

A PREVALANCE OF ABNORMALITIES IN EDENTULOUS JAWS: A RADIOGRAPHIC STUDY

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ABSTRACT:

Aim : Prevalence of abnormalities in edentulous jaws evaluated radiographically.

Objectives: 1) Prevalence of abnormalities in the edentulous arches such as root stump, supernumerary teeth, impacted teeth, amalgam rests, radiolucency, radiopacity if any. 2) Evaluation of bony trabecular pattern of edentulous jaws. 3) Justification of utility of radiographs for pre-prosthetic procedure.

Materials and Methods: Edentulous patients reporting to the department of Oral Medicine and Radiology were considered for the present study. Those who are capable of understanding the furnished information sheet and provide informed consent became participants in the study. Two hundred and fifty such patients were enrolled in the study, out of which 52% were male and 48% were female. Each individual included in the study was subjected to be exposed for panoramic radiographs with adequate protective measures. Each panoramic radiograph was interpreted to rule out the abnormalities such as radiolucency, radiopacity, impacted teeth, amalgam rests, and root pieces. Prevalence however not restricted to the abnormalities listed above but also include trabecular pattern which were studied in terms of dense trabeculation, sparse and dense trabeculation and sparse trabeculation in the anterior region of upper and lower jaws. Statistical analysis was carried out by using chi square test.

Results: Highest prevalence was root pieces (43%), embedded teeth (3.2%), and radiolucencies 8.8%, radiopacities 2%, amalgam rests 2% emphasize the need of panoramic radiograph before any prosthetic treatment.

Keywords: edentulous jaws, radiolucencies, radiopacity, impacted teeth, bony trabeculae pattern, root piece

INTRODUCTION:

Dental profession is committed on delivering the highest quality of care to

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each of its individual patients. Advancement in technology and science are continually applied on regular basis to improve the overall health of an individual through oral health status.

There by we need to have diagnostic aids or tools for assessment and conclusion, hence one of the major tool which is readily available and routinely used in day to day practice are radiographs, as they play an important role.

Use of radiographs as diagnostic tool has become routine and indispensable in medicine as well as in dentistry .The presence and extension of many pathologic or abnormal conditions can be traced only by means of radiographs, in numerous situations, the use of radiographs is also essential during therapy as well as to follow the progress of treatment effects. ⁽¹⁾

On the other hand in recent times, radiographic examination of apparently healthy edentulous jaws has come under heavy criticism. It has frequently been argued that because of the cumulative effects of radiation exposure and unjustifiable cost, only those patients with definite clinical evidence of disease should be radiographically examined. ⁽²⁾

Objectives:

1) Prevalence of abnormalities in the edentulous arches such as root stumps, supernumerary teeth, impacted teeth, amalgam rests, radiolucency, radiopacity if any.

2) Evaluation of trabecular pattern of edentulous jaws with the help of OPG . Justification of utility of radiographs for pre- prosthetic procedure.

MATERIAL AND METHODS:

Two hundred and fifty such patients were enrolled in the study. This is a recent addition to diagnostic imaging technology. PSP were introduced in the form of Fuji computed radiography in the mid 1980s. The imaging plate material looks superficially similar to an intensifying screen used with light sensitive extra oral X ray films. In contrast to intensifying screens that fluoresces immediately on interaction with X rays, imaging plates store energy from incoming X radiation and phosphorescence when scanned with a laser of a specific wavelength. ⁽³⁻⁵⁾

Exposure time is significantly lower than that required as that of conventional film. ^[5]

Radiographic findings

Prevalence of the following abnormalities were recorded, 1) Retained root pieces 2) Impacted teeth 3) Radiolucencies 4) Radiopacities 5) Amalgam rests 6) Any other

Prevalence, however, was not restricted to the abnormalities listed above but also include trabecular pattern which were studied in terms of dense trabeculation, sparse and dense alternating trabeculation and sparse trabeculation in the anterior region of upper and lower jaws.

All the observations were recorded in the predesigned proforma and statistically

analyzed by using ANOVA statistical method.^[11]

The interpretation of panoramic radiographs was done after processing by Kodak CR 7400 digital radiographic system. Thus images formed were visualized on monitor of a computer. All the images procured by PSP plates were numbered for identification.

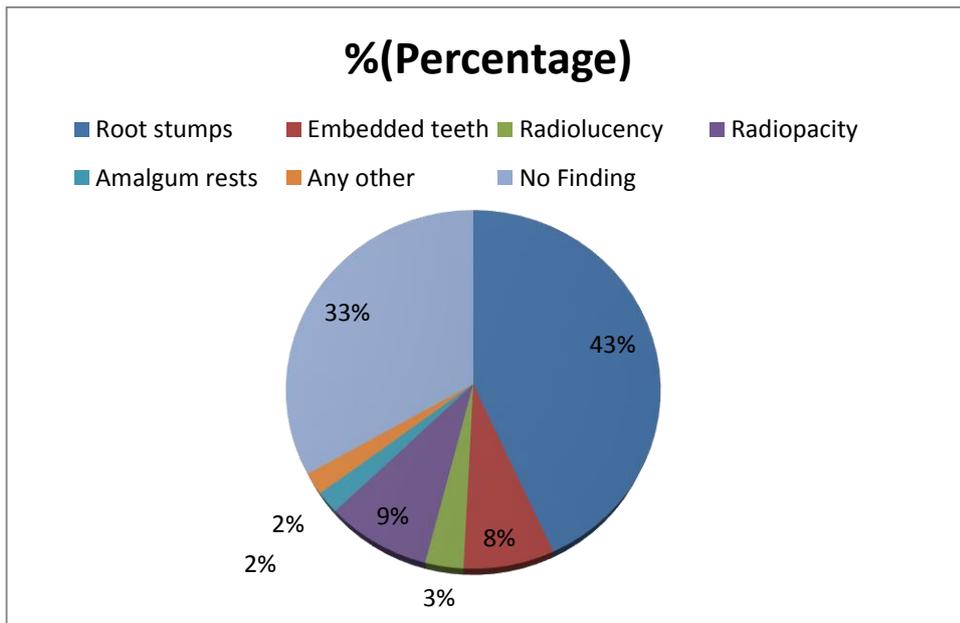
In present study 250 panoramic radiographs made were screened for the following findings: root stumps, impacted teeth, radiolucencies, radiopacities, and amalgam rests and if any other findings. Then findings were subjected to statistical analysis.

Stastical analysis

Table (1)– Grouping of patients by Age and Gender

S/No	Age	No%(percentage)	Gender		Total
			Male	Female	
1)	<50	23.2%	28	30	58
2)	51-60	25.6%	34	30	64
3)	61-70	28.8%	35	37	72
4)	>70	22.4%	33	23	56

RESULTS AND DISCUSSION:



Graph - 1

1) Root stumps 2) Embedded teeth 3) Radiolucency 4)Radiopacity 5) Amalgam rests 6) Any other

The most frequent findings were retained root stumps, followed by radiopacities.

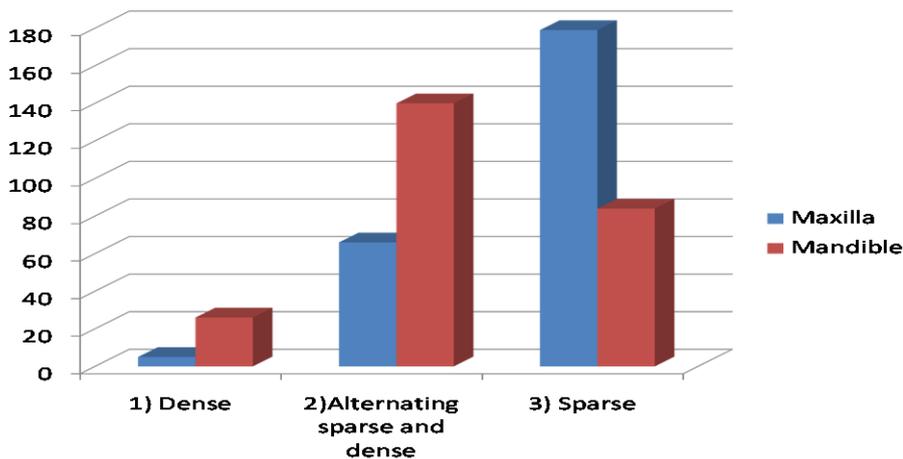
Graph-1 shows, out of 250 patients 43.2% (n=108) patients had sub mucosal or intra bony root stumps, 7.6% (n=19) had embedded teeth, 3.2% (n=8) had radiolucencies, 8.8% (n=22) had radiopacities, 2% (n=5) had amalgam rests, other findings 2% (n=5) include sialoliths, incisive canal cyst etc. 33% (n=83) do not show any positive findings.

Radiolucencies were found in eight patients. Out of 8 positive cases 3 were diagnosed as residual cyst, three as residual infection, one as carcinoma and one as osteoporotic area.

Radiopacities were found in Twenty two (22) patients which then were diagnosed as osteosclerosis.

Table-(2) Percentage of bony trabeculae pattern in anterior region of 250 patients.¹⁴

S/No	Trabecular pattern	Maxilla	Mandible
1)	Dense	5	26
2)	Alternating sparse & dense	66	140
3)	Sparse	179	84



Graph -2

Nature of trabecular pattern varies according to Graph -5 shows percentage of dense trabeculation is less, as compared to maxilla, mandible shows

denser trabeculation pattern, which could be clearly attributed to its anatomical nature.

Number (n) = 5 in maxilla and number (n) = 26 in mandible.

Alternating dense and sparse is more in mandible n=140, than in maxilla n=66. While sparse trabecular pattern seen more in maxilla n= 179 than in mandible n=84.

CONCLUSION:

Panoramic radiographs from 250 completely edentulous patients were examined with the aim to assess the significance of pretreatment panoramic radiographic assessment of edentulous patients and to carry out a quantitative analysis of abnormalities detected such as embedded teeth, retained root fragments, radiolucencies, radiopacities, amalgam rests and other findings if any.

1 The most frequent finding was observed in the present study retained root stumps 43.2%, followed by radiopacities 8.2%, embedded teeth 7.6%,

radiolucencies 3.2%, and amalgam rests 2%, any other 2%.

The findings were compared with results of the previous studies since 2005,

2) The percentage of positive findings reported, underscores the value of panoramic examination of edentulous patients, especially for those patients who have to receive complete dentures for the first time.⁽¹⁵⁾

3) Routine radiographic examination of completely edentulous patients is though necessary before construction of complete denture.

4) Better extraction technique is needed together with more universal use of radiographs before and after extraction.

5) Bony trabecular pattern assessment is needed for placement of implant.

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