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Case Report

# A Rare Case of Young Patient with Mandibular Juvenile Ossifying Fibroma

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## Abstract

**Background:** Ossifying fibroma is a rare odontogenic tumor that commonly represent intraosseous non-functional osseous structure forms. Juvenile ossifying fibroma is considered an aggressive rapidly growing sub-type with tendency to occur in the early decades of life. Histological features of juvenile ossifying fibroma can manifest as cellular fibroblastic tissue admixed with woven bone trabeculae with varying histologic presentations. Diagnosis of juvenile ossifying fibroma made based on patient's age, site of the lesion, and clinical behaviour along with the histopathological findings.

**Case Report:** A 13-year-old female was referred to the oral and maxillofacial surgery department complaining from swelling in the left mandible. Clinical examination revealed expansile lesion on left side of the mandible. Radiographic examination showed hypodense lesion in posterior body of mandible extending to the angle of the mandible related to lower left molars and extending to inferior border of mandible causing thinning to the cortex. Histopathological examination revealed cellular fibrous connective tissue containing spherical ossicles composed of a basophilic center with an eosinophilic rim, and brush borders that blend into the surrounding stroma. The diagnosis was juvenile ossifying fibroma.

**Conclusion:** Definite diagnosis of Juvenile ossifying fibroma may be challenging hence detailed examination should be done to differentiate from other fibro-osseous lesions as its management may varies from surgical enucleation to complete resection and reconstruction.

***Keywords:*** *Juvenile; Ossifying; Fibroma; Mandibular*

## Introduction

Juvenile ossifying fibroma (JOF) is considered one of the odontogenic tumors of the maxillofacial area. While it appears in children younger than 15 years old [1]. The lesion is usually a large asymptomatic with aggressive behavior due to the surrounding bone destruction that it causes. Thus, the lesion is not encapsulated but showed well demarcated to the surrounding bones [2]. Majority of the cases presented in maxilla with rare cases reported in the mandible [3]. There are two variants of JOF based of histological finding which is psammomatous and trabecular type. Trabecular lesions are mainly found in the mandible while the psammomatous in maxilla near to orbits, paranasal sinuses and base of the skull. Thus, the early diagnosis helps to retch a favorable prognosis to avoid complication due to

aggressiveness in addition to presence near to other organs. Radiograph is one of the diagnostic tools but can be miss leading the diagnosis [4].

## Case Report

In this study we report a rare case of young girl with juvenile ossify fibroma of the mandible suspected clinically and radiographically, diagnosed with histopathology and treated by surgical intervention. I also want to emphasize in the important of innervation after the detection to have a good prognosis result. The patient was physically fit on general examination and patient's medical history was non-significant. Patient's complain was reported as persistent swelling of the lower left jaw with a slow progression rate. Clinical examination revealed well defined painless swelling approximately 2 cm x 3 cm in diameter with a bony hard consistency related to the lower left mandible area extended to the inferior border of the mandible. Intraorally, no occlusal deformities were noted, and the mucosa generally appears normal with no alterations and/or pathological changes. Radiographical examination (cone beam computed tomography), revealed hypodense lesion in posterior body of mandible extending to the angle of the mandible related to lower left molars # 36, #37 and #38 and extending to inferior border of mandible causing thinning to the cortex (Figure 1 and 2). 2 months follow-up revealed slight growing of the lesion hence further histological assessment arranged. Fine needle aspiration suggested cystic lesions and smears show macrophages, lymphocytes and few neutrophils. Patient planned for incisional biopsy under general anaesthesia. Gross description shows multiple pieces of brown soft tissue measure about 3 cm in aggregate diameter. Histopathology report shows fibrous tissue exhibiting hypercellularity of stroma with mineralized matrix. Deposits or cementum-like calcifications distributed throughout the lesion. Scant osteoclasts were present.

After the clinical, radiological (cone beam computed tomography) and histological analysis, it was diagnosed as juvenile ossifying fibroma. Patient planned for resection and reconstruction with reconstruction plate for 6 months then for bone graft. Segmental resection of the left mandibular with measures 5.5 x 3.5 x 3 cm in size with one molar tooth identified, tumour measures 4 x 3 x 3 cm in size with bulging laterally and medially. It is situated 1 cm from the anterior bony resection margin and < 0.5 cm from the posterior margin grossly. On serial sectioning a grey, white solid and haemorrhagic cystic mass is identified. Multiple representative sections were taken from anterior bony margin, proximal to anterior margin, posterior margin, soft tissue component of tumour bony component, lateral aspect of

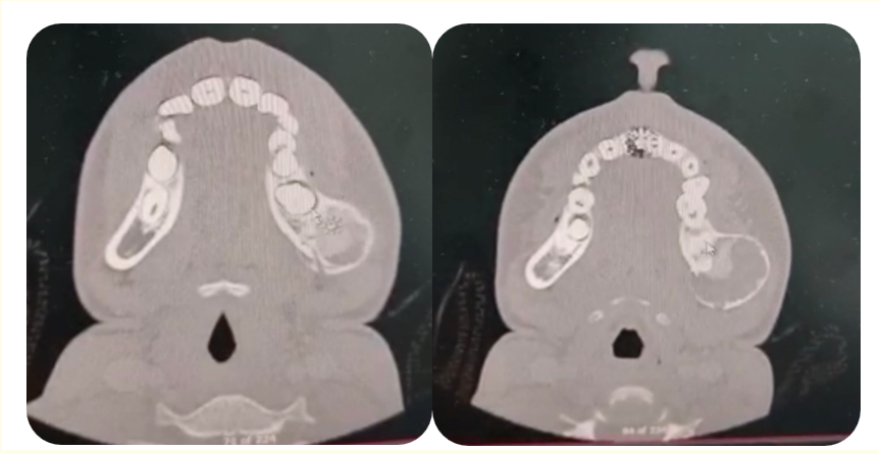


***Figure 1:*** *Cone beam computed tomography axial view.*

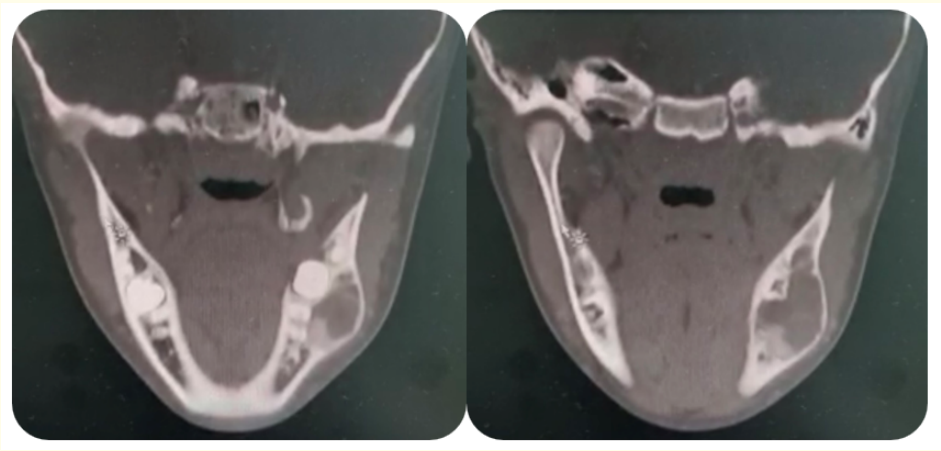
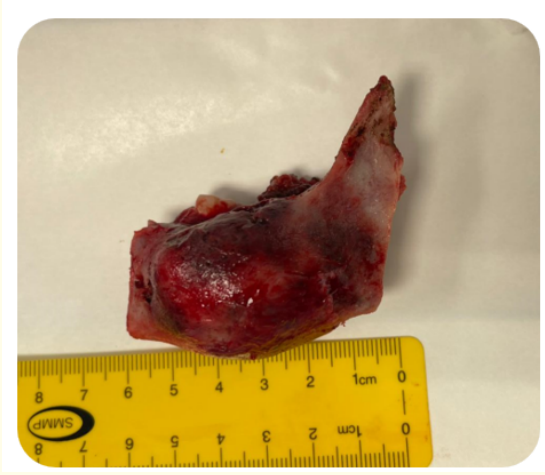


***Figure 2:*** *Cone beam computed tomography coronal view.*

tumour with bone, medial aspect with bone and overlying mucosa (Figure 3). The related report revealed stromal fibroblastic cells, some with hyperchromatic nuclei in a hypercellular stroma with mineralized matrix showing woven and lamellar bone deposits and cementum like calcifications distributed throughout the lesion with scant osteoclasts. Large areas of haemorrhage and cystic change were noted (Figure 4). Follow-up visits show intact surgical site with no signs of recurrence. Patient planned for further therapeutic intervention including iliac bone graft under GA. Follow-up assessment shows good signs of healing however mild marginal mandibular nerve weakness was noticed. Patient continue rehabilitation sessions and referred to ENT for enlarged tonsils and to Paediatric dentistry for further consultation. Two months later patent had surgical intervention for reconstruction plate removal under GA and latest appointment showed intact surgical site with stable occlusion.



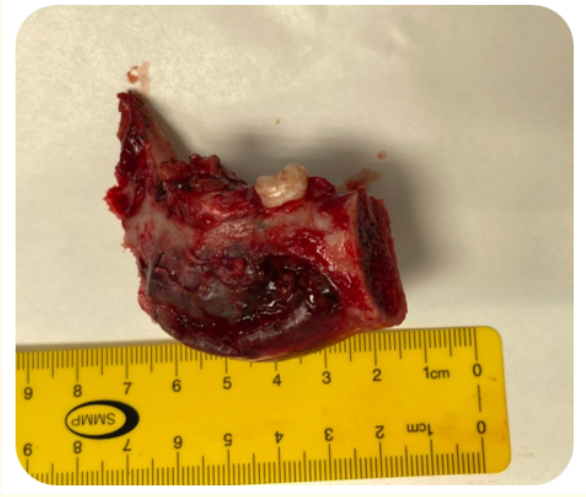


***Figure 3:*** *Specimen after surgical excision of the lesion.*

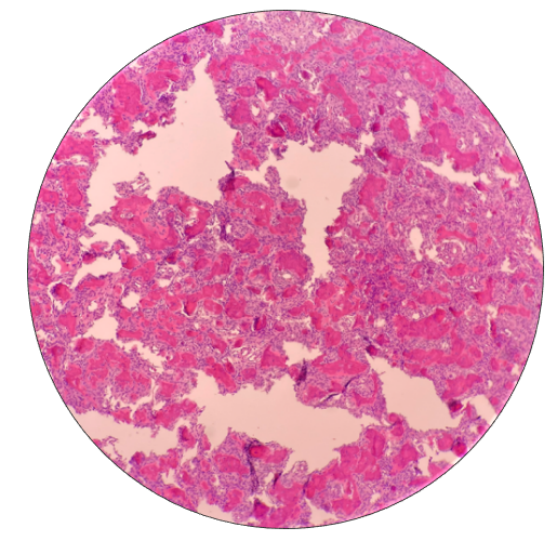


***Figure 4:*** *Histopathological finding of specimen (H&E Original magnification 20x) Cellular fibrous connective tissue containing spherical ossicles composed of a basophilic center with an eosinophilic rim, and brush borders that blend into the surrounding stroma.*

## Discussion

Previous evidence suggested that juvenal ossifying fibroma can be divided into two histological subtypes as trabecular juvenile ossifying fibroma and psammomatoid juvenile ossifying fibroma [5]. Difference between both subtypes can present similar clinical features

however the latter is commonly seen in children while the psammomatoid subtype usually affect older patients [6]. Both subtypes of ossifying fibroma are considered rare however the psammomatoid subtype may considered more frequently reported [5]. The etiopathogenesis is not completely however reports suggests that the etiopathogenesis of JOF may represent different background from that of other lesions such as fibrous dysplasia [7]. Assessment and examination of expected lesions should be done in accordance with other demographic factors to achieve the proper diagnosis and establish the treatment plan. Clinically, JOF may be challenging to discovered unless associated with teeth displacement and/or facial swollen and jaw asymmetry [8]. Other diagnostic measures should be implemented for proper diagnosis as x-rays and CT scans that usually revealed unilateral, unilocular mixed radiolucent/radiopaque lesions but may also reported as complete radiolucent lesions with faint internal radiopacities. JOF may behave aggressively and lead to root resorption and facial deformity [9]. Clinical and radiographic correlation is important in the diagnosis of JOF due to the histologic similarities and over-lapping features with other fibro-osseous lesions such as osteosarcoma, cemento-osseous dysplasia, osteoblastoma and odontogenic tumours [10].

Proposed treatments range from enucleation and curettage to resection of the tumour and reconstruction of associated tissues [7,11]. JOF reported to have relatively increased recurrence rate if not eradicated completely with recurrence rate up to 60% [12]. Of noted, that surgical intervention among patients with JOF is essential however it may negatively impact upon quality of life and functionality of associated orofacial structures thus it requires precise allocation, comprehensive rehabilitation treatment and long-term follow-up to achieve optimal therapeutic outcomes [13].

## Conclusion

Juvenile ossifying fibroma is a variant of ossifying fibroma that is considered as benign proliferative fibro-osseous lesion with great prevalence among young patients. It can affect variety of bony structures such as mandible, maxilla, and paranasal sinuses. Recurrence of JOF is common hence surgical excision and/or resection may be recommended with rapid growth lesions due to its incidence of recurrence and aggressiveness. Therefore, ultimate care should be taken while treating patients with juvenile ossifying fibroma with early diagnosis and proper long-term fellow-up protocol.

## Conflict of Interest

The authors declare no conflicts of interest with regards to this study.

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This study has not received any external funding.

## Informed Consent

Written and Oral informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

## Data Materials Availability

All data associated with this study are present in the paper.

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