

# Analysis and diagnosis of dental and mandibular pathologies from Orthopantomography

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## Abstract

Orthopantomography has proved its work in dentistry for many years, which often offers a valuable alternative beyond the supplementary evidence provided by routine radiological techniques. The present paper emphasizes on the diagnostic value of Orthopantomography and different appearances of pathologies in panoramic radiographs.

**Keywords:** Orthopantomography, dentistry, panoramic, cyst, caries, tumour, trauma, TM-Joint.

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## INTRODUCTION

Orthopantomography i.e. a single radiograph producing panorama like view of maxilla, mandible and structures in the mid face region, was originally developed for the diagnosis of dental diseases.<sup>1,2</sup>

Paateo and Numata were the first to describe the principles of panoramic radiology.<sup>3,4</sup> The first attempt to build a dental digital panoramic was of McDavid et.al at UTHSCSA.<sup>5</sup>

Panoramic images are most useful clinically for diagnostic problems requiring broad coverage of the jaws such as trauma, tumor, cysts, impacted teeth, tooth development, osseous lesions, TMJ & maxillary sinus diseases and anomalies etc.

Here, we present spectrum of appearances of pathologies on different digital panoramic radiographs.

Pathology can be divided into following categories

- 1) Dysmorphias and regressive alteration.
- 2) Calcification, concretions & ossification.
- 3) Radiographic, diagnosis of dental caries
- 4) Diagnosis of periodontal pathology & inflammation within Jaw
- 5) Diseases of maxillary sinuses of dentogenic & Rhinogenic origin
- 6) TM joint disorder.
- 7) Cystic lesion of mandible.
- 8) Odontogenic tumours & dysplasias
- 9) Non odontogenic tumours & tumour like lesions.
- 10) Trauma
- 11) Foreign body of forensic significance.



Figure 1



Figure 2



Figure 3



Figure 4



Figure 5

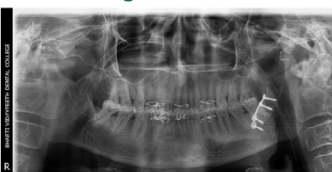


Figure 6



Figure 7



Figure 8



Figure 9



Figure 10



Figure 11



Figure 12



Figure 13



Figure 14



Figure 15

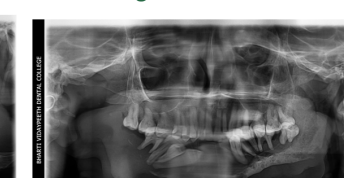


Figure 16



Figure 17



Figure 18



Figure 19



Figure 20



Figure 21



Figure 22



Figure 23



Figure 24



Figure 25



Figure 26



Figure 27



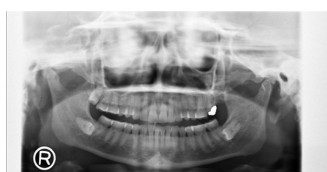
Figure 28



**Figure 29**



**Figure 30**



**Figure 31**



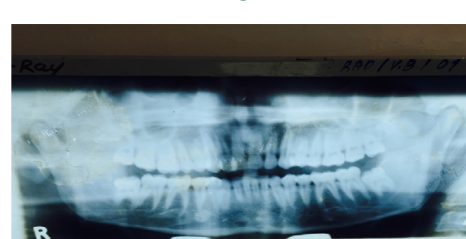
**Figure 32**



**Figure 33**



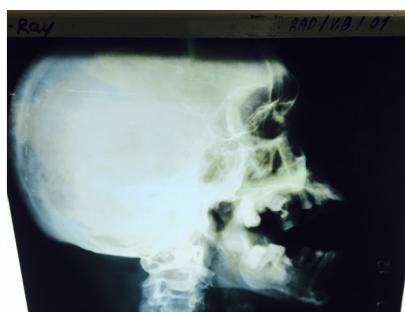
**Figure 34**



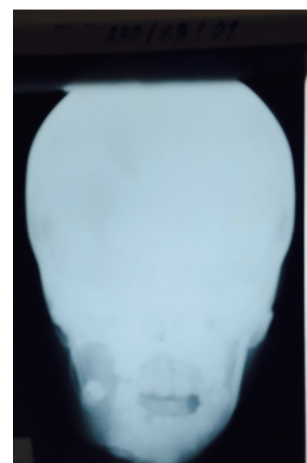
**Figure 35**



**Figure 36**



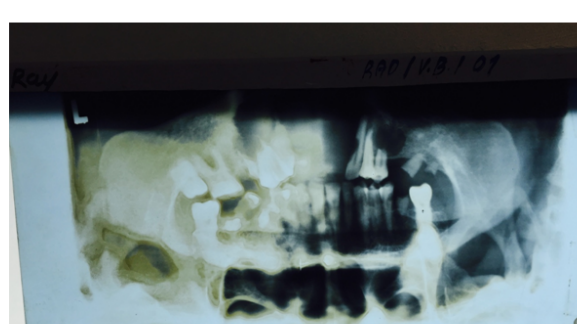
**Figure 37**



**Figure 38**



**Figure 39**



**Figure 40**

**Figure 1:** Normal OPG

**Figure 2:** Surgical bone plating for simple mandibular body fracture of left side.

**Figure 3:** Appearance after hemi-mandibulectomy of right side

**Figure 4:** Left side hemi-maxilloctomy

**Figure 5:** Right side maxillary cyst with mixed dentition

**Figure 6:** Intermaxillary wire fixation with condylar fracture

**Figure 7:** Horizontally impacted mandibular third molars

**Figure 8:** Grossly Destructed dentition due to caries

**Figure 9:** Horizontal surgical bone plating & splinting due to symphyseal fracture

**Figure 10:** Dental Prosthesis with missing teeth



- Figure 11:** Ill-defined radiolucency suggestive of malignancy at right side mandibular body either Fibrosarcoma or Cystic Adamentinoma
- Figure 12:** Post operative case of hemi-maxillectomy
- Figure 13:** Postoperative appearances of arch bar, wire loop and bone plating
- Figure 14:** Right side mandibular osteosclerosis with impacted third molars
- Figure 15:** Complete edentulous maxillary arch with remaining grossly destructed teeth
- Figure 16:** Floating teeth appearances due malignancy at mandible
- Figure 17:** Floating tooth appearance due to cystic lesion at left side body of mandible & multiple caries on right side of mandible
- Figure 18:** Cystic pathology at right side body of mandible
- Figure 19:** Impacted last molar & unerupted horizontal tooth near chin
- Figure 20:** Horizontal teeth below the 1<sup>st</sup> molar on right side.
- Figure 21:** Post operative wiring
- Figure 22:** Post operative with left upper tooth in maxillary sinus
- Figure 23:** Unerupted left upper premolar root in left maxillary sinus
- Figure 24:** multiple root canal and caps
- Figure 25:** For implants
- Figure 26:** For implants
- Figure 27:** artrial hemimandiblectomy on left side
- Figure 28:** Cystic lesion on left side with multiple caries
- Figure 29:** Floating teeth due to periodontal pathology
- Figure 30:** Fracture on the left side of the mandible
- Figure 31:** Downward impaction of last molars
- Figure 32:** Fracture on left side with wiring
- Figure 33:** Hemimandiblectomy on left side with soft tissue mass
- Figure 34:** Fracture of mandible
- Figure 35:** Osteosclerosis
- Figure 36:** Simple bone cyst in mandible
- Figure 37:** Osteomyelitis mandible
- Figure 38:** Giant cell tumour in mandible
- Figure 39:** Aneurysmal Bone Cyst
- Figure 40:** ? Giant cell tumour / ? Aneurysmal Bone Cyst

## CONCLUSION

The OPG is of great value when you are suspecting multiple dental pathology & either maxillary or mandibualr cystic or neoplastic lesion. In case of trauma it is mandatory for complete evaluation as well as pre & post operative evaluation. It is of great help along with lateral cephalogram for cosmetic treatment.

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