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## Unusual Panoramic Radiographic Appearance Of Odontogenic Fibroma Associated With An Impacted Mandibular Third Molar: A Case Report

\*<sup>1</sup>Nur Asmy Nisrina, <sup>2</sup>Barunawaty Yunus, <sup>3</sup>Fadhlil Ulum A. Rahman, <sup>4</sup>Moh. Gazali

<sup>1</sup> Resident of Oral and Maxillofacial Radiology Specialist Program, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

<sup>2</sup> Professor, Head of Study Program Oral and Maxillofacial Radiology, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

<sup>3</sup> Department of Oral and Maxillofacial Radiology, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

<sup>4</sup> Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

**Corresponding Author:** Barunawaty Yunus, Professor and Head of Study Program Oral and Maxillofacial Radiology, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

**Address:** Perintis Kemerdekaan KM. 10, Makassar, Indonesia

**Email:** [nurasmynisrina@gmail.com](mailto:nurasmynisrina@gmail.com)

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**ABSTRACT** Odontogenic fibroma is a rare benign odontogenic tumor of mesenchymal origin, characterized by fibrous connective tissue with varying amounts of odontogenic epithelium. This lesion predominantly affects the mandible, particularly in the molar-premolar region. This case report describes an unusual radiographic presentation of odontogenic fibroma associated with an impacted mandibular third molar. A 58-year-old male was referred to the Radiology Unit of Hasanuddin University Dental Hospital with complaints of left cheek swelling. Panoramic radiography revealed an impacted left mandibular third molar (tooth 38) in an inverted position, accompanied by a well-defined unilocular radiolucent lesion in the pericoronal area, with scattered radiopaque foci within the lesion. The initial radiological impression suggested a calcifying epithelial odontogenic tumor; however, a histopathological examination was required for a definitive diagnosis. The patient was referred to the Department of Oral and Maxillofacial Surgery for further evaluation. A biopsy excision and odontectomy of tooth 38 were performed. Histopathological analysis confirmed the lesion as an irritating fibroma. This case highlights the importance of integrating clinical, radiographic, and histopathological evaluations for the accurate diagnosis of odontogenic fibroma. The comprehensive assessment is crucial for distinguishing this lesion from other odontogenic tumors, ensuring appropriate treatment and optimal patient outcomes.

**Keywords:** Odontogenic Fibroma, Panoramic Radiograph, Mandibular Pathology, Benign Odontogenic Lesion

## INTRODUCTION

Odontogenic fibroma is an uncommon benign odontogenic tumor originating from mesenchymal tissue, consisting of fibrous tissue with numerous different types of odontogenic epithelium. It is embedded in a neoplastic mature and fibrous stroma.(1) The lesions are always associated with the corona or radicular section of the tooth, depending on whether it develops from the dental epithelium or the periodontal membrane.(2)

In the mandible, especially in the molar-premolar region, these lesions are more prevalent.(3) According to reports, odontogenic fibromas tend to affect women 2.2:1 more often than men between the ages of 4 and 80. For 0.1 to 1.5% of all odontogenic tumors, it is responsible. Approximately 55% of instances involve the mandible, with up to a third of them coexisting with an impacted third molar and occurring posterior to the first molar in half of the cases.(1)

The purpose of this case report is to describe panoramic radiography's unusual presentation of odontogenic fibroma on impacted mandibular third molar in a male patient.

## CASE REPORT

A 58-year-old male patient was referred to the Radiology Unit of Hasanuddin University Dental Hospital (RSGMP) for a panoramic radiographic examination with complaints of swelling of the left cheek and hard-to-open mouth since  $\pm$  2 weeks before. The patient already consumes cefadroxil, acid mefenamic, and diclofenac sodium. There was no allergic history on medicine and food, and the history of the disease was denied.

The patient was in good condition. The extraoral examination showed the face asymmetric and swelling in the left buccal spreading to the submandibular with a size of  $\pm$  7.5x5x1.5 cm, hard consistency, painful palpation (+), fluctuation (-), more redness, and warmer than surrounding (Figure 1).



Figure 1. Patient's facial profile front and side views

The intraoral examination revealed enlargement in the gingival region to the buccal vestibulum on the second premolar to third molar on the left side with hard consistency, painful gingival palpation (-), fluctuation (+), pus discharge (+), and more redness than surrounding. In addition, there was calculus with poor oral hygiene (Figure 2).



Figure 2. The intraoral condition

The panoramic radiograph showed an impacted left mandibular third molar in an inverted position accompanied by a well-defined unilocular radiolucent lesion in its pericoronal area with an internal structure of the lesion showing scattered radiopaque foci with a size of 2 x 2 cm lesion. The lesion involves the mandibular canal toward the left mandibular inferior cortex (Figure 3).

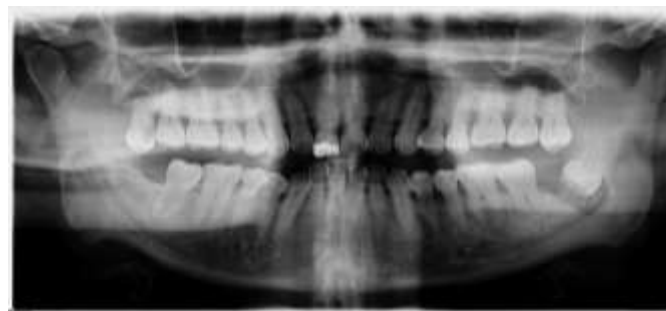


Figure 3. The panoramic radiograph

Panoramic interpretation is shown in Table 1.

Location	Left mandible, the third region, mandibular corpus area on pericoronal impacted tooth 38
Size	± 2x2 cm
Margins	well-defined
Sharpness	Well-defined unilocular
Internal Structure	The internal structure of the lesion shows scattered radiopaque foci.
Effect of surrounding	The lesion involves the mandibular canal toward the left mandibular inferior cortex.

Table 1. Interpretation Odontogenic fibroma lesion on panoramic radiograph

Appropriate treatment of cases depends on the lesion area. The Department of Oral and Maxillofacial Surgery was consulted regarding the patient. After further examination and informed consent were signed, a biopsy excision and odontectomy were carried out on tooth #38. A calcifying epithelial odontogenic tumor is the most suspected radiological diagnosis. Nevertheless, a histopathological examination is needed to prove the type of tumor.

The histopathological examination showed the specimen consisted of fibrous connective tissue with collagen bundles and atypical fibroblasts between them, as well as several blood vessels filled with erythrocytes, areas of bleeding, inflammatory lymphocytes, plasma cells, and dense histiocytes. Fat, muscle, and nerve tissue are also seen without specific abnormalities. The results of the histopathological examination revealed an irritating fibroma (Figure 4)

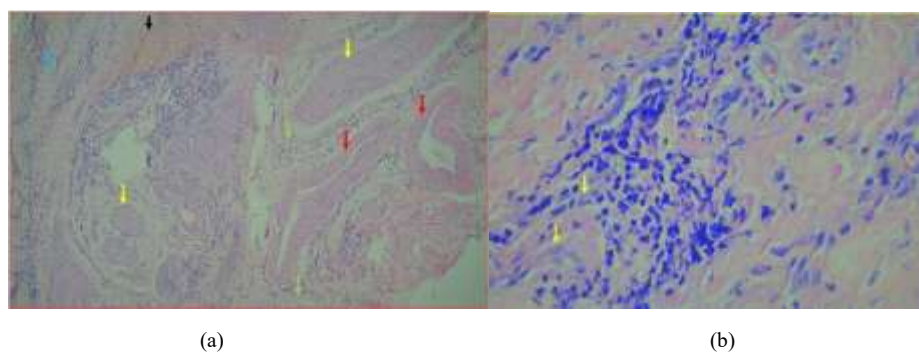


Figure 4. Histopathological examination; (a) 4 x magnification showed the tissues consist of fibrous connective tissue with collagen bundles and atypical fibroblast cells in between (blue arrows), and there are several blood vessels containing erythrocytes (red arrows), areas of hemorrhage (black arrows). Fat tissue (green arrows) and nerve tissue without any specific abnormalities (yellow arrows) are also visible; (b) 40 x magnification showed there were inflammatory cells, lymphocytes (green arrows), and dense histiocytes. (Yellow arrows)

## DISCUSSION

A rare benign tumor of the jawbone called odontogenic fibroma that frequently occurs before the fourth decade of life. Fewer than 0.1% of all odontogenic tumors have been reported it. It was reported to be lower than 0.1% of all odontogenic tumors. It consists of various a kind of inactivated odontogenic epithelium sealed in a fibrous, mature neoplasm.(4)

An odontogenic fibroma consists of two different types of histopathologic lesions, the complex type (epithelium-rich) and the simple type (epithelium-poor). The simple type contains clustered fibroblasts in a circular pattern with or without occasional odontogenic epithelial rests and dystrophic calcifications. The complex type has cellular fiber connective tissue, odontogenic epithelium in strands or islands, and collagen bundles, making it more complicated. However, there are examples of odontogenic fibromas with various cellular compositions in the literature. This research describes various lesions on granular cells, fibroblasts, and giant cells.(5,6)

There are no known environmental sources of odontogenic fibroma, hence its etiology is still unknown.(7) Odontogenic fibroma can occur in people between the ages of 4 and 80, more commonly than in other areas in the mandibular molar region and the anterior part of the maxilla.<sup>8</sup> It was found that the maxilla (54.4%) and mandible sites (45.6%) tended to be distributed equally. However, the anterior maxilla (26.6%) and posterior mandible (46.8%) were the locations where this lesion was most frequently identified. (6) A lesion in the posterior mandible was present in this patient.

Odontogenic fibromas are slow-growing, expansible jaw swellings that are typically asymptomatic and clinically asymptomatic. Rarely, they have the potential to be aggressive and cause radicular resorptions and dental displacements. The swelling of the maxilla or mandible is the most common acute symptom, whereas pain and paraesthesia are less frequently seen. Sometimes, it appears as a non-painful swelling with cortical enlargement.(7)

The initial imaging tool used to assess impacted teeth and associated lesions was the panoramic view, whereas radiography continues to be the first step in the diagnostic process of jaw disease.(8) The tumor appears as a well-corticated, unilocular radiolucency on radiographs. Larger lesions could have many lesions.(9) The majority of unilocular types are tiny and resemble odontogenic cysts or unilocular ameloblastomas. The multilocular form resembles an ameloblastoma or an odontogenic myxoma and tends to be relatively big. According to Kaffe and Buchner, A large percentage of odontogenic fibromas (88.2%) manifest as radiolucent, unilocular (55%), and a well-defined border lesion (73.3%). Lesions that were both radiolucent and radiopaque in around 10.7% of patients. in the mandible. The condition can sometimes be related to an impacted or unerupted tooth, and the border is well-defined but not sclerotic. An odontogenic fibroma can appear malignant on radiographic images and frequently shows aggressive behavior by growing on the surrounding bone trabeculae.(4,10) In this case, the panoramic radiograph shows a well-defined unilocular radiolucent lesion in its pericoronal area with an internal structure of the lesion showing scattered radiopaque foci.

Other lesions, such as desmoplastic fibromas, hyperplastic dental follicles, and odontogenic myxomas, may be mistaken for this one. Odontogenic fibroma is diagnosed by clinicopathological correlation.(11) According to Araki et al., it might be very challenging to diagnose an odontogenic fibroma from radiographic data, particularly if the lesion is connected to the crown of an unerupted tooth that may look like a dentigerous cyst. Since the lesions are

clearly defined, surgical excision or enucleation is the preferred course of action. Recurrence is rare (around 4.0%), and the prediction is good.(6,12)

## CONCLUSION

In conclusion, odontogenic fibroma is considered a neoplasm, and surgical therapy is extensively used for removing unerupted teeth. Therefore, a definitive diagnosis of odontogenic fibroma needs to be supported by a comprehensive clinical, radiographic, and histopathological examination so that more appropriate treatment can be carried out, especially for lesions that resemble other lesions.

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