

Ameloblastoma Cases in the Mandible: Experience from the Professor Hamady Traoré National Center of Odonto-Stomatology of Bamako

Keita, K¹, Coulibaly, A^{1,3*}, Maiga, A. S², Fongoro, H¹, Traore, A¹, Ba, M^{1,3}, Ba, B^{1,3}

¹Department of Stomatology and Maxillofacial Surgery, CHU-CNOS, Bamako, Mali

²Armed Forces Polyclinic of Kati

³Faculty of Medicine and Odonto-Stomatology, Bamako, Mali

DOI: <https://doi.org/10.36347/sjds.2024.v11i06.003>

| Received: 09.06.2024 | Accepted: 10.08.2024 | Published: 24.08.2024

*Corresponding author: Coulibaly, A

Department of Stomatology and Maxillofacial Surgery, CHU-CNOS, Bamako, Mali

Abstract

Original Research Article

Introduction: Mandibular ameloblastoma is the most common benign odontogenic tumour in stomatological and maxillofacial surgery practice. The aim of this work was to study the epidemiological, anatomopathological and therapeutic aspects of mandibular ameloblastoma in our context. **Methodology:** It was a descriptive cross-sectional study over a 4-year period (January 2017 to December 2020) of cases of mandibular ameloblastoma confirmed by histology of the operative specimen in the stomatology and maxillofacial surgery department of the CHU-CNOS in Bamako. Data were collected on a survey form, entered and analyzed using SPSS version 19.0 software. **Results:** There were 44-recorded cases. Males accounted for 61.36% of cases, with an M/F sex ratio of 1.6. The mean age was 33 years, with a standard deviation of 12 years. The 20-40 age bracket was in the majority (52.27%). In 79.55% of cases, patients consulted for swelling with facial deformity. Dental signs such as mobility, displacement or absence were found in 97.72% of cases. Hemi-mandibular location was the most frequent (45.45%). The main histological type was follicular ameloblastoma in 88.64% of cases. Radical surgery with disarticulation was performed in 47.73% of cases. **Conclusion:** Mandibular ameloblastoma is common in young adults. Radical surgery is the current trend. Reconstructive techniques are still limited in a context of underdevelopment.

Mots clés: Ameloblastoma, Mandible, Resection, Bamako.

Copyright © 2024 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

According to WHO Ameloblastoma is defined as a benign but locally invasive polymorphic “neoplasm”, most often with follicular or plexiform architecture in a “fibrous stroma”. Ameloblastoma is the most common benign odontogenic tumor. Its area of predilection is the mandible, and it accounts for 30% of benign tumours of this location [1, 2]. The management of mandibular ameloblastoma primarily involves surgical intervention, presenting a significant challenge for maxillofacial surgeons. This challenge encompasses selecting the appropriate surgical technique and addressing the potential loss of tissue that may require reconstruction.

The aim of this study was to examine the epidemiological-clinical, histological and therapeutic aspects of mandibular ameloblastoma.

METHODOLOGIE

The study was a descriptive cross-sectional study conducted from January 2017 to December 2020, spanning a duration of 4 years at the Department of Stomatology and Maxillofacial Surgery of the National Center of Odonto-Stomatology in Bamako.

All cases of mandibular ameloblastoma that underwent surgical treatment, confirmed by anatomopathological examination of the surgical specimen and possessing complete medical-surgical records, were included in this study. The variables examined included age, sex, occupation, reason for consultation, lesion site, radiological images, histological type, surgical techniques employed, reconstruction methods utilized, and any complications. Data were entered and analyzed using SPSS version 19 software, with strict adherence to anonymity and confidentiality of the collected information.

RESULTS

A total of 44 cases of mandibular ameloblastoma were identified from 5088 consultations, resulting in a hospital prevalence of 0.86%. The annual average incidence was 11 cases. The study cohort included 27 men (61.36%) and 17 women (38.64%), with a sex ratio of 1.6. The mean age was 33 years, with a standard deviation of 12 years, and the most frequent age group affected was 20-40 years, representing 52.27% of cases. Shopkeepers constituted the largest occupational group affected, accounting for 27.27% of cases.

The primary reason for consultation was swelling with facial deformity, observed in 79.55% of patients, while 25% reported pain. Hemi-mandibular involvement was noted in 45.45% of cases. CT scans were performed for 22 patients, revealing a predominantly unilocular radiological appearance in 70.45% of cases.

Radical surgery with disarticulation was the predominant surgical approach, utilized in 47.73% of cases. For the majority of patients (61.36%), this was their initial presentation of ameloblastoma. Primary recurrence occurred in 36.36% of cases, with secondary recurrence in 6.36%. Immediate endoprosthetic reconstruction was performed in approximately 75% of cases.

Histopathological examination of surgical specimens confirmed typical ameloblastoma in 88.64% of cases. Other histological variants included plexiform ameloblastoma (2 cases), fibroameloblastoma (1 case), recurrent ameloblastoma (1 case), and ameloblastoma associated with an epidermoid cyst (1 case).

Post-operative complications were observed in 5 patients, with manifestations including labio-mental hypoesthesia (2 cases), exposure of reconstruction materials (2 cases), and 1 case of post-operative bleeding.

Table I: Distribution of patients by age group

| Age Groupe (Years) | Number | Percentage (%) |
|--------------------|--------|----------------|
| < 20 | 7 | 15,91 |
| 20 à 40 | 23 | 52,27 |
| 40 à 60 | 13 | 29,54 |
| > 60 | 1 | 2,27 |
| Total | 44 | 100 |

Table II: Distribution of patients by tumot site

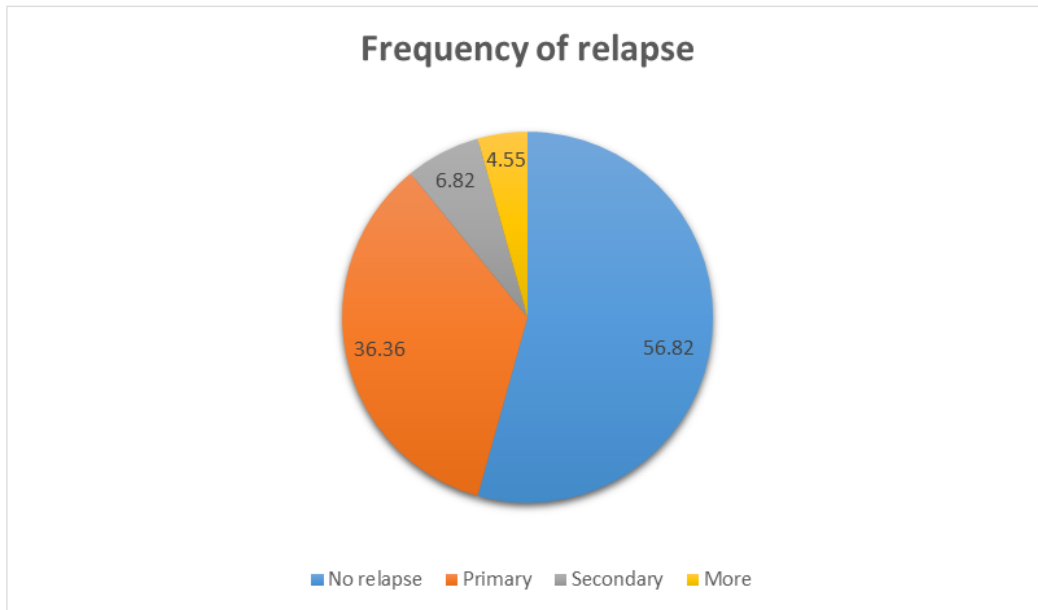
| Site | Number | Percentage (%) |
|----------------------|--------|----------------|
| Half mandible | 20 | 45,45 |
| Body of the mandible | 18 | 40,91 |
| Body and Ramus | 4 | 9,09 |
| Mandibular symphysis | 2 | 4,55 |
| Total | 44 | 100 |

Table III: Distribution of patients by type of surgical intervention Local college enrolment, 2005

| Type of intervention | Number | Percentage (%) |
|---------------------------------------|--------|----------------|
| Radical surgery with joint removal | 21 | 47,73 |
| Radical surgery without joint removal | 16 | 36,36 |
| Preservative surgery | 7 | 15,91 |
| Total | 44 | 100 |

Table IV: Distribution of patients by histology nature

| Histology Nature | Number | Percentage (%) |
|--|--------|----------------|
| Ameloblastoma | 39 | 88,64 |
| Plexi-type ameloblastoma | 2 | 4,55 |
| Fibro-ameloblastoma | 1 | 2,27 |
| Reworked ameloblastoma | 1 | 2,27 |
| Ameloblastoma associated with a squamous cell cyst | 1 | 2,27 |
| Total | 44 | 100 |



DISCUSSION

Mandibular ameloblastoma is highly prevalent, constituting 80-95% of all maxillary localizations depending on the series. Hospitalization rates vary widely across studies [2-7]. For instance, ANASS EL H in Marrakech [6] reported 11 cases in 2016, while Crezoit E in Abidjan [7] found an annual incidence of 3.75 cases. A previous study in Mali by BA B in 2016 documented 51 cases of mandibular ameloblastoma over a 3-year period [8]. There has been a noted decrease in frequency in Bamako, possibly influenced by the relocation of specialized practitioners to different regions of Mali over the past 5 years.

Ameloblastoma can manifest at any age and in both sexes. In this series, there was a male predominance, and the 20-40 age group was predominantly affected, aligning with findings reported by other authors [3-8].

The primary reason for consultation in this study was swelling with facial deformity, accounting for 79.55% of cases. These findings are consistent with reports from other African studies [3-8].

Ameloblastoma is a slow-growing tumor that often remains asymptomatic for a prolonged period. While in developed countries it is frequently detected incidentally during routine radiological screenings, in Africa patients typically seek medical attention only when the tumor has progressed significantly, resulting in noticeable facial deformities. According to Gadegbeku S *et al.*, [17], in developing countries, ameloblastoma is characterized by its large size at diagnosis and delayed presentation.

There are two main approaches to removing mandibular ameloblastoma: a conservative method and an aggressive surgical approach. The conservative

method allows patients to reintegrate into society and work more quickly. It also provides time for histological confirmation, with minimal surgical after-effects. However, it carries a higher risk of recurrence and potential malignant transformation. CERNEA reported a recurrence rate of 76% after enucleation [18], while Carlietr [19] found cure rates of only 23% with conservative procedures compared to 87% with more extensive surgery.

Radical treatment options for mandibular ameloblastoma include non-interrupting mandibulectomy or marginal resection, aimed at removing the tumor without disrupting mandibular continuity, and interrupting mandibulectomy, which involves breaking the mandibular arch continuity. In our study, the majority of patients (47.73%) underwent interrupting mandibulectomy. This trend towards radical surgical approaches appears to be the most effective method for managing mandibular ameloblastoma [3, 4]. Despite the various histological subtypes, the follicular variant remains the most common [1].

CONCLUSION

Mandibular ameloblastoma predominantly affects young adults. Radical surgery is currently favored as the treatment of choice. However, reconstructive techniques remain limited, particularly in underdeveloped settings.

REFERENCES

1. Kramar, I. R. H., Pindborg, J. J., & Shear, M. (1992). Histological typing of Odontogenic tumours. World Health Organization. *J Dent Assoc S Afr*, 47(5), 208-210.
2. Catherine, Z., Isaac, S., Cotton, F., Roch, J., Rousset, M., Bouletreau, P., & Breton, P. (2013). Améloblastome géant mandibulaire. *Revue de*

- Stomatologie, de Chirurgie Maxillo-faciale et de Chirurgie Orale*, 114(2), 97-101.
3. Konsem, T., & Millogo, M. (2018). Maxillary Ameloblastoma, Epidemiological Aspects and Treatment at the Yalgado Ouedraogo University Hospital (Burkina Faso). *Open Journal of Stomatology*, 8(5), 149-157.
 4. Ba, B., Keita, K., Coulibaly, A., Ba, M., Touré, A., Koita, H., ... & Diombana, M. L. (2017). Les Ameloblastomes Des Maxillaires Au Centre Hopsitalier Universitaire D'odontomatologie De Bamako. *Mali Médical*, 32(2), 1-6.
 5. Coulibaly, A., Traoré, H., Koné, R., Diarra, D., Kassambara, A., & Ba, B. (2021). Prise en charge de l'améloblastome des maxillaires au centre national d'odonto-stomatologie de Bamako. *Rev Col Odonto-Stomatol Afr Chir Maxillo-fac*, 28(4), 67-70.
 6. El Anass, H. (2016). La prise en charge chirurgicale des améloblastomes mandibulaires. Thèse de médecine, 126 Faculté de Médecine et de Pharmacie de Marrakech année 2016.
 7. Crezoit, G. E., Gadegbeku, S., Ouattara, B., & Bile, J. L. A. (2003). Etude rétrospective de 30 cas d'améloblastome mandibulaire opérés en Côte d'Ivoire de 1992 à 2000. *Revue de stomatologie et de chirurgie maxillo-faciale*, 104(1), 25-28.
 8. Ba, B., Doumbia, K. S., Diallo, M., Coulibaly, A. D., Théra, T. D., Keita, K., Doumbia, I., Touré, A., Koita, H., Guindo, M., & Coulibaly, T. D, & Diombana, M. L. (2016). L'améloblastome mandibulaire: à propos de 51 cas. *Med Buccale Chir Buccale*, 22, 7-11.
 9. Vallicioni, J., Loun, B., Dassonville, O., Poissonnet, G., Ettore, F., & Demard, F. (2007). Les améloblastomes Annales d'otolaryngologie et de chirurgie cervico-faciale, 124(4), 166-171.
 10. Anzouan-Kacou, E., Assouan, C., Yapou, R., Nguessan, D., Salami, A., & Konan, E. (2021). Profil épidémiologique et clinique de l'améloblastome des maxillaires au chu de Treichville. *Rev Col Odonto-Stomatol Afr Chir Maxillo-fac*, 28(3), 25-28.
 11. Agbaje, J. O., Olumuyiwa Adisa, A., & Ivanova Petrova, M. (2018). Profil biologique de l'améloblastome et son emplacement dans la mâchoire chez 1246 Nigériens. *Oral Surg Oral Med Oral Pathol Oral Radiol*, 126, 424-431.
 12. Hresko, A., Burtyn, O., Pavlovskiy, L., Snisarevskiy, P., Lapshyna, J., & Chepurnyi, Y. (2021). Controverses dans la prise en charge de l'améloblastome: évaluation de la prise de décision, basée sur une analyse rétrospective. *Med Oral Patol Oral Cir Bucal*, 26(2), 181-186.
 13. Intapa, C. (2017). Analyse de la prévalence et des caractéristiques cliniques de l'améloblastome et de ses sous-types histopathologiques dans le sud-est du Myanmar et les populations inférieures du nord de la Thaïlande: une étude rétrospective de 13 ans. *J Clin Diagn Res*, 11, 102-106.
 14. Hendra F. N., Van Cann, E. M., & Helder, M. N. (2020). Incidence et profil mondiaux de l'améloblastome : revue systématique et méta-analyse. *Dis Orale*, 26, 12-21.
 15. Ruhin-Poncet, B., Bouattour, A., Picard, A., Menard, P., Capron, F., & Bertrand, J. C. (2011). Améloblastomes des mâchoires. Analyse rétrospective de 1994 à 2007. *Revue de Stomatologie et de Chirurgie Maxillo-faciale*, 112(5), 269-279.
 16. Benbakh, Z., Abada, R., Roubal, J., & Mahtar, M. (2014). Améloblastome mandibulaire: série de cas. *Annales françaises d'Oto-rhino-laryngologie et de Pathologie Cervico-faciale*, 131(4), A125.
 17. Gadegbeku, S., Crezoit, G. E., Aka, G. K., Adou, A., Angoh, Y., & Mareg, F. B. (1994). L'améloblastome en milieu africain. *Revue de stomatologie et de chirurgie maxillo-faciale*, 95, 70.
 18. Cernea, P., Guilbert, F., Rouchon, C., Brocheriou, C., & Payen, J. (1974). Les récides des améloblastomes des maxillaires. Etude statistique, indications thérapeutiques. *Rev Stomatol (Paris)*, 75(1), 18-26.
 19. Carlier, G., Donazzan, M., Vendenbussche, F., Larere, L., & Sence, J. (1974). Quelques considérations chiffrées sur la récidence des améloblastomes. *Rev Stomatol*, 75(1), 37-41.