

## **Hemimandibulectomy with full angular mandibular plate reconstruction follicular ameloblastoma patient A case report**

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### **ABSTRACT**

**Introduction :** Ameloblastoma is an aggressive benign of odontogenic origin tumor; cystic shape, slowly growth; no pain; local invasive; infiltrate muscle; and bone destruction. Based on histopathology ameloblastomas are classified: Follicular, acanthomatous, granular cell, basal cell, and plexiform. Follicular and plexiform ameloblastomas are the most common, with incidence rates 27.7% and 21.1%. Follicular ameloblastoma is characterized by recurrence rate (29.5%); plexiform ameloblastoma (16.7%); and acanthomatous ameloblastoma (4.5%). Early diagnosis with prompt and adequate management decrease recurrence and get good prognosis. **Case report :** a 55 y.o. female patient with lump at left cheek since 1 year before admission; initially was small in size; gradually increased, no history of trauma, pain, febrile, and discharge. Based on clinical, histopathological, radiological, CT scan, it was diagnosed follicular ameloblastoma. The treatment was left hemimandibulectomy with full angular mandibular plate reconstruction. **Discussion :** Ameloblastoma is a locally destructive tumor with recurrence if not entirely excised. The goal of treatment ameloblastoma is wide excision and reconstruction of surgical defect. Then, it is followed up to evaluate recurrence, stomatognathic function, and aesthetic problems. **Conclusion :** Prognosis is good if an early diagnosis of the lesion is made with prompt and adequate surgical intervention.

**Keywords:** Follicular ameloblastoma, hemimandibulectomy, full angular mandibular plate reconstruction.

## ABSTRAK

*Pendahuluan* : ameloblastoma adalah tumor odontogenik jinak dan agresif; berbentuk kista; tumbuh lambat; tidak nyeri; berinvasi lokal; menginfiltrasi otot, dan mendestruksi tulang. Berdasarkan gambaran histopatologis dibedakan: follikular, akantoma, sel granular, sel basal, dan plexiform. Ameloblastoma follikular dan plexiform paling sering terjadi; insidensi 27.7% dan 21.1%. Rekurensi ameloblastoma Follikular adalah 29.5%; ameloblastoma plexiform (16.7%); dan ameloblastoma akantoma (4.5%). Deteksi dini dengan manajemen perawatan yang adekuat dan komprehensif menurunkan tingkat rekurensi dan prognosis yang baik. *Objektif*: mengevaluasi rekurensi ameloblastoma follikular; mengevaluasi gangguan fungsi stomatognatik dan estetik setelah pembedahan. *Laporan kasus*: pasien perempuan berumur 55 tahun mengeluhkan adanya benjolan di pipi kiri sejak ± 1 tahun yang lalu; awalnya berukuran kecil dan semakin membesar; tidak ada riwayat trauma, nyeri, demam, dan produksi cairan dari benjolan tersebut. Berdasarkan pemeriksaan klinis, histopatologi, radiologi, dan CT scan kepala didiagnosis ameloblastoma follikular. *Manajemen perawatan* pada pasien ini adalah hemimandibulectomi sinistra dengan rekonstruksi full angular mandibular plate. *Pembahasan*: ameloblastoma adalah tumor jinak yang mendestruksi sekitar dan memiliki rekurensi tinggi bila tidak dilakukan terapi eksisi luas. *Manajemen utama perawatana* meloblastoma adalah eksisi luas dan rekonstruksi untuk mengatasi defek setelah pembedahan. Kemudian, observasi untuk menilai rekurensi, gangguan fungsi stomatognati, dan estetik. *Kesimpulan*: Prognosis yang baik diperoleh bila diagnosis dini dan manajemen intervensi bedah tepat dilakukan.

*Kata Kunci*: ameloblastoma follikular, hemimandibulectomi, rekonstruksi full angular, mandibular plate

## INTRODUCTION

Many benign lesions cause mandibular swellings, and these can be divided into those of odontogenic and nonodontogenic origin. Lesions include ameloblastoma, radicular cyst, dentigerous cyst, keratocystic odontogenic tumour, central giant cell granuloma, fibro-osseous lesions and osteomas.<sup>1</sup> The most common tumour of odontogenic origin is ameloblastoma, which develops from epithelial cellular elements and dental tissues in their various phases of development. It is a slow-growing, persistent, and locally aggressive neoplasm of epithelial origin. It's peak incidence is in the 3rd to 4th decades of life and has an equal sex distribution. It is often associated with an unerupted third molar.<sup>2</sup> It may be detected during the course of routine radiography. The goal of treatment ameloblastoma is to achieve complete excision and appropriate reconstruction.<sup>4</sup>

## CASE REPORT

A 55-year-old female patient reported to the Department of Oncology Surgery, Hasan Sadikin

Hospital with complaint swelling at left cheek since 1 years ago. History of tooth extraction at left lower molar 4 year ago in RSUD. Ujung Berung. Present illness revealed that initially the swelling was small like marble in size and gradually it increased to reach upto present like baseball in size. It was not associated with any pain or discharge. Patient had no complaint of dysphagia, trismus, dysphonia fever, chills, loss of weight and parasthesia. Her past medical history was not significant.

On extraorally examination a multiple oval swelling was present on the left face extending antero-posteriorly from the posterior border of the mandibular to 1 cm behind the corner of the mouth, and from the line joining the corner of the mouth to tragus of the ear to 10 cm below the lower border of the mandibular, roughly measuring about 15 × 10 × 7 cm in size with no secondary changes. On palpation swelling was bony hard in consistency with no elevated, temperature and pain. On intraoral examination, left lower premolar tooth were clinically missing with vestibular obliteration in relation to the right mandibular posterior teeth (Figure 1). Based on a clinical picture a provisional diagnosis of ameloblastoma was considered.



Figure 1. Patient profile showing extraorally and intraorally picture.

Patient was subjected to biopsy incision examination. Incisional biopsy was done which revealed odontogenic follicles exhibit tall columnar ameloblast like cells containing stellate reticulum like cells with background stroma made of fibrocollagen with moderate vascularity (figure 2).

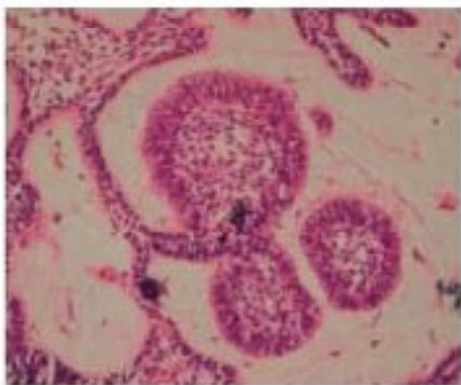


Figure 2. Histopathological picture showing follicle of epithelial islands.



Figure 3. X-ray examination; chest illustrating no signs of metastasis intrapulmonary; panoramic, skull PA lateral illustrating tumor eroding os. mandibular.

Chest radiographic revealed no signs any intrapulmonary metastasis. Panoramic radiographic revealed a multilocular radiolucency extending from distal aspect of left lower premolar tooth to retromolar pad area roughly oval, measuring about 15 x 10 cm in size with septae in between the radiolucent area giving soap bubble appearance along with expansion of inferior border of mandible in right body region. Skull anteroposterior and lateral radiograph revealed that bone destruction extend to left hemimandibular (Figure 3).

CT scan expertised: Cystic septae mass with air fluid level which in left mandibular which obliterate left body mandibular, left os.maxillary, upper teeth, and left lower , left masseter muscle, buccinator, left medial pterygoid, left glandula parotis, left submandibular glandula, extend to soft tissue left temporal origin, differential diagnose? Ameloblastoma, odontogenic Keratocyst, no signs cranial base destruction. So, a final diagnosis of follicular ameloblastoma was made (figure 4).

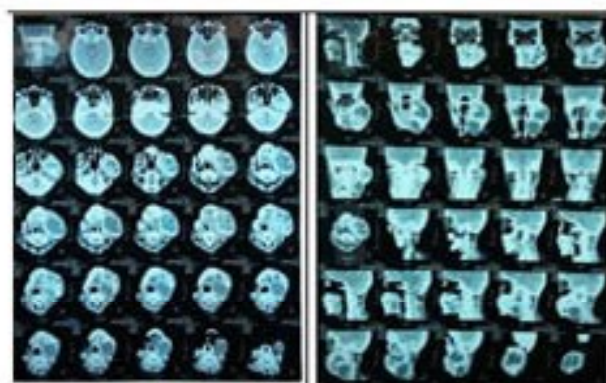


Figure 4. CT scan examination showing that mass obliterate left body mandibular, left os.maxillary, upper teeth, and left lower , left masseter muscle, buccinator, left medial pterygoid, left glandula parotis, left submandibular glandula, extend to soft tissue left temporal origin.

## DISCUSSION

Ameloblastoma represents 1% of all tumors and cysts that involve maxillomandibular area and about 10% of odontogenic tumors. It is arising in the mandibular in over 80% of cases. The posterior region and the ascendant ramus are the most involved areas. In the mandibular (80% of ameloblastomas), 70% are located in the area of the molars or the ascending ramus, 20% in the premolar region, and 10% in the anterior region<sup>5</sup>. The conventional solid ameloblastoma

is encountered over a wider age range being commonly reported in the 3<sup>rd</sup>-5<sup>th</sup> decade of life. The occurrence of ameloblastoma in younger age group is considered a rarity and it accounts for approximately 10-15% of all reported cases of ameloblastoma. The tumour is even less common in children younger than 10 years of age and relatively uncommon in the 10-19-year-old age group with no significant gender predilection.<sup>9</sup>

Follicular ameloblastoma presents as a painless swelling or slow expansion of the jaws, and it is described as multilocular expansile radiolucency having soap bubble or honey comb appearance, a classic finding which was also demonstrated in our case. In our case swelling was hard, painless to palpation and covered, by normal mucosa. Follicular pattern simulates the developing dental follicle and the enamel organ by arranging the epithelial cells to resemble stellate reticulum. Follicular ameloblastoma consists of discrete follicles with similarity to the stellate reticulum of enamel organ and with the varying quantity of conjunctive tissue stroma. Our findings also agreed with the data given in the literature.<sup>10</sup>

Ameloblastoma is a locally destructive tumor with a propensity for recurrence if not entirely excised. The goal of treatment ameloblastoma is to achieve complete removal of the lesion and appropriate reconstruction of surgical defect. Optimal treatment of ameloblastoma consists of wide surgical excision. Follicular ameloblastoma is characterised by higher recurrence rate (29.5%) compared to plexiform ameloblastoma (16.7%) and ancanthomatous ameloblastoma (4.5%). The continuing evaluations are significant to detect any recurrence.<sup>10</sup>

In this case, CT scan interpretation show that the mass infiltrate to the left maxilla and left parotis glandula, but in physical examination and intraoperative finding were lead that mass expansive to os maxilla and not obliterate, so the management had not performed maxillectomy. Wide surgical excision that had performed was left hemimandibulectomy and reconstruction with full angular mandibular plate 17 holes and 3 screws. Mandibulectomy that includes the entire ascending ramus, condyle and coronoid can either be a posterior segmental mandibulectomy (posterior to mental foramen) or hemimandibulectomy.

Hemimandibulectomy is indicated when there is gross bone erosion, either clinically or radiologically; for significant paramandibular disease; for postradiotherapy recurrence due to the multiple routes of tumour entry; or with a pipe stem mandibular (inadequate bony remnant of <1cm in height).<sup>11</sup>

Surgical approaches was performed by outline incision midline lip split. When a lesion is located away from the oral commissure, the lip is split in the midline. This incision maintains better oral competence. The incision is continued over the mentum, curving towards the hyoid up to the mastoid process along a suitable skin crease at least 1-2 finger breadths below the mandibular and included the mass. The midline lip split incision can be modified for better cosmetic. may be required with deep-seated tumours extending posteriorly beyond the retromolar trigone. The masseter muscle is reflected off the bone or is included with the specimen depending on the extent of the tumour.

The coronoid process is exposed and released from its attachment to the temporalis muscle,

remaining close to the bone to avoid injuring the vessels medial to the coronoid process. With the mandibular now mobile and swung out laterally, the posterior mucosal cuts can be made behind the tumour, cutting through medial pterygoid muscle and its attachments to the lateral pterygoid plate and the maxillary tuberosity, and the inferior alveolar nerve (and lingual nerve) at its entry into the mandibular canal. The maxillary artery may have to be ligated in the sigmoid notch. Right central incisor tooth was extracted because no alveolar bone to support. The mandibular condyle is released from the lateral pterygoid muscle and hemimandibular with distance 2 cm from the edge of mass is cut of the mass and tumour are delivered. The mass 15x10x7 cm in size. Lymphadenectomy of left submandibular nodes are performed to prevent intranodes metastasis. Then, placed full angular mandibular plate 17 hole with the butt plate placed in glenoid fossa origin and the butt end placed in the health os mandibular origin with 3 screw fixation. Tube drain placed to deliver exudate to prevent dead space and infection (Figure. 5).

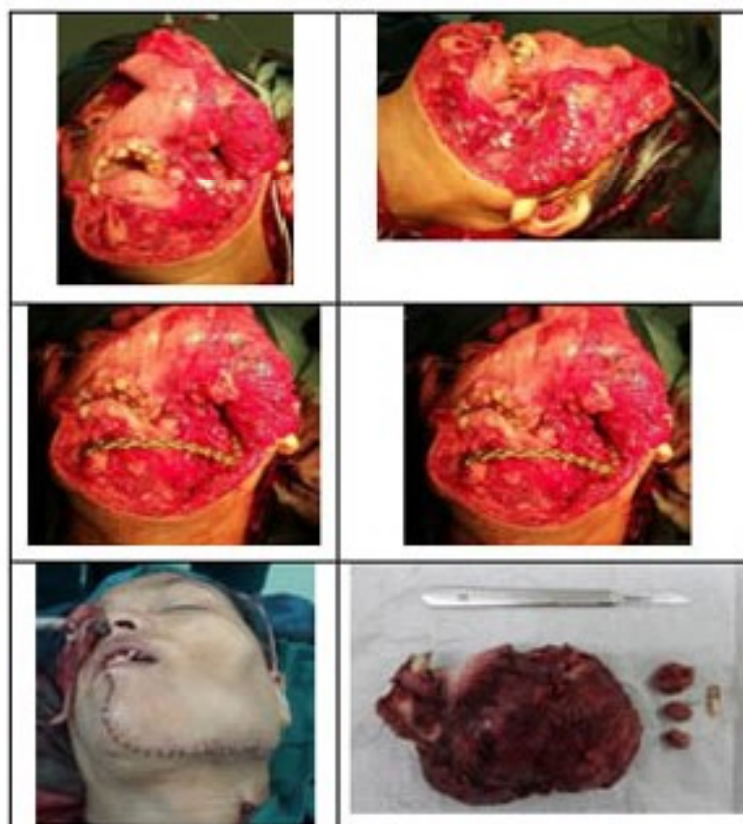


Figure 5. Intraoperative showing that mass, submandibular nodes, and right central incisor lower tooth had removed.

After postoperative 1 day, the patient followed up at ward with pain complaint, consciousness compositis, stabilize hemodynamic, visual analogue scale moderate pain, with nasogastric tube maintain for nutrition feeding, exudate production 100 cc in 24 hours (Fig. 6).

After post operative 3 day, the patient followed up at ward with no complaint, consciousness compositis, stabilize hemodynamic, visual analogue scale no pain, nasogastric tube and tube drain were removed with minimal exudate production. Intraorally finding show epithelization, no found wound dehiscence, and intact suturing. The patient discharged and plan to control to Oncology surgery policlinic (figure 7).



Figure 6. Post operative 1 day.



Figure 7. Post operative 3 day.



Figure 8. Post operative day 1 week



Figure 9. Post operative day 3 month

After post operative one week, the patient came to control at oncology surgery policlinic with no complaint, consciousness compos mentis, stabilize hemodynamic, visual analogue scale no pain, and performed suture removal extraorally and intraorally (figure 8). After post operative 3 month, the patient came to control at Oncology surgery policlinic with no complaint, consciousness compos mentis, stabilize hemodynamic, visual analogue scale no pain. Intraorally finding no wound dehiscence, complete epithelization, and no plate expose. Panoramic radiograph evaluation, no found signs of any recurrence, and intact full angular plate at left mandibular. (figure 9).

## CONCLUSION

Ameloblastoma is an aggressive tumor of odontogenic origin. Treatment decisions for ameloblastoma are based on the individual patient situation and the best judgement of the surgeon. Cases of ameloblastoma should thus be studied carefully, correlating their histologic pattern with biologic behavior to detect subtle changes in histology that may predict aggressive behavior. Prognosis is good if an early diagnosis of the lesion is made with prompt surgical intervention.

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