

## DIAGNOSTIC IMAGING OF DENTIGEROUS CYSTS OF THE MANDIBLE

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### SUMMARY:

The authors submit a theme concerning X-ray methods for examination of mandibular dentigerous cysts and the role of CT examination in the diagnostic process.

**Key words:** dentigerous cyst, mandible, diagnostic imaging

Dentigerous cysts are the second most common odontogenic cysts after radicular cysts /1,8,9/. They are benign odontogenic cysts that are associated with the crowns of permanent unerupted teeth; usually single in occurrence and located in the mandible. Although most common discovered in the second and third decades, they may be found at any age/ 1, 6/.

A dentigerous cyst encloses the crown of an unerupted tooth, attaching to the neck of the tooth and grows by expansion of its follicle. It is classified as a developmental cyst by the World Health Organization /4/ .

Main D.M.G /5/ hypothesized that the cyst develops around the partially formed crown of a permanent tooth as a result of intrafollicular spread of periapical inflammation from an overlying diseased primary tooth.

Dentigerous cysts involve impacted, unerupted permanent teeth, supernumerary teeth, odontomas and rarely deciduous teeth. In 75% of cases they are located in the mandible. The mandibular third molar and maxillary canine are involved most frequently.

According to Venta et al./7/ 84% of lower third molars are completely or partially unerupted at an age of 20 years and 91% of impacted third molars at 20 years of age will have life -long impaction

The incidence of cysts and tumours around impacted third molars is 3.1% /2 /.

The indication for removal of lower wisdom teeth are based on the most common complication such as recurrent pericoronaritis, cyst development, unrestorable caries etc./9/

Dentigerous cysts are usually painless, but may cause facial swelling and delayed tooth eruption; they may cause fractures of the jaw and become secondary infected.

Dentigerous cysts are known to recur very rarely.

It is well known that the frequency of mandibular dentigerous cysts is very high /1,3,8,9/.

It is well known too the importance of X-ray diagnostic for the surgical treatment of mandibular dentigerous cysts.

The clinical practise shows that the conventional X-ray methods /extraoral and intraoral/ ensure enough information concerning removal of the cyst when they are single and small in size.

Oblique projections of the left and right mandible, orthipantomography and occlusal radiographs for the cortical plates vestibularly and lingually would give us a precise information for the cyst and its relationship with the surrounding bone and structures.

CT examination is not a routine method. It is used to show more precisely the condition and the thickness of the bone plates of the jaw in different levels of the bone etc.

It is fact that patients submit CT examination directly without using the possibilities of conventional methods.

For example: Patient V.P., 42 years old suffers with allergy of unknown origin. Orthopantomography was made in order to exclude focal infection /Fig. 1/

Panoramic radiograph reveal in the left angle of the mandible 1/1,5 cm unilocular well defined radiolucency with thin sclerotic border, associated with the crown of almost caudally impacted third molar, reaching 2-3 mm from the edge of the jaw. The cyst involves the roots of second left molar.

CT examination was made too./Fig. 2/

CT axial slices show a small distending of the jaw in the area of the impacted molar lingually, involving the roots of second left molar; on the caudal slices -cortical plate ligually is missing.

**Oral examination:** The alveolar mucosa overlying the crest was normal in colour without expansion. The area was asymptomatic to palpation and easily compressible.

The patient underwent enucleation of the cystic lesion, odontectomy of the impacted molar and extraction of the second left molar.

Histologopathology was compatible with the diagnosis of dentigerous cyst with linings of squamous epithelium without evidence of keratinization.

## DISCUSSION

In the clinical practice examination of mandible includes conventional X ray modalities.

It's known that panoramic radiography has a limited value for evaluating the margins and extension of the lesion.

CT examination aid in delineating the extent of the lesion. The indications for CT examination of dentigerous cysts are not so familiar.

Indications for CT are for larger and multiple cysts, especially in the transitional dentition; it is used for précising the osteolytic changes in different levels of the bone plates in the cranial, caudal, vestibular and lingual position.

Naturally the following questions arise:

- Which conventional X-ray methods give enough information for dentigerous cysts?
- When is necessary such high cost and high radiation dose CT examination to be used for surgical

treatment of mandibular dentigerous cyst to be accomplished?

Conventional X-ray methods /extraoral and intraoral/ give enough information for occasional findings- asymptomatic and without clinical signs dentigerous cysts of the mandible.

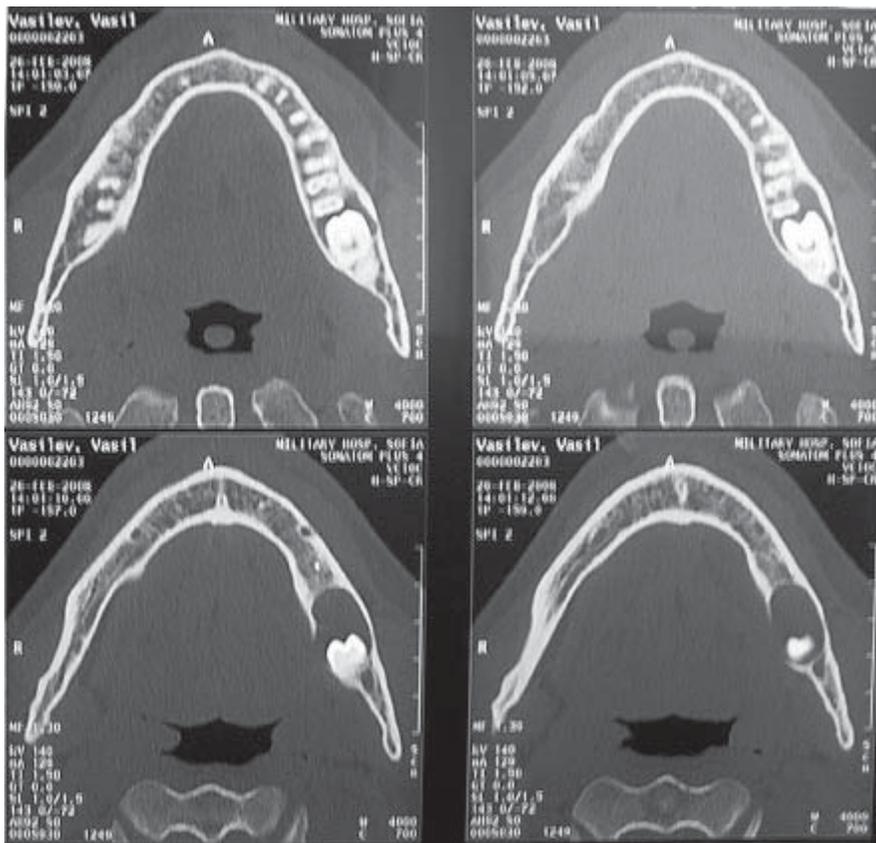
CT imaging displays bony details and gives exact information about the size, origin, content and relationships of the lesion involving the mandible.

The clinical practise shows that indications for CT examination of the mandible include the following cases: dentigerous cysts with large size; dentigerous cysts including more than one tooth; supernumerous impacted teeth with dentigerous cyst, especially in the transitional dentition. This examination gives more precise visualization of the relations between the cyst and the surrounding bone structures; to precise osteolytic changes in different levels and the position of cortex vestibularly or lingually in all cases concerning surgical bone plastic.

That's why, in order to ensure the treatment decisions and follow up based on accurate information, we recommend to use conventional X ray methods and then CT examination - according to the indications.



Fig. 1



**Fig. 2**

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