

## Mandibular Tumors at CHU Befelatanana Antananarivo: Epidemiology and Histological Types

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### Abstract

**Introduction:** Mandibular tumors evoke very varied lesions. They are part of the public health problems by its frequency and its complications. The present study aims to determine the epidemiological and pathology aspects of these tumours in the CMF service of CHU RPG Antananarivo.

**Materials and Method:** This is a retrospective and descriptive study of 37 cases of patients who were treated for mandibular tumors during a period of 48 Months (2011 in 2014).

**Results:** Mandibular tumors accounted for 7.28% of maxillofacial tumors diagnosed and treated during a slight male predominance. The average age was 27.8 years and the Merina ethnic group was the most active. Sixty-six percent of the tumors were benign tumors and the remaining 60% were ameloblastomas. Tumors were more common in the hemimandible and hemi-mandibulectomy was the most popular treatment.

**Commentary and Discussion:** Benign tumors have been the most encountered but the delay in diagnosis and treatment lead to more mutilative surgery and leave heavy sequelae.

**Keywords:** Ameloblastomes; Mandibular Cyst; Odontogenic Tumor; Mandible

### Introduction

Mandibular tumors are part of the major problems in maxillofacial surgery. They can be malignant but often benign and have local invasion [1]. In developing countries such as ours, they are often discovered at the advanced stage and distorting, thus imposing more invasive and decaying treatment [2,3]. To date, the database in this matter remains poor in our country, so we carried out this study in order to perform a state of the site of mandibular tumors in the first reference center in Maxillofacial surgery of the country but also To determine the histological types of these tumors in order to update their management.

### Materials and Method

This is a four-year retrospective descriptive study on the records of patients treated for mandibular tumors in the CMF service of CHU RPG Antananarivo, from January 2011 to December 2014.

All patients treated for mandibular tumor (biopsy and/or resection) were included in the study and had histological confirmation of the tumor in question.

The parameters studied were age, sex, ethnic origins, antecedents, clinical signs, X-ray images, and histological nature of tumours.

The data were collected from the patient register, the operating records and then analyzed by the Excel 2007 and EPI INFO software.

**Results**

The consultation register showed 615 patients, who came to consult during 4ans. 508 of its patients have mandibular tumors, of which 37 have fulfilled the conditions of inclusion. For example, the tumours of the maxilla were the 7.28% of maxillofacial tumours.

Patients were aged 6 to 68 years with an average of 27.81 years. Patients between 10 and 20 years of age were the most identified (Figure 1).

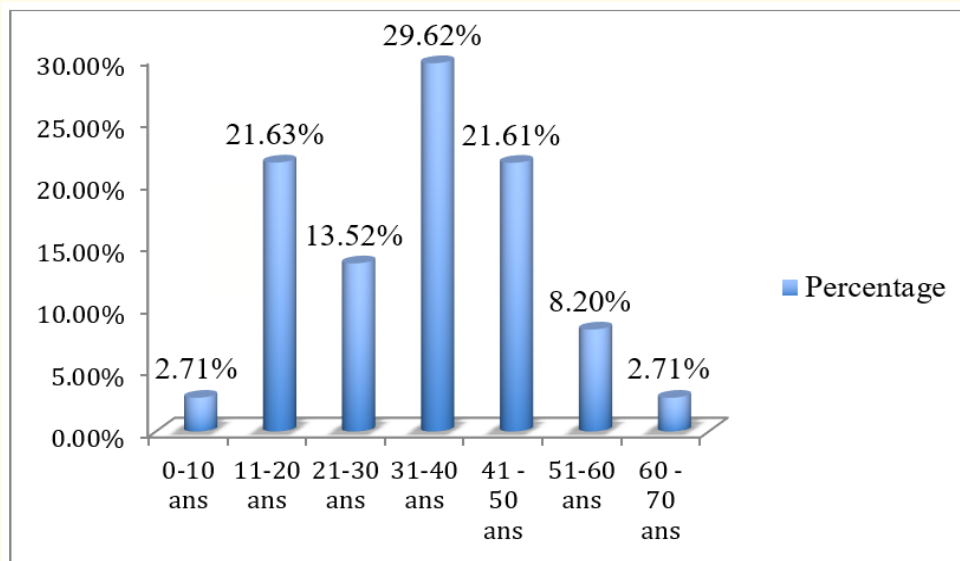


Figure 1: Distribution of patients by age.

Thirty five percent of patients were female (n = 13) while 65% were male (n = 24) (Figure 2).

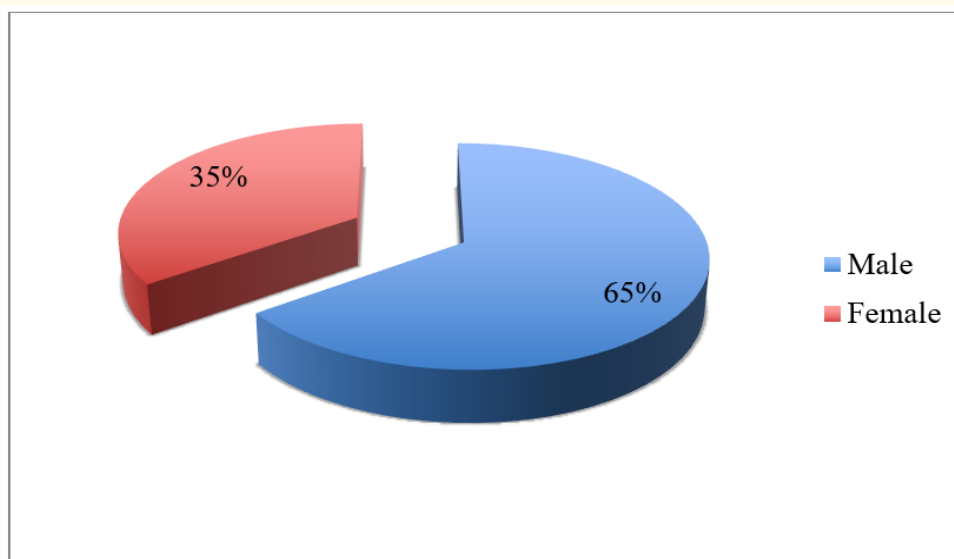
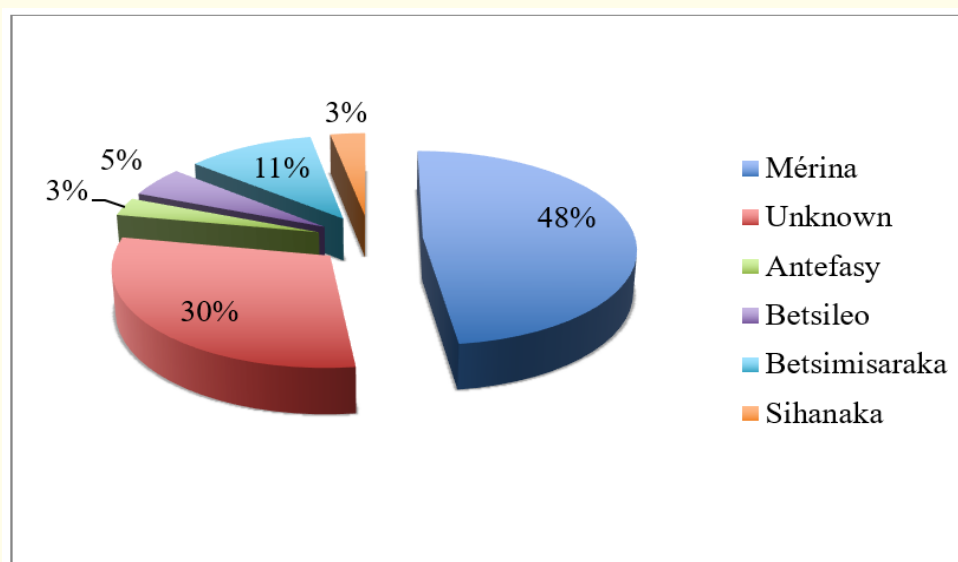


Figure 2: Distribution of patients by sex.

Five ethnic groups in the country have been represented and the Merina have been the majority in 18% of the cases (Figure 3).



**Figure 3:** Distribution of patients according to their ethnicity.

Of the thirty seven patients retained, sixty-two percent of patients did not mention any antecedents, but 16% were alcohol-smoking (Table 1).

Associated factors	Number	%
Undetermined	23	62,16
Untreated teeth	14	37,84
Smoking	06	16,22
Alcohol	04	10,81
Pregnancy	03	8,11
Chewing tobacco	02	5,41
Contraception	01	2,70

**Table 1:** Risk factors.

On clinical examination, dysaesthesia type of labio-chin hypoesthesia and pain were the main functional sign origin and respectively: hypoesthesia (10.81%) and pain (59.46%). While low genital swelling was the main clinical sign of tumor cases (Table 2) and 62.16% of tumors occupied a whole hemimandible.

Signs	Number of cases	%
Cheek swelling	35	94,59%
Dental articulation disorder	07	18,92%
Teeth mobility	04	10,81%
Intraorally bleeding	02	05,40
Cutaneous fistule	02	05,40

**Table 2:** Distribution of observed clinical signs.

The orthopantomography has been in all patients. It showed clear radio images in 82.29% of the cases (Figure 4) and 11.71% were opacity.

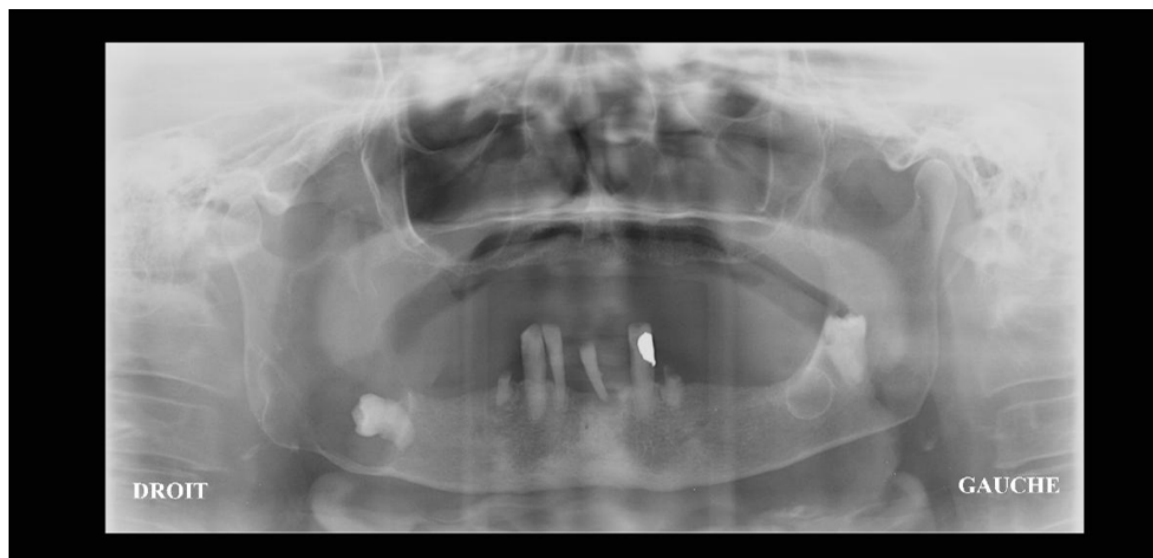


Figure 4: Image of clarity on the orthopantomography.

Seventy percent of tumours were benign tumours and 59.46% were Ameloblastomes (Figure 5).

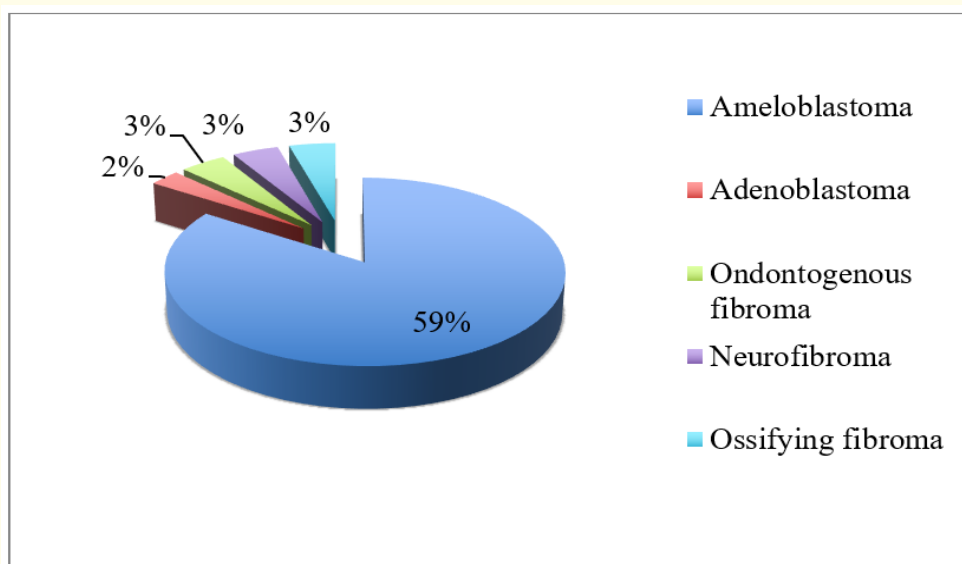


Figure 5: Distribution of benign tumors.

Nineteen percent (19%) of the cases were cysts (Figure 6) and the remaining 11% were malignant tumors..

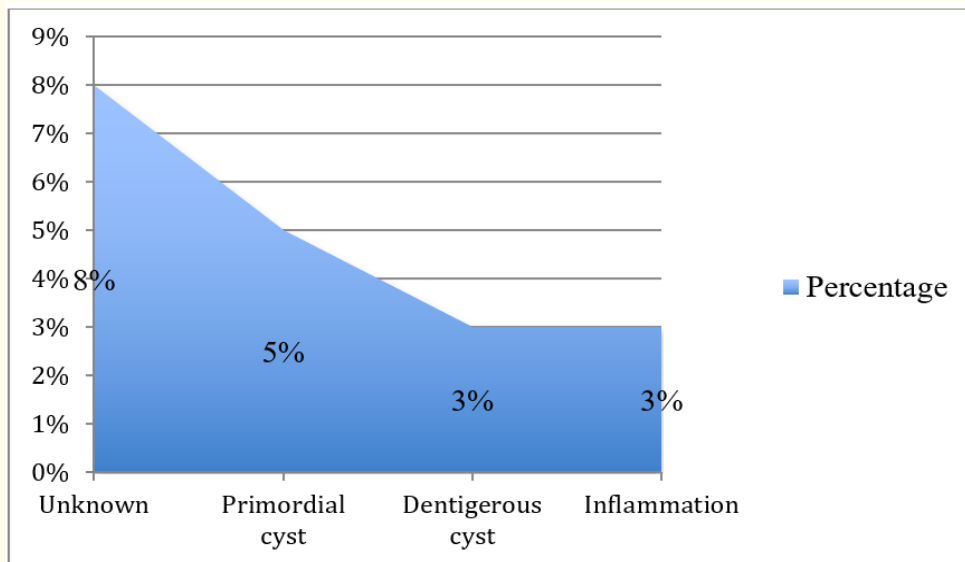


Figure 6: Distribution of mandibular cysts.

Among the malignant tumors, ameloblastic fibroblastoma was the only odontogenic malignant tumor found. The remaining three were osteosarcoma, rhabdomyosarcoma and fibrosarcoma.

Two patients were 5.41% of the cases had a interrupting resection of the mandible with mandibular reconstruction In the rest and four patients had only one biopsy (Table 3).

Treatments	Effects
Biopsy	04
Mandibular section without reconstructive surgery	23
Mandibular section with reconstructive surgery	02
Unterrupting surgery of mandible	01
Enucleation	07

Table 3: Distribution of treatments received in the service.

Discussion

The incidence of mandibular tumours found during our study remained low (7.28%) compared with all maxillofacial tumours and compared with the results of other studies. Parkins., *et al.* reported an incidence of 53.29% of tumours of all oral tumours in ACCRA, Switzerland [4]. The same is the case for the 19.9% incidence reported by Kpemissi E., *et al.* during a 19-year study [5]. This discrepancy can be explained by the difference in the size of our populations. Our cases may be underestimated since not only do the patients not consult but the other files could not be withheld due to lack of histological data. Histological examination is still quite costly for our patients. These tumors do not spare either men or women but the ideas diverge on the sex ratio. Our study, as well as that of El-Ouzzani FZ, as well as that of Issa showed a male predominance [6] while others report a female predominance [7], and others still have the same

incidence in both sexes [8]. The same is the same for age, these tumors affect all age groups, whose average age of our patients were 27 years [9-11]. The average age found in the literature ranged from 27 to 32 years and the majority of patients were between the 3<sup>rd</sup> and 4<sup>th</sup> decades [11,12]. Despite all this, the age of occurrence often varies depending on the histological nature of the tumours but also on their histological type.

The patients treated in this study were mainly patients of Merina origin even though four other ethnic groups were found. Other studies carried out in Antananarivo, have reported this finding but also a predominance of the patients who lived around Antananarivo [13]. This can be explained by the proximity of hospital centres and the reduced access to care by patients in other regions. This fact remains insignificant since the size of our population is reduced and the cases of other regions remain underestimated.

Apart from the participation of ethnic origins, toxic habits are involved in the occurrence of certain tumours. Alcohol-smoking has been observed in our patients. Tobacco is a major factor in tumours, maxillofacial especially chewing tobacco that is deposited directly on the mucosa, but the alcohol-tobacco association increases even more than 30 times the risk of tumors of the aero-digestive pathways [14].

The symptomatology is often marked by a low genital tumefaction deforming the face it depends on the type and the histological nature of the tumors. Some malignant tumours are painful [15,16] But others are still indolent, some of which are a cosmetic disturbance to the type of Hypoesthesia cleft-chin by reaching the mandibular nerve or the foramen nerve [17,18]. The majority of our patients were discovered with swelling like those of other African authors [19,20] while Western American and European Studies report several cases of fortuitous discovery often during visits Systematics in dentists [21].

Orthopantomography is the test of choice for mandibular tumors [22,23]. It is an impact that makes it possible to make a bone check-up, to locate the tumor, to visualize its relationship with the teeth. Some authors even suggested a diagnostic orientation in relation to X-ray images [24]. Although this panoramic dental x-ray can be used to diagnose, the CT remains the reference examination for these tumors. It allows for a diagnostic orientation but also to visualize relationships with neighbouring tissues [23,25]. The imagery allows the diagnosis to be directed, but only the histological examination gives the true diagnosis.

In our series, 89% of tumors were benign. This result is in line with those of Kpemissi [5] which found 72.88% and Larry 96% [26]. The majority of these benign tumors are ameloblastomas [27]. All the authors are unanimous on this fact. These are the most common mandibular tumors. They account for about 30 to 91% of benign maxillary tumours [23,24,27-29]. It is a privilege of young adults aged 20 to 40 years [23,24]. The average age of our patients, was 27.82 years. Ameloblastomas affect the mandible more than maxillae. The mandibular corpus is the most affected mandibular portion in our literature review. In our patients, 72% of the cases touched the corpus with or without reaching the angle, this result joins those of Issa [11] and Gonzalez [30]. But no consensus has been established since other studies report ceramics or angular damage. In addition, ameloblastomas most often affect the dental regions and the angle [23]. On the other hand, cases of recurrence affect all other mandibular portions.

Other tumors have also been discovered, but it is often odontogenic tumors such as odontogenic adenoblastoma or fibroma [31,32]. The mandible is also the seat of cysts that can be odontogenic cysts are non-odontogenic cysts. These are often inflammatory odontogenic cysts [33,34]. But non-dental cysts remain relatively rare, such as ossifying fibroids. In addition, malignant mandibular tumors are predominated by osteosarcomas, which accounted for 50% of mandibular malignancies. This osteosarcoma is followed by alveolar rhabdomyosarcoma, which was found in a 21-year-old patient in our study. On this fact, once again, our study joins the literature [35,36].

### Conclusion

The mandibular tumors found in our study affected subjects of all age groups but young adults were most affected, and male sex subjects were the most represented. mandibular swelling are the most frequent clinical signs and these are the most alarming signs leading

to a consultation. The imaging is necessary to guide the diagnosis but only the histological examination helps to identify the tumor and thus to adapt the proper management. Ameloblastoma remains the first most-encountered tumor in the mandible in both our study and the others found during the literature study.

### Conflict of Interest

No conflict of interest.

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