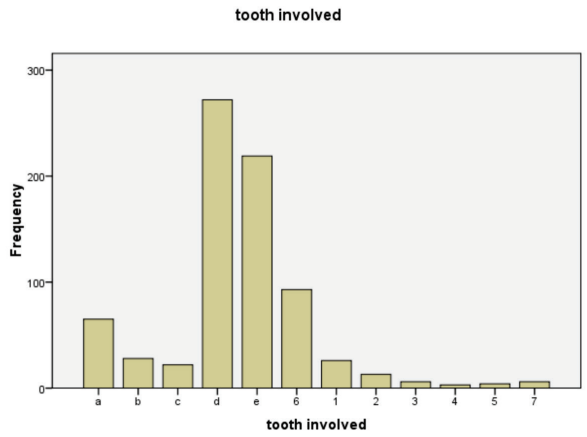

Figure 3: Frequency of teeth involved.

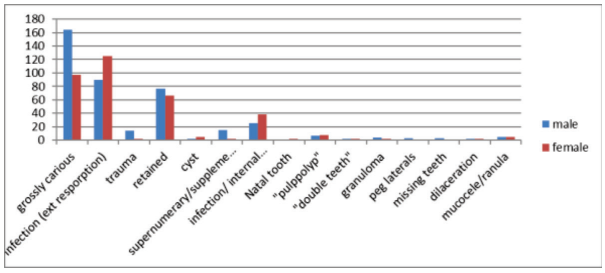

Figure 4: Gender * oral condition Cross tabulation

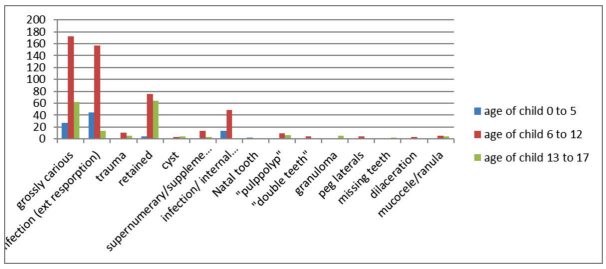

Figure 5: Age of child * oral condition

was found between age of child and tooth involved with a p value of 0.000.(Table 3) There was a strong association between gender and disease condition with males being more prone to disease having a p value of 0.000.(Table 4) The result also shows that there is a positive association between age of the child and oral condition ,again having a p value of 0.000 .(Table 5)

DISCUSSION

The study of orodental problems is not very well documented. A few articles are available on biopsied lesions in children , and a few on dental caries, but there isn't much evidence in literature on all of these together in a paediatric population. In this study we have tried to address both to find out the pattern in our local population.

In this study there was a slight predominance of males being affected by oro- dental problems with 54% being males and 46% females. There was a strong association between gender and disease condition with males being more prone to disease having a p value of 0.000. This is quite similar to a study carried out in Southern Pakistan with a ratio of 58% to 42%.[3]

With regards to age of the patients lesions and dental problems were most frequently found in the 6-12 year age group accounting for 65.9% of the total number of lesions . The second most frequently involved group was the 13-17 year group making up 22.1% of the problems whereas the 0-5 year group comprised of 12% of the problems. In this study there is a significant association between age and the tooth involved. In the 6-12 age group deciduous first and second molars are the teeth most frequently involved by pathologies accounting for 47.8% of pathologies and with a p value of 0.000. This is probably due to the fact that before this age and after it there are not as many deciduous teeth in the oral cavity as compared to the age group 6-12 as they mostly exfoliate after this.[5] Also there is a much higher chance for deciduous teeth to get dental caries due to the fact that they have a low calcium content as compared to permanent teeth and are also different structurally.[6]

The most frequently encountered problem amongst our study group was grossly carious teeth,33.6% of our patients presented to the paedodontics department with this. This could possibly be explained by the fact that most of the children belonged to a low income and socio- economic group where there is not much awareness of oral hygiene, incorrect techniques for brushing and ignorance.[5]

Poor dietary habits and the anatomical shape of deciduous teeth can also be the cause of high incidence of dental caries in children.[7] The next most frequently encountered problem was external pathological resorption 27.7% of the patients presented with it.

Pulpal infection caused by carious teeth or acute trauma can be the cause of external root resorption in permanent teeth. In deciduous teeth it is part of the normal shedding process of teeth. In this study all the cases of external resorption were associated

with carious crowns, although, the pressure from cysts and tumours, chronic trauma as well as pressure from impacted teeth can also be the cause.[8] Internal resorption was also seen in 8.1% of the cases.

As for external resorption infection and inflammation of the pulp, colonizing of the dentin with bacteria, as well as trauma are the main etiological factors for internal resorption.[9] Since external and internal resorption were also associated with carious teeth the total number of patients thus presenting with caries goes up to 69.5%. This is slightly lower compared to a study carried out in India where caries incidence in 3-14 year olds was (82.62%)[10]. Another study conducted in Egypt on children and adolescents between 3-18 years of age had number of carious teeth closer to our study at 74%.[6] Dental pathologies are the commonest group of lesions diagnosed in European oral pathology laboratories.[11]

Another frequently encountered pathology was the presence of supernumerary teeth 17 patients presented with this pathology. All of these supernumerary teeth were non-syndromic. Supernumeraries can be either single or more than one or uni or bilateral in any of the arches in the alveolar ridge or palate area but mostly in the premaxilla ,in the deciduous or permanent dentiton. Genetic and environmental factors combined may possibly explain their presence. These teeth could cause complications like cyst formation, crowding, midline diastemas or resorption of the teeth in their close vicinity and need to be treated accordingly.[12,13] In a study by Bekiroglu et al. supernumerary teeth were found in 4.35% of the paeditric population which was considerably higher than our 2.1%, whereas another study conducted on an Australian population had an incidence of only .28%.[13] Apart from supernumerary teeth other dental anomalies, peg laterals, dilacerations and double teeth were also present. Altogether they were 9 in number accounting for only 0.6% of the total lesions.

15 cases of pulp polyps were diagnosed in this current study. 10 patients presented with mucoceles. These were very easily diagnosed and were most frequently present on the lower lip making up only 1.2% of our lesions. This is much lower than a study in Karachi, Pakistan where the mucoceles made up almost 3.4% of the total lesions.[3] One reason why it is difficult to compare the prevalence of mucoceles in this study with others that in some studies they are part of biopsied lesions only and in some studies they have been grouped together with ranulas, mucous extravasation cysts and salivary gland pathologies.[14] a total of 7(0.9%) odontogenic cysts were diagnosed after histopathological evaluation out of which 5 were radicular cysts associated with non vital teeth wheres 2 were dentigerous cysts that had formed around impacted canines. Even though in some paediatric populations incidence of dentigerous cysts is reportedly higher, in our study there are more radicular cysts. This could be explained by the difference in prevalence of caries in different countries. It also could be that the radicular cysts and periapical granulomas may be overlooked in many regions due to the fact that they are not sent for histopathological examination.[15]

Periapical granulomas were a total of 6 (0.77%) in number, higher than a study in Karachi(0.37%). The cysts were slightly lower in percentage as compared to the study in Karachi where cysts comprised 1.97% of the lesions. 30% of total population of the world is made up of children and in Pakistan children and adolescents make up 43% of total population. For this reason a complete profile of paediatric oral diseases is very important.[3] The result also shows that there is a positive association between age of the child and condition of the tooth again having a p value of 0.000 .The age group 6-12 has maximum number of grossly carious teeth 22.1%, 20.2% cases of external resorption, 9.7% cases external resorption maimum number of pulp polyps and double teeth were also present in largest numbers in this age group. This study is one of the first documentations of pediatric oral diseases that includes caries as well as other lesions all together in one. The current study indicates that dental caries is very widespread in the paeditric population presenting to the paedodontics department. A large number of the problems are related to untreated caries and pulpititis.

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