



ODONTOGENIC CYSTS OF JAW: SPECTRUM OF RADIOLOGICAL FINDINGS IN MDCT

Radiodiagnosis

Dr. Prof. Rachna Chaurasia

Professor, Department of Radio-Diagnosis, Maharani Laxmi Bai Medical College, Jhansi

Dr. Durgadevi Narayanan*

Junior Resident, Department of Radio-Diagnosis, Maharani Laxmi Bai Medical College, Jhansi *Corresponding Author

Dr. Siva Selvaraj

Assistant Professor, Department of E.N.T., Maharani Laxmi Bai Medical College, Jhansi

ABSTRACT

Cysts of the jaw are usually odontogenic or non odontogenic. The odontogenic cysts are cysts that are related to tooth. They are either developmental or acquired. The relationship of the cyst to the crown or apex of the tooth is important in the diagnosis. Imaging with Skull radiographs, Orthopantomogram helps in arriving at the diagnosis but MDCT remains the mainstay of diagnosis.

KEYWORDS

odontogenic, cystic lesions, mandible, head and neck imaging

INTRODUCTION

Odontogenic Cyst commonly present as palpable painless/painful swelling of jaw. An odontogenic cyst is formed by the activation of odontogenic cell rests entrapped within the bone tissue or gingival tissue of the jaw. It can be either developmental or post inflammatory.

OBJECTIVES

To assess the spectrum of radiological findings of odontogenic cysts of jaw in skull radiograph and mdctpns.

MATERIAL AND METHODS

We present radiological spectrum of odontogenic cystic lesions of jaw who were referred to our department for further evaluation with MDCT PNS and jaw region. MDCT was performed with 16 Slice Philips CT Scanner machine.

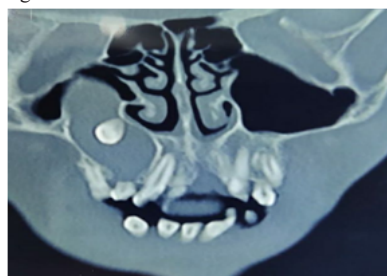
OBSERVATION AND RESULTS

Case 1: A 15 years old boy who underwent routine X-RAY PNS for facial asymmetry was found to have multiple cystic lesions of maxilla and mandible and MDCT was advised for further evaluation.



On CT imaging, there was multiple well defined radiolucent lesions of mandible and maxilla related to the crown of the impacted teeth...F/S/O Multiple dentigerous cysts.

Case 2: Another patient who was evaluated for pain and swelling in right cheek region.



CT shows a unilocular well defined lucent lesion in the right maxillary region with an impacted tooth inside the lesion.



Post operative specimen showing an impacted tooth within the resected specimen of dentigerous cyst.

DISCUSSION

Cysts of the mandible can be classified into:

1. **Odontogenic cysts:** Developmental or postinflammatory.
2. **Nonodontogenic cysts:** Developmental or fissural cysts
3. **Non-epitheliated cysts of bone:** Commonly there are three types of odontogenic cysts of mandible. They are

a.The apical or radicular cyst: This is the most common cystic lesions of the mandible. It arises from the apex of the root of a tooth, which is usually carious. Most cysts of the jaws are radicular. They lie directly upon the apex of a tooth, which is usually diseased.

Imaging findings : They are seen as round shaped unilocular well defined periapical lucent lesion, <1cm in diameter.

Treatment is by removal of the tooth and enucleation. This should result in bony healing with gradual obliteration of the cavity. Should the cyst persist after dental extraction, it is known as a residual cyst and its origin cannot be inferred from a radiograph.

b.The dentigerous or follicular cyst: Cystic degeneration of the enamel organ may occur after the tooth has been formed but before it has erupted. This results in a cyst related to the crown of an unerupted tooth. Cysts enlarge in part because of local hydrostatic imbalance. If the pressure within the cyst exceeds the eruptive pressure of the tooth, that tooth is prevented from erupting. It becomes displaced, often for some distance. Part of the crown always remains in contact with the cyst.

Radiologically, they are seen as expansile cystic pericoronal lesion containing the crown of an impacted tooth projecting into the cystic cavity.

These cysts are found primarily in adolescents and young adults. The permanent mandibular third molar and maxillary canine are especially affected. The cysts are usually unilocular.

c.The primordial or odontogenic keratocyst: This often develops in place of a tooth and may reach a very large size, but is not as common as the dentigerous cyst. These may follow cystic degeneration of the enamel organ before the tooth is formed, so that the cyst replaces the tooth, but they may also arise from ectopic odontogenic epithelium. Primordial cysts are more common in young men, but may be seen at all ages.

They are slow-growing but may reach a very large size and may occupy the body and entire ascending ramus. The cortex becomes thinned and an axial view also demonstrates expansion in the buccal-lingual plane. They are most commonly seen in the posterior mandible and are usually monolocular.

Imaging findings include unilocular lucent lesion with smooth corticated border often associated with impacted tooth and simulates a dentigerous cyst. If multiple, may be associated with GORLIN-GOLTZ syndrome characterised by multiple odontogenic keratocysts, multiple basal cell carcinomas, craniofacial and musculoskeletal abnormalities.

May rarely have multilocular appearance and simulates ameloblastoma.

The diagnosis is in any case confirmed by enucleation and histological examination. These cysts are almost inevitably keratinised and are very likely to recur unless removed completely. Long-term follow-up is therefore advisable.

CONCLUSION

Unerrupted tooth with associated cyst can be determined by skull radiograph and orthopantomogram. For exact location and extent with any internal soft tissue change calcification/abscess and the type of jaw cyst has higher sensitivity of detection with MDCT.

REFERENCES:

1. White SC, Pharoah MJ. Cysts and cystlike lesions of the jaws. In: White SC, Pharoah MJ, editors. *Oral Radiology: Principles and Interpretation*. 6 th ed. China: Mosby; 2009. p. 346-50.
2. Langlais RP, Langland OE, Nortje CJ. Diagnostic imaging of the jaws. Malvern (PA): Williams & Wilkins; 1995. p. 286-93, 327-35.
3. Shafer WG, Hine MK, Levy BM. A Textbook of Oral Pathology. 4 th ed. Philadelphia: WB Saunders; 1983. p. 260-5.
4. Regezi JA, Sciubba J. Oral Pathology: Clinical-Pathologic Correlations. 2 nd ed. Philadelphia: WB Saunders; 1993. p. 326-32.
5. Neville BW, Damm DD, Allen DD, Bouquet JE. Odontogenic cysts and tumors. In: Neville BW, Damm DD, Allen DD, Bouquet JE, editors. *Oral and Maxillofacial Pathology*. 3 rd ed. St. Louis: Saunders Elsevier; 2009. p. 678-740.
6. Avelar RL, Antunes AA, Carvalho RW, Bezerra PG, Oliveira Neto PJ, Andrade ES. Odontogenic cysts: A clinicopathological study of 507 cases. *J Oral Sci* 2009;51:581-6.
7. Zhang LL, Yang R, Zhang L, Li W, MacDonald-Jankowski D, Poh CF. Dentigerous cyst: A retrospective clinicopathological analysis of 2082 dentigerous cysts in British Columbia, Canada. *Int J Oral Maxillofac Surg* 2010;39:878-82.

8. Yeo JF, Rosnah BZ, Ti LS, Zhao YY, Ngeow WC. Clinicopathological study of dentigerous cysts in Singapore and Malaysia. *Malays J Pathol* 2007;29:41-7.
9. Lin HP, Wang YP, Chen HM, Cheng SJ, Sun A, Chiang CP. A clinicopathological study of 338 dentigerous cysts. *J Oral Pathol Med* 2013;42:462-7.
10. Jones AV, Craig GT, Franklin CD. Range and demographics of odontogenic cysts diagnosed in a UK population over a 30-year period. *J Oral Pathol Med* 2006;35:500-7.
11. DAVID SUTTON Textbook of Radiology and Imaging 7th edition P-1542-1547