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TUMOR OF THE LOWER JAW IN PEDIATRIC PATIENT WITH DEVELOPMENTAL DELAY: A CASE REPORT AND LITERATURE REVIEW

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ABSTRACT

Background: Ossifying fibroma (OF) is a benign bone neoplasm that mostly appears in the jaw. OF generally occurs between the second and fourth decades of life. OF can be challenging for clinicians, especially if the patient is in a vulnerable state. This case is particularly significant as it presents OF in a pediatric patient with developmental delay, which can complicate the diagnostic process and affect the accuracy of the patient's complaints. ***Purpose:*** This article presents a pediatric patient with developmental delay, which shows evidence of a jaw tumour. ***Case:*** A 12-year-old male patient with a chief complaint of swelling that gradually increased in size on the left lower jaw three months ago reported to the Department of Oral and Maxillofacial Surgery Mardi Rahayu Hospital Kudus and later on was diagnosed with OF. This case presents the management of OF in a patient with a particular condition of developmental delay, specifically in socioemotional delay. ***Case Management:*** Management of OF may need comprehensive treatment, including pre-operative preparation, supporting examination through radiographic and microscopic imaging, consideration of excision technique, and post-surgery follow-up. ***Conclusion:*** The unique challenges presented by the patient's developmental delay highlight the need for careful and clear communication of the treatment plan to ensure a good prognosis.

INTRODUCTION

Ossifying fibroma (OF) is a benign bone neoplasm and is considered a type of fibro-osseous lesion. It happens mainly on the mandible. OF often appears as an intrabony mass, is asymptomatic, has slow growth, and causes facial asymmetry. Radiographically, OF shows a unilocular lesion and a well-defined border. This tumour comprises fibrous tissues containing calcified tissue resembling bone, cementum, or both.[1]

Patients with tumours may rarely overcome their condition with a simple treatment plan. This can be challenging for clinicians, moreover, if the patient is in a vulnerable state. This article presents a pediatric patient with developmental delay showing evidence of a jaw tumour.

CASE

A 12-year-old male patient reported swelling on the left lower jaw. The patient informed us that the swelling was discovered three months ago with minimal pain and gradually increased size. The patient did not show any prodromal symptoms. There was no history of paraesthesia or discharge and no complaint of difficulty in mastication. Based on his medical record, the patient was found to have a developmental delay.

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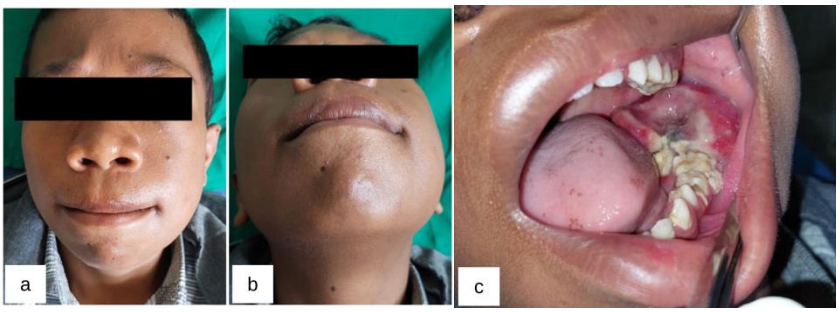

Figure 1. (a, b) clinical extraoral examination showed minimal asymmetry; (c) intraoral condition

Clinical extraoral examination showed minimal asymmetry of the face with diffuse swelling on the left cheeks **(Figures 1a and 1b)**. No underlying ulceration or infiltration was found. The swelling was intraorally seen as a well-defined mass, stooped-like appearance, sessile, and surrounding reddish area due to a bite mark from the left second premolar mandibular region extending to the ramus **(Figure 1c)**. The consistency of the mass was bumpy and solid, with no tenderness during palpation. The first and second molars on the left mandibular were mobile.

The orthopantomogram (OPG) revealed minimal destruction of mandibular bone with a well-defined margin. The second molar teeth appeared floating in space, and there was no wisdom tooth germ on the left mandibular region **(Figure 2)**. A provisional diagnosis of ameloblastoma was considered.

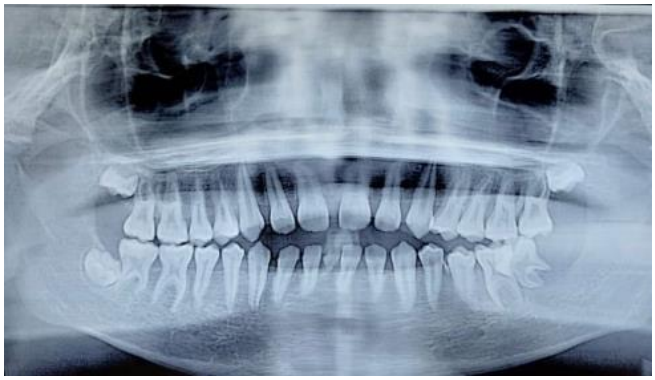

Figure 2. Radiograph examination

CASE MANAGEMENT

The diagnostic reasoning was insufficient to determine the working diagnosis; therefore, supporting examination was still needed. A computed tomography (CT) scan image was taken, showing a hypodense lesion with a well-defined and relatively regular border with 4.25 x 2.93 x 3.22 cm in size located in the left posterior mandibular region, floating teeth in that region, and destruction of the mandibular body near the angle **(Figure 3)**. The lesion pushed the tongue to the medial and the buccinator muscle.

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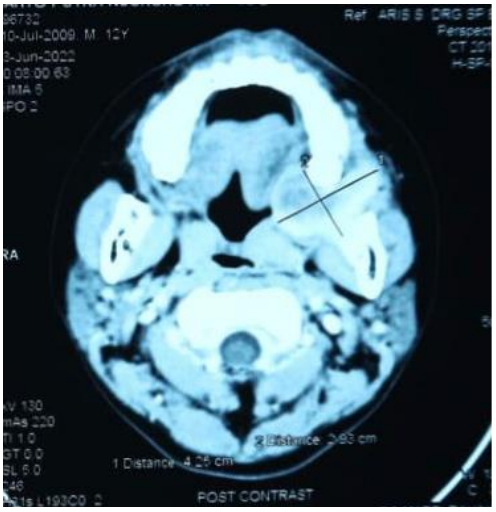

Figure 3. Computed tomography (CT) scan image

During preoperative preparation, the measurement of vital signs was normal. The surgical procedure was performed by tumour excision and marginal mandibulectomy under general anaesthesia **(Figure 4)**. This procedure includes the removal of underlying bones approximately 0.5-1 cm from the margin, which automatically extracts #35, #36, and #37 (FDI tooth numbering system).

Figure 4. Tumor excision

The open wound was then irrigated with saline water and sutured using absorbable silk suture 3-0. The specimen was then submitted for histopathological examination. Postoperative instructions, including wound care and dietary restrictions, and prescriptions for analgesics and antibiotics were given. The patient was scheduled for a follow-up appointment after one week and one month to monitor the healing process and ensure no complications had arisen (Figure 5).

The histopathological examination on microscopic view showed that the tissue is partially encapsulated with complex squamous epithelium. The subepithelial tumour consisted of fibro-collagenous tissue with variations of cellularity. No signs of malignancy were found. The working diagnosis of ossifying fibroma was made. The patient was found to have no complaints on the follow-up appointment after one week and one month **(Figure 5)**.

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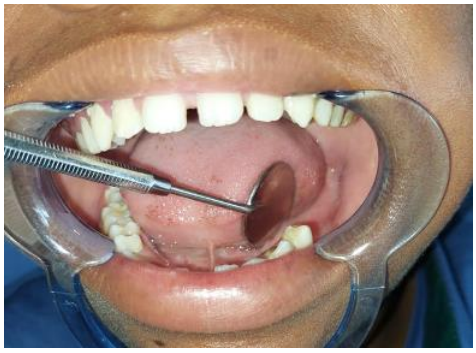

Figure 5. Clinical features after one-month post-surgery

DISCUSSION

OF is a relatively rare benign tumour that mainly affects the mandible. Although OF appears as a single slow-growth lesion, few cases have been reported as multiple tumours. These lesions are more frequent in women and occur more commonly between the second and fourth decades of life.[2] OF emerges into conventional and juvenile. Conventional OF is usually slow-growing and appears in the mandible. Juvenile OF develops in young adults, growing rapidly, and frequently occurs in the maxilla. However, the present case describes a rare conventional OF in a young patient.

Aetiology of OF has been suggested by some authors, such as chromosomal defect and genetic defect,[3] but WHO recognised CDC73 to be the genetic alteration.[4] Histologically, opaque lesions on OF are fibroma tissue that has hardened from fibrous tissue. This is indicated by the high cellular level and high mineralised mineral content.[5]

A thorough clinical and radiographic preoperative evaluation of the dentition and a clinical examination of extraoral and intraoral soft tissues is essential to analyse the lesion.[6,7] This case used OPG and CT to evaluate the lesion and precise anatomical localisation regarding bony boundaries. This case resembles OF in the early stage, showing a hypodense lesion and well-defined border. OF rarely destroys the mandibular jaw, but the destruction showed minimally in this case. This condition indicates that the lesion is aggressive.[1]

The lesion's size and location can determine the management of the OF. Enucleation and curettage are often performed in small OF, while larger OF can be resected.[8] OF with loss of encapsulation and blending with the bone requires resection ranging from peripheral to mandibulectomy.[9] The management, in this case, was performed with excision and marginal mandibulectomy because of the extension to the bone. The extraction of teeth was considered by the extension of the lesion. Extraction of teeth #35, #36, and #37 was considered by that extension of the lesion.

Treating oral pathology in pediatric patients is more complex. It requires unique considerations such as parental consent, knowledge of developing anatomy and dentition, and the potential adverse effects on patients' growth.[6,10] The potential for adverse effects on growth from oral surgery markedly increases the risks and complications in the pediatric population. Hence, it is essential to obtain appropriate medical and dental consultations, anticipate and prevent emergencies, and gather a thorough medical history.[10] Based on the pediatrician's medical record, this patient was diagnosed with developmental delay.

Developmental delay occurs when a child does not reach a developmental milestone. The causes of developmental delay are still unknown, but biological factors, pregnancy complications, and environmental factors are some of the possibilities.[11,12] Developmental delay is classified into cognitive, sensorimotor, socioemotional, and speech-language.[14] This case is included in the socioemotional delay based on his inability to achieve self-regulation, communication, autonomy, affection, adaptive functioning, and interaction. Medical professionals discovered that the patient was raised by his mother. As stated in the previous research, a child raised by single parents was suspected of having socioemotional problems due to a lack of parental involvement.[16]

Managing developmental delay requires a team effort that includes many professionals. A developmental delay may manifest itself in many

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diverse medical and dental complications or compilations of both, which necessitate the care of several multidisciplinary healthcare professionals. Hence, the treatment needs and behaviour management techniques depend on the individual.[17] The objective of treatment planning should encompass assessing the level of cooperating ability for delivering oral care and a thorough review of the underlying medical conditions. Special attention must be given to assessing the pediatric patient before surgery.[10,13]

This case presents children with rare oral pathology lesions combined with a socioemotional delay that, to the present case with OF, should be taken care of by a multidisciplinary professional team to establish a comprehensive care plan. This approach should begin with identifying and addressing the family's concerns, asking open-ended questions regarding socioemotional milestones, and observing parent-child interaction and the child's interaction with the environment, including themselves.[12,15]

In most cases, OF is a benign tumour that can be diagnosed based on clinical and histopathological examinations. However, developmental delay conditions can cause a diagnostic dilemma because they affect subjective complaint accuracy, making the diagnosis possibly invalid. A thorough medical, social, and dental history, adapting to the patient's unique needs, and engaging in interprofessional and multidisciplinary collaborations will help patients receive holistic treatment. Since pediatricians and pedodontists are the first healthcare providers to examine a child for developmental milestones, a careful history and examination can lead to early detection of developmental delay and oral health conditions.[18] Parental and other caregiver involvement in child development is crucial regarding oral hygiene and the overall oral condition of children. Hence, we emphasise the collaboration of multidisciplinary healthcare providers to establish a comprehensive care plan and the role of dentists in the early detection of both oral pathologic conditions and developmental delay in helping patients gain better oral and general health.[19]

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INFORMED CONSENT STATEMENT

Informed consent was obtained from the patient to publish this paper, which is available on demand.

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