Klinik: Jurnal Ilmiah Kedokteran dan Kesehatan
Volume 5, Nomor 3, September 2026
e-ISSN: 2809-2090; p-ISSN: 2809-235X, Hal. 485-491
DOI: https://doi.org/10.55606/klinik.v5i3.7621
Tersedia: https://journalcenter.org/index.php/KLINIK

Mandibula Tumor Dextra Et Causa Ameloblastoma : A Case Report

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Abstract. Ameloblastoma is a benign but locally aggressive odontogenic tumor that commonly arises in the mandible, especially in the posterior region. Despite its histologically benign nature, it can cause significant facial deformity, functional impairment, and high recurrence if inadequately treated. Diagnosis requires a combination of imaging studies and histopathological confirmation. We reported a case of a 22-year-old male who presented with a progressively enlarging painless swelling in the right lower jaw over five years. CT scan revealed a large, well-demarcated, expansile radiolucent lesion measuring 14 × 16 cm in the right mandibular region with signs of cortical destruction. Panoramic radiograph showed multilocular radiolucency with ill-defined margins and root displacement. Physical examination revealed a firm, fixed mass without lymphadenopathy. The patient underwent right hemimandibulectomy with mandibular reconstruction using a plate and screws. Histopathological analysis confirmed a multicystic ameloblastoma. Postoperative recovery was uneventful, and the patient demonstrated satisfactory functional and aesthetic outcomes. This case illustrates the typical clinical and radiological features of multicystic ameloblastoma and highlights the importance of early diagnosis and radical surgical excision. Multicystic ameloblastoma, while benign, shows locally invasive behavior that necessitates segmental resection with clear margins. The absence of lymph node involvement and distant metastasis in this case is consistent with the benign nature of the tumor. Long-term follow-up is essential due to the high risk of recurrence.Early identification and comprehensive surgical management of ameloblastoma are critical to preventing extensive bone destruction and functional compromise. Hemimandibulectomy with reconstruction remains the definitive treatment in large, locally aggressive mandibular ameloblastomas. This case adds to the literature on ameloblastoma management and supports the role of early intervention and long-term monitoring**.**

Keywords: Ameloblastoma; Hemimandibulectomy; Mandibular Reconstruction; Odontogenic Tumor; Recurrence.

1. INTRODUCTION

Ameloblastoma is a benign odontogenic neoplasm originating from odontogenic epithelium without the formation of hard tissues such as enamel or dentin. Although benign, ameloblastoma is known for its locally aggressive, destructive behavior and high recurrence potential if not managed appropriately (Wright & Vered, 2017; Datarkar *et al*., 2022; Widiastuti & Irdana, 2026). It most commonly occurs in the mandible, particularly in the posterior molar and ramus regions, and clinically presents as mandibular swelling, pain, and functional disturbances such as difficulty in mastication and speech (Wright & Vered, 2017; Datarkar *et al*., 2022; Artifasari, 2026). Epidemiologically, ameloblastoma accounts for approximately 10–15% of all odontogenic tumors, with 80% occurring in the mandible, especially in the posterior region. Cases involving the right or left lateral mandible are often asymptomatic in the early stages, leading to late diagnosis with large tumor sizes (Effiom *et al*., 2018; Tamgadge *et al*., 2021; Sembiring et al., 2026).

The clinical challenge of ameloblastoma lies not only in local morbidity but also in the complexity of its management, often requiring radical surgical excision and both functional and esthetic reconstruction particularly for large tumors in the right mandibular region. Without

Naskah Masuk: 13 Mei 2026; Revisi: 23 Juni 2026; Diterima: 04 Juli 2026; Tesedia: 13 Juli 2026

adequate treatment, ameloblastoma can result in facial deformity, impaired mastication and speech, and extensive tissue destruction. Furthermore, desmoplastic and granular cell variants may exhibit more aggressive behavior (Datarkar *et al*., 2022; Tamgadge *et al*., 2021; Azizah et al., 2026).

This case report aims to highlight the clinical and surgical approach to a large right mandibular ameloblastoma, requiring comprehensive radiological evaluation, appropriate resection strategy, and mandibular reconstruction to restore facial function and aesthetics. This report is intended to enrich the scientific literature on ameloblastoma management and serve as a clinical reference for similar cases (Palanisamy & Jenzer, 2025; Kreppel & Zöller, 2018; Siahaan, 2026)

2. CASE PRESENTATION

A 22-year-old male presented with a mass at right lower jaw that had developed over five years. Initially marble-sized, the mass gradually enlarged over the past five years to the size of a tennis ball. It was painless, although the patient reported numbness in the lower lip. He also complained of dental caries. There was no history of chewing difficulty, hearing loss, or weight loss. The patient sought treatment as the mass continued to enlarge. A contrast-enhanced CT scan of the neck performed in November 2024 revealed a large mass in the right mandibular region measuring 14 × 16 cm. The mass was fixed, extending posteriorly from the second premolar to the mandibular angle, suggestive of osteolytic processes. Intraosseous expansion and mandibular bone destruction were suspected, without clear invasion of soft tissue. The destructive lesion appeared localized but aggressive, raising suspicion for multicystic or solid ameloblastoma based on the invasive pattern and lesion size.

A panoramic radiograph in April 2025 showed a large radiolucent lesion on the right mandible involving the area from the premolar to the mandibular angle with ill-defined margins, internal septations, and evidence of root resorption or displacement of adjacent teeth. There was no family history of similar conditions. The patient denied prior masses in the same region. He had a history of smoking for the past five years. No systemic illnesses such as hypertension, diabetes mellitus, renal, cardiac, or pulmonary disease were reported, and there was no history of tooth extraction.

Physical examination revealed stable vital signs and a Visual Analog Scale (VAS) pain score of 0/10. General examination was unremarkable, with no enlargement of head or neck lymph nodes. Local examination of the right mandibular region revealed a tennis-ball-sized mass with skin-colored appearance, no ulceration, measuring approximately 10 × 10 cm, with

a smooth, fixed, non-tender surface. There was no ping-pong or cracking-egg phenomenon. Blood tests showed leukocytosis (18,520/uL), while other laboratory values were within normal limits.

Based on clinical history, physical examination, and imaging, the patient was diagnosed with a right mandibular tumor with differential diagnoses including odontogenic keratocyst, odontogenic cyst, and ameloblastoma. A hemimandibulectomy was planned. Intraoperatively, a fixed tumor measuring 15 × 15 cm was observed in the right mandibular region, with intraoral extension from the second premolar to the mandibular angle. A curvilinear incision was made extending from the lower lip through the mental region and transversely toward the right mastoid and infra-lobular region of the right ear. The incision was deepened to the mandibular bone, and a superior flap was elevated up to the right maxillary zygomatic area. Tumor tissue was excised, and mandibular resection was performed—3 cm below the right condyle to 12 cm distal to the right mandibular angle—followed by reconstruction using a plate and screws.

Histopathological examination of the excised tissue confirmed a diagnosis of multicystic ameloblastoma. The surgery was uneventful, and the patient tolerated the procedure well. Postoperatively, the patient showed favorable recovery without major complications. Adequate functional and esthetic outcomes were achieved following right hemimandibulectomy and mandibular reconstruction. No early recurrence was noted, and the patient reported gradual improvement in paresthesia and chewing function.

3. DISCUSSION

Ameloblastoma is a rare odontogenic tumor believed to originate from epithelial cells derived from the ectodermal germ layer—typically found around tooth roots or within close anatomical proximity. It constitutes approximately 1% of all jaw tumors and is the second most common odontogenic tumor. In this case, the tumor originated from a carious tooth and extended from the second premolar to the mandibular angle—aligning with existing literature that shows higher prevalence in the mandible (especially posterior) than in the maxilla. The tumor may occur across a wide age range but is most frequent between ages 20 and 40, rarely affecting children under 10. There is no significant gender predilection. This patient was 22 years old, consistent with the typical age distribution (Palanisamy & Jenzer, 2025; Hendra *et al*., 2020).

Most ameloblastomas are benign and slow-growing but exhibit locally aggressive behavior that can cause significant pathology and often necessitate extensive surgical management. They may infiltrate bone and, if left untreated, invade adjacent soft tissue. In this

case, the mass gradually enlarged over five years, infiltrating surrounding structures including the second premolar and mandibular bone. Surgical excision is the primary treatment. Despite adequate surgical intervention, ameloblastomas have a high rate of local recurrence, necessitating lifelong surveillance. In this case, a hemimandibulectomy was performed as the definitive treatment due to the tumor's extent. Ameloblastomas are benign and rarely metastasize to regional or distant sites. If metastasis occurs, the lesion is classified as malignant (*malignant ameloblastoma* or *ameloblastic carcinoma*). This explains the absence of lymph node involvement in this patient. Malignant transformation is estimated to occur in less than 1% of cases (Palanisamy & Jenzer, 2025; Gunaratne *et al*., 2015).

Ameloblasts derive from ectodermal epithelium and play a key role in enamel formation during odontogenesis. These cells appear only during tooth development, producing enamel—the outermost layer of the crown—after odontoblasts have deposited primary dentin. Ameloblasts subsequently become part of the enamel epithelium and undergo apoptosis before or shortly after tooth eruption. Residual epithelial deposits, known as *cell rests of Malassez* and *cell rests of Serres,* may persist around teeth. Ameloblastoma is now believed to arise from these residual cells or other enamel organ-derived ectodermal cells (Palanisamy & Jenzer, 2025; Ghai, 2022).

The diagnosis of ameloblastoma requires imaging studies—typically computed tomography (*CT*) scans—as well as histopathological biopsy. *CT* imaging generally reveals a well-demarcated, expansile radiolucent lesion, which may exhibit a unilocular or multilocular pattern. *CT* is also useful for assessing cortical bone destruction and soft tissue extension. On plain radiographs, unicystic ameloblastomas typically present as lytic lesions with scalloped margins, often associated with impacted molars and root resorption. In contrast, multilocular ameloblastomas commonly display the classic "*soap bubble*" appearance. For ameloblastomas arising in the maxilla, magnetic resonance imaging (*MRI*) is more advantageous than *CT* due to its superior ability to delineate tumor extension into the skull base, orbit, or paranasal sinuses. Since there is no pathognomonic radiological feature of ameloblastoma, definitive diagnosis can only be established through biopsy. Histopathological examination is essential in differentiating ameloblastoma from other lesions such as ossifying fibroma, osteomyelitis, giant cell tumor, cystic fibrous dysplasia, myeloma, and sarcoma. Histologically, ameloblastoma is composed of two main cell types: peripheral basal cells resembling ameloblasts and central suprabasal epithelial cells resembling the stellate reticulum. The basal cells are hyperchromatic and columnar in shape, arranged in a palisading pattern oriented perpendicularly to the basement membrane. These cells typically exhibit vacuolated cytoplasm

and nuclear reversal of polarity, with nuclei displaced away from the basement membrane. In contrast, the suprabasal epithelial cells demonstrate bland cytologic features with minimal mitotic activity, reflecting the tumor's slow growth rate. This histopathological appearance is a hallmark of ameloblastoma and plays a critical role in distinguishing it from other odontogenic lesions. In cases of malignant ameloblastoma, preoperative staging is also determined based on biopsy results, whereas in metastatic ameloblastoma, positron emission tomography (*PET*) scanning is generally preferred for detecting distant metastases (Jayasooriya *et al*., 2022; Kreppel & Zöller, 2018).

There are three types of ameloblastoma. *Solid/multicystic ameloblastoma* is the most common variant, consisting of odontogenic epithelium with fibrous stroma. It is locally aggressive, slow-growing, and typically occurs in the posterior mandible. Histological patterns include follicular, plexiform, acanthomatous, granular cell, and desmoplastic. If the inferior mandibular cortex is intact, marginal resection may suffice; otherwise, segmental resection is required, resulting in loss of bone continuity (e.g., hemimandibulectomy). The second type is *unicystic ameloblastoma*, which often radiographically resembles odontogenic cysts, commonly affects younger individuals (second decade of life), and has three histological subtypes: luminal, intraluminal, and mural. *Unicystic ameloblastoma* is generally diagnosed only after histopathological examination, as its clinical and radiological features closely mimic those of odontogenic cysts. On imaging modalities such as *CT* or *MRI*, unicystic ameloblastomas appear as unilocular radiolucent lesions with thin cortical borders, typically associated with unerupted teeth, and frequently cause jaw expansion. Enucleation is preferred for intraluminal or plexiform types, whereas marginal resection is needed for mural involvement. The third type is *peripheral (extraosseous) ameloblastoma*, accounting for only 1–2% of cases, which arises in soft tissues (e.g., gingiva) without direct bone involvement. These lesions are less aggressive and are typically managed successfully with local excision and small tissue margins (Ghai, 2022; Jayasooriya *et al*., 2022; Kreppel & Zöller, 2018).

This case highlights the importance of early diagnosis and management of ameloblastoma. Despite its benign nature, the tumor's locally aggressive behavior and high recurrence rate demand definitive surgical resection with clear margins, especially when the inferior mandible is involved. Hemimandibulectomy is the treatment of choice for extensive bone destruction. Long-term follow-up is critical to monitor recurrence and optimize patient outcomes (Jayasooriya *et al*., 2022; Kreppel & Zöller, 2018).

4. CONCLUSION

This case emphasizes the diagnosis of ameloblastoma and the importance of radical resection with free margins, such as hemimandibulectomy, as a definitive and effective treatment for aggressive multicystic mandibular ameloblastoma. Early intervention and adequate surgical management are essential, particularly for tumors with extensive bone destruction and high recurrence risk. Optimal surgical choice and long-term follow-up are key to achieving favorable clinical outcomes and minimizing recurrence in patients with ameloblastoma.

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