

## Original Research Article

# Maxillo-Mandibular Odontogenic Tumors: Anatomopathological and Clinical Profile Owendo University Hospital

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**Abstract:** **Introduction:** Maxillomandibular tumors are neoformations that develop on the mandible or maxilla, and may be benign or malignant. When they are related to elements of the dental system, they are called odontogenic maxillo-mandibular tumors. **Objective:** To study the anatomical and clinical features of odontogenic maxillo-mandibular tumors. **Patients and Methods:** This was a retrospective, observational, descriptive, analytical and monocentric study conducted in the Department of Stomatology and Maxillofacial Surgery over a 6-year period, from March 2016 to June 2022. All patients with histologically proven odontogenic maxillo-mandibular tumours were included. Non-odontogenic tumours and incomplete files were excluded. The parameters studied were: Epidemiological data (prevalence, sex, age, occupation, history), histo-clinical data (time to consultation, functional signs, physical signs), paraclinical data (imaging, anatomopathology). **Results:** The number of cases collected was 35. Odontogenic maxillo-mandibular tumours accounted for 34.3% of all maxillo-mandibular tumours. The mean age was 31.63 years, with extremes ranging from 03 to 68 years. The sex ratio was 0.94, with females predominating. Unemployment accounted for 40% of cases. Maxillary or mandibular swelling was present in 94.3% of patients, and dental extraction was performed in 34.3%. CT scans were performed in 82.8% of patients. Anatomopathological examination revealed 88.6% benign tumours and 11.4% malignant tumours (4 patients). Ameloblastoma accounted for 61.3% of benign tumours. Ameloblastic carcinoma accounted for 50% of malignant tumours. **Conclusion:** Maxillo-mandibular odontogenic tumours are common and are revealed by maxillary or mandibular swelling. Their characteristics differ according to whether they are benign or malignant. Ameloblastoma is the most common maxillo-mandibular odontogenic tumor.

**Keywords:** Maxillomandibular tumors, anatomopathology, mandibular swelling, Ameloblastic carcinoma.

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## INTRODUCTION

The face is an anatomical region of functional as well as aesthetic importance as aesthetic. Various pathologies are encountered, including tumor pathologies, which are the anarchic development of cells. They may be benign or malignant. When they are of dental origin, they are called odontogenic tumors, or of non-dental origin, they are called non-odontogenic tumors.

FERNANDES A.M. *et al.*, in Brazil [1] noted in their study that odontogenic tumors accounted for 1.78% of cases recorded in oral pathologies. LUO HY and LI TJ in China [2], LADEINDE A.L. *et al.*, in

Nigeria [3] reported that odontogenic tumors accounted for 3.92% and 9.6% respectively of all biopsies analyzed during the same study period. In the same series, 94.4% and 96.6% of cases were benign tumours, compared with 5.06% and 3.4% malignant tumours respectively.

Clinical semiology remains the starting point for quality diagnostic preorientation. A study by Benwadihs *et al.*, [4] in Morocco showed that jugal swelling was the main symptom, with pain present in 24% of subjects, and dental signs such as tooth mobility in 35%. On endobuccal examination, inflammation of the mucosa was present in 12% of cases.

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The radiological examination remains an essential step in orienting the diagnosis and treatment. But the diagnosis is given by the results of the anatomopathological examination obtained from a biopsy sample, and above all from the surgical specimen.

The aim of our study is to determine the anatomopathological and clinical profile of odontogenic maxillo-mandibular tumors.

## PATIENTS AND METHODS

This is a retrospective, observational, descriptive and analytical monocentric study conducted in the Department of Stomatology and Maxillofacial Surgery over a 6-year period, from March 2016 to June 2022. All patients hospitalized for odontogenic maxillo-mandibular tumors with an anatomopathological report confirming the diagnosis and who underwent surgery were included in the study. Patients with non-odontogenic maxillo-mandibular tumours and incomplete records were excluded.

The data collected were represented by: epidemiological data (prevalence, age, occupation, history); histo-clinical data (time to consultation, functional signs, physical signs, imaging, anatomopathology).

Data were entered and analyzed on an Excel 2010 spreadsheet. Qualitative variables were expressed as headcount and percentage, and quantitative variables as mean, minimum and maximum. The association between certain variables was analyzed using Montecarlo's chi2 test and was deemed statistically significant for a p value <0.05.

## RESULTS

### Epidemiological data

A total of 35 patients were admitted for the management of odontogenic maxillo-mandibular tumors, out of a total of 102 patients hospitalized for the management of maxillo-mandibular tumors, representing a prevalence of 34.3%. The mean age was 31.63 years, with extremes of 03 and 68 years (Table 1). Females predominated, accounting for 51.4% of cases (ratio 0.94). The unemployed accounted for 40% of cases, i.e. 14 patients, followed by pupils/students with 25.7% of cases, i.e. 9 patients (Table 2). 34.3% of patients had undergone dental extractions, and 20% consumed tobacco and alcohol (Table 3).

### Histo-clinical data

68.6% of patients consulted between 3 and 6 months (Table 4). 94.3% of patients consulted for maxillo-mandibular swelling, compared with 5.7% whose diagnosis was incidental. CT scans were performed in 28 cases (80% of patients), followed by orthopantograms in 5 cases (14.3%) and 2 cases of Blondeau (5.7%).

Biopsy was performed in 18 patients (51.4%), surgical specimen sampling in 7 patients (20%) and biopsy sampling combined with surgical specimen sampling in 10 patients (28.6%). Benign tumours accounted for 88.6% (31 patients) and malignant tumours for 11.4% (4 patients). Ameloblastic carcinoma accounted for 50% of maxillo-mandibular malignancies. For patients with malignant tumors, grade T4N0M0 was found in 75% of cases, and grade T4N(0,1,2,3)M0 in 1 patient, i.e. 25% of cases. Ameloblastoma accounted for 54.3% of maxillo-mandibular malignancies (Table 5).

**Table 1: Age distribution by workforce**

Age	Workforce (n)	Percent
≤3ans	1	2,9%
4-13	4	11,4%
14-23	6	17,1%
24-33	11	31,4%
34-43	3	8,6%
44-53	6	17,1%
54-63	3	8,6%
≥64ans	1	2,9%
<b>Total</b>	<b>35</b>	<b>100%</b>

**Table 2: Patient distribution by profession**

Profession	Workforce (n)	Percent
Unemployed	14	40%
Retreat	4	11,4%
Cultivator	5	14,3%
Students	9	25,7%
Employee	3	8,6%
<b>Total</b>	<b>35</b>	<b>100</b>

**Table 3: Breakdown of patients by history**

Previous history	Workforce (n)	Percent
Dental extraction	12	34,3%
Smoking/alcohol	7	20%
Diabetes	3	8,6%
Hypertension	3	8,6%
HIV	2	5,7%
No history	8	22,9%
<b>Total</b>	<b>35</b>	<b>100</b>

**Table 4: Breakdown of patients by consultation time**

Consultation period	Workforce (n)	Percent
0 – 3mois	4	11,4%
3 – 6mois	24	68,6%
6 -12 mois	5	14,3%
12 – 24mois	1	2,9%
< 24mois	1	2,9%
<b>Total</b>	<b>35</b>	<b>100</b>

**Table 5: Distribution of patients by histological type**

Histological type	Workforce (n)	Percent
<b>Malignant tumors</b>		
Ameloblastic carcinoma	2	5,7
Intraosseous primary carcinoma	1	2,9
Ameloblastic sarcoma	1	2,9
<b>Benign tumors</b>		
<b>Epithelial tumors</b>		
Ameloblastoma	19	54,3
Adenoameloblastoma	2	5,7
<b>Mesenchymal tumor</b>		
Myxoma	4	11,4
Dentinoma	2	5,7
<b>Mixed tumors</b>		
Odontoma	3	8,6
Odonto-ameloblastoma	1	2,9

## DISCUSSION

### Epidemiological data

Odontogenic maxillo-mandibular tumours are fairly common, with 6 cases per year. This is in line with the work carried out by ROUKAYA in 2020 [7] in Gabon, who found a frequency of 6 cases per year. BOUSSEN *et al.*, in 2006 [16] found slightly more cases, i.e. 11 new cases per year.

In this study, there were 18 female cases and 17 male cases, i.e. a sex ratio of 0.9 in favor of females. In contrast, MEJRIM *et al.*, [7] reported a male predominance, with 81 men and 36 women, i.e. a sex ratio of 2.2.

### Histo-clinical data

In our study, patients benefited from 3 types of explorations: dental panoramic radiography, Blondeau incidence and computed tomography (CT). Maxillofacial computed tomography was performed in 73.7% of cases, i.e. 28 patients. Our results were not in agreement with BAYALA JP [5].

Two types of images were also observed: mono-geodic images in 10 patients (29.4%) and poly-geodic images in 24 patients (70.5%). These results are similar to those of ANZOUAN K *et al.*, [10] in Côte d'Ivoire and MARTIN D *et al.*, who respectively note 28.88% for mono-geodic images and 71.12% for poly-geodic images, and on the other hand 31.1% for mono-geodic images and 68.9% for poly-geodic images.

Benign maxillo-mandibular odontogenic tumours were the most frequent in our study, accounting for 88.6% of cases. The results are in agreement with AGBOKPONTO in Benin [9]. Similarly, TAWFIK M.A *et al.*, in 2010 in Egypt [10] noted 96.3% of benign tumours. DIARA C. in Mali also found a predominance of benign tumors, with a percentage of 51.9% versus 48.1% for malignant tumors. As for malignant tumours, we noted in our study an annual incidence of 1 case of malignant tumours. These are 6 times less frequent than benign tumours. These results are contrary to those found by BAYALA J.P in 2012 in Burkina [5], where he demonstrated that the frequency of malignant tumors is higher than that of benign tumors, with an annual

incidence of 9.5 cases of benign tumors and 11.6 cases of malignant tumors.

Ameloblastoma was the most common histological type in our study, accounting for 61.3% of cases, followed by myxoma in followed by myxoma in 12% of cases. The high frequency of ameloblastoma may be due to its its diverse origins. Indeed, ameloblastoma may derive from the epithelium of the organ of Some authors, such as AGBOKPONTO A. *et al.*, [9], report rates which overlap with the results of our series. Indeed, the latter notes 39% of cases of ameloblastoma followed by 15.6% fibrous dysplasia in a series of 64 benign tumors of the maxillae in 2010. Other authors, such as TAWFIK M. A. [10]. FERNANDES A.M. *et al.*, in Brazil [1], ameloblastoma is followed by 35.8% of cases of odontogenic keratocyst and 24.9% of cases of odontoma. OUEDRAOGO B *et al.*, in Burkina [12], found that reparative granuloma predominated with 34.18%, followed by ameloblastoma (21.99%). The literature seems unanimous on the preponderance of ameloblastoma among benign maxillary tumours. The frequency of ameloblastoma is explained by the pathogenesis of odontogenic tumors. In fact, several theories explain the occurrence of these types of tumours. The most widely accepted is MALASSEZ's epithelial debris theory.

In the series of malignant tumors, we noted a predominance of ameloblastic carcinoma with 50% of cases, followed by primary intraosseous carcinoma with 25% of cases and finally 1 case of ameloblastic sarcoma, i.e. 25%. Contrary to the results found in our study, the literature notes a predominance of non-odontogenic maxillo-mandibular malignancies, notably squamous cell carcinoma. DERBY C *et al.*, in France reported 90% cases of squamous cell carcinoma in their series of 29 cases of maxillo-mandibular cancer maxilla. BAYALA JP in Burkina Faso [5] noted a 22.4% incidence of squamous cell carcinoma.

## CONCLUSION

Maxillo-mandibular odontogenic tumors are fairly common. They usually affect young, female subjects. Maxillo-mandibular tumefaction is the revealing feature. Diagnosis is guided by computed tomography (CT), while pathological analysis confirms the diagnosis, especially in the light of the results of surgery. The dominant histological type is ameloblastic carcinoma for malignant tumours, and ameloblastoma for benign tumours.

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