

INCIDENTAL RADIOGRAPHIC FINDINGS IN PATIENTS REPORTING TO KHYBER COLLEGE OF DENTISTRY

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ABSTRACT

Objective To evaluate the importance of a thorough radiographic examination before operating the patient and assessing the frequency of secondary findings on radiographs and their impact on the treatment planning of the patient.

Methodology: This study was conducted on 150 patients reporting to Khyber College of Dentistry radiology department from Jan 2014 to June 2014 irrespective of gender and age. Those patients who were already advised an orthopantomogram by different departments were included in this survey. An institutional ethical committee approval was obtained. Patients were enquired about their chief complaints and demographic data. Orthopantomograms were studied for incidental findings. These were those asymptomatic conditions other than the patient chief complaints. These information were recorded on a specially designed proforma. The information so collected was analysed using SPSS version 17.

Results: A total of 150 patients were recruited in this study where 96 (64%) patients had incidental radiographic findings. Out of 96 patients with incidental findings, 52 (54.16%) were males while 44 (45.83%) were female. Majority of the findings were observed in age group 11-20 (29.2%). Mostly students (25%) were observed with incidental findings. Out of all patients, majority (39%) were illiterate. The geographic distribution of the patients indicated that most of the patients lived in capital city Peshawar (44.85%).

Pain was the most common chief complaint of pain in the maxillofacial region (39.58%), where highest number of patients were found with radiolucency (17.70%) followed in frequency by dental caries (15.63%).

Conclusions: Incidental radiographic findings were seen in 64% Patients. The most frequent incidental findings were pathologies (17.7%) followed by caries (15.63%).

Key words: Incidental findings, Radiographs.

INTRODUCTION

Radiographs play a vital role in the diagnosis of oral and maxillofacial pathologies as well as traumatic sequelae of injuries. Panoramic radiography is a simplified extra-oral procedure which visualizes the entire maxillofacial region on a single film¹. Since its introduction into the general practice of dentistry, panoramic radiography has become a popular and valuable diagnostic tool^{1,2}. Panoramic radiography has been used for routine screening of patients at various institutions and private clinic because it allows examination of the entire dentition, alveolar bone, temporomandibular

joints, and adjacent structures easily^{3,4}.

Radiographs are very helpful for detecting dental diseases such as periapical lesions, impacted or missing teeth, maxillary sinus anomalies and condylar changes which cannot be detected on clinical examination^{2,5}. This can be shown by several studies establishing the significance of radiographs comparing its efficacy with the clinical diagnosis and to verify clinical findings along with important supplementary information⁶. A report of An et al⁷ revealed different abnormal conditions that were detected on panoramic examination but had not been discovered on clinical examination. They were; dental caries (24.2%), periapical lesions (17.4%), calculi deposition (7.4%), retained root (5.3%), and third molar impaction (15.3%). These findings show that the panoramic radiography can be used as a supplement to the clinical examination and

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for the screening of dental diseases.

The use of Ortho-pantomogram (OPG) for pre-treatment examination enables the early diagnosis of tooth and jaw anomalies and the treatment costs may be reduced in the long-term⁸. The OPG can diagnose 34.2% of additional pathosis which cannot be discovered by clinical examination with posterior bitewing radiographs²⁹. Studies have shown that general dental practitioners are able to detect extensive radiographic changes but they miss periodontal changes¹⁰. Another study reveals that the experts can better diagnose cases as having positive radiological findings than General Dental Practitioner (GDP)¹¹.

The aim of this study is to evaluate the importance of a thorough radiographic examination before operating the patient and assessing the frequency of secondary findings on radiographs and their impact on the treatment planning of the patient. It also evaluates the variety of pathologies that go un-noticed on clinical examination but appear radiographically.

METHODS AND MATERIALS

This study was conducted on 150 patients reporting to Khyber College of Dentistry radiology department from Jan 2014 to June 2014 irrespective of gender and age. Those patients who were already advised an orthopantomogram by different departments were included in this survey.

The institutional ethical committee approval was obtained. Patients were informed about the purpose of this study and informed consent was obtained. They were enquired about their chief complaints and demographic data.

Orthopantomograms were studied for incidental findings. These were those asymptomatic conditions other than the patient chief complaints. These information were recorded on a specially designed proforma. Information so collected was analysed using SPSS version 17.

RESULTS

A total of 150 patients were recruited in this study where 96 (64%) patients had incidental radiographic findings (IRF) while 54 (36%) patients did not exhibit such findings other than their chief complaints. Out of 96 patients with IRF, the gender distribution was such that 52 (54.16%) were males while 44 (45.83%) were female with male to female ratio of 1.18:1.

The age distribution was such that majority of the IRF were observed in age group 11-20 (29.2%) followed by age group 21-30 (27.08%). Age distribution is given in Table 1.

The occupational status showed the highest incidence of IRF in patients who were predominantly students (25%), followed by those with no specified occupation (22.91%). IRF were least commonly found amongst businessmen and women (6.25%). Occupation wise distribution is shown in Table 2.

Majority of the patients (39%) were illiterate followed by those with higher educational status (19%). The details of the educational status are shown in Figure 1.

The geographic distribution of the patients indicated that majority of the patients lived in capital city Peshawar (44.85%) followed by patients belonging to district Nowshera (7.2%). The geographic distribution is shown in Table 3.

Majority of the patients came with a chief complaint of pain in the maxillofacial region (39.58%) followed by the complaint of maxillofacial trauma (19.79%). Distribution is given in Figure 2.

The highest number of patients were found with radiolucency (17.70%) followed in frequency by dental

Table-1: Age Distribution

Age Group in years	Frequency	Percentage
1-10	3	3.11
11-20	28	29.2
21-30	26	27.08
31-40	15	15.62
41-50	13	13.54
51-60	9	9.37
Above 60	2	2.08
Total	96	100

Table-2: Occupation wise Distribution

Occupation	Frequency	Percentage
Business	6	6.25
Employee	15	15.63
House Wife	21	21.88
Not Specified	22	22.91
Professional	8	8.33
Student	24	25
Total	96	100

Table-3: Geographic Distribution

Address	Frequency	Percentage
Afghanistan	4	4.2
Bannu	3	3.1
Charsadda	6	6.3
Dir	5	5.2
FATA	6	6.3
Karak	4	4.2
Kohat	2	2.0
Mardan	6	6.3
Nowshehra	7	7.2
Peshawar	43	44.8
Swabi	3	3.1
Swat	3	3.1
Misc	4	4.2
Total	96	100

Table-4: Incidental Radiographic Findings

Incidental Findings	Frequency	Percentage
Caries	15	15.63
Radiolucencies	17	17.70
Radiopacities	5	5.20
Retained tooth	14	14.58
Impactions+ Radiolucency	14	14.58
Caries + Impaction	12	12.6
Caries + PD loss	9	9.38
TMJ disorders	2	2.08
Multiple findings	8	8.34
Total	96	100

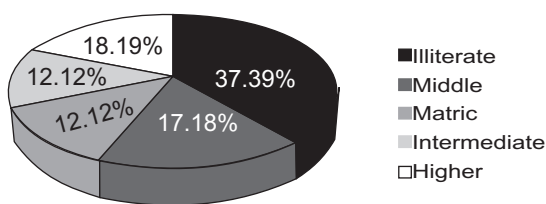


Figure-1: Educational Status

caries (15.63%). More than two findings were found in 10.42% cases. The details of IRF are shown in Table 4.

DISCUSSION

Many research workers have studied incidental radiographic findings in various specialities of medicine including dentistry. According to these studies 40-50% patients had incidental maxillofacial findings in patients seeking orodental and maxillofacial treat-

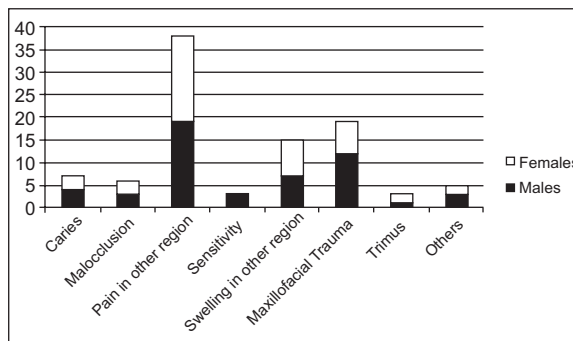


Figure-2: Chief Complaints

ment^{12,13}. In the present study 64% of the patients had incidental radiographic findings reflecting the lack of dental awareness in this part of the region.

The importance of gender and age has been mentioned exclusively in medical literature. Poor and neglected oral hygiene can be observed in any gender and age groups being frequent in females in their middle ages¹⁴. In the present survey 54.16% were males in their second and third decades of life. The reason for this male dominance is that males are more likely to visit for their dental problems as compared to females because of the social and religious restrictions observed by the female population preventing them to visit outside their houses. Although age distribution in our study is in agreement with the studies conducted worldwide^{15,16}.

Literacy rate is directly proportional to the awareness and prevention of various dental conditions. Pakpour et al¹⁷ showed that population with a poor literacy rate has a higher incidence of neglected oral hygiene and a high rate of incidental radiographic findings. Majority (37%) of our study sample were illiterate confirms the findings of the aforementioned studies.

Brennan and Spencer¹⁸ showed that the primary presenting symptom in 13-30 years patients was pain alone. Similar pattern of pain as a presenting symptom was shown by Kakoei et al¹⁹ in a study conducted in Iran.

The finding in our study that 37% of the total patients presented with the chief complaints of pain is in agreement with the previous studies^{18,19}.

In the present study the highest number of patients were found with radiolucencies (17.70%) followed by dental caries (15.63%). The periapical radiolucencies were found in almost similar frequency reported in Korean population⁷. Although in contrast to the present study, the same study exhibited a fre-

quency for dental caries to be 24.2%.

Similar contrasting findings were shown by Caglayan and Tozoglu²⁰ showing that impacted teeth and Temporomandibular joint diseases were in the order of 21.7% and 11.1 % respectively. These differences may be attributed to the different social and demographic variables as well as a difference in the sample size.

According to 2011 statistics²¹, the population literacy rate of Korea (97-100 %) and Turkey (95%) where these studies were conducted are far better than Pakistan (55%). Surprisingly, dental awareness in terms of incidental findings keeping in view literacy rate is still not too hopeless

CONCLUSIONS

The following can be concluded from this study:

1. Incidental radiographic findings were seen in 64% Patients.
2. The most frequent Incidental findings were 17.7% pathologies followed by 15.63% caries.

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