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Epidemiology and Treatment of Benign Orofacial Tumours at the Yalgado Ouedraogo Teaching Hospital (Ouagadougou, Burkina Faso)

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Abstract

Introduction: Benign orofacial tumours are common pathologies in dental, stomatological, and maxillofacial practice. This study aims to report on the epidemiology, histopathology, and treatment modalities of this type of benign tumour at the Yalgado Ouedraogo Teaching Hospital. **Patients and Methods:** This was a descriptive study involving retrospective data collection over a period of 6 years, including 110 cases of histologically confirmed benign orofacial tumours. **Results:** We collected 110 cases of histologically confirmed benign tumours, representing an annual frequency of 18.33 cases. The sex ratio was 0.70. The average age was 32.5 years, with extremes ranging from 1 to 79 years. In 90% of cases, the reason for consultation was related to swelling. The tumours had an average size of 6.74 cm and were mainly located in the mandible (36.64%), maxilla (12.73%), gingiva (10.9%), and cheek (10.9%). Histologically, 35.45% of tumours were odontogenic (including 31.81% ameloblastomas) and 64.55% were non-odontogenic (including 17.27% pleomorphic adenomas). Treatment was surgical for 108 patients (98.18%). It mainly consisted of complete removal of the tumour (27.8%), in non-disruptive enucleation-resection (25.9%), and in interruptive resection of the mandible with splint reconstruction (12%). Long-term outcomes were favourable in 69 patients (63.9%), with 39 patients lost to follow-up. **Conclusion:** Benign orofacial tumours are

relatively common in our context. Delays in seeking medical advice and non-compliance with treatment limit the effectiveness of their management.

Keywords

Benign Tumours, Orofacial, Epidemiology, Histopathology, Treatment

1. Introduction

Benign orofacial tumours are neoformations that develop at the expense of oral and facial tissues. They are benign or relatively benign lesions, often recurring after surgical removal. These conditions are thought to be common, but their exact prevalence is difficult to assess [1] [2]. Poor oral hygiene, tobacco use, and certain viral infections are thought to be the main etiological factors in benign oral and facial tumours [1]. These tumours often grow slowly but can reach significant sizes, causing functional and aesthetic problems. The diagnosis of these lesions is histological, guided by clinical observation and medical imaging. Their treatment is essentially surgical and must be complete to avoid the risk of recurrence. Their potential for recurrence poses a real therapeutic challenge and requires long-term follow-up. In our context, optimal management is complicated by late consultations, economic difficulties, and the limitations of technical facilities in restoring complex oromaxillofacial tissue loss. This often results in a permanent functional, morphological, or aesthetic burden for patients.

This study aims to report the epidemiology and treatment modalities of benign orofacial tumours in a context marked by financial insecurity and limited technical resources.

2. Patients and Methods

2.1. Study Setting, Study Type, Period, and Population

This study was conducted in the Department of Dentistry and Maxillofacial Surgery at the Yalgado Ouedraogo University Hospital in Ouagadougou. It was a descriptive study with retrospective data collection from 1 January 2017 to 31 December 2022. All patients who received and were treated during this period for a benign orofacial tumour with a usable medical record and histological evidence were included in the study.

The variables studied were sociodemographic (age, gender, occupation, place of residence), anatomic-clinical (reason for consultation, time to consultation, tumour location, tumour size, radiological data, histological type), and therapeutic (types of treatment, surgical approach, adjuvant treatment, outcome).

2.2. Data Collection and Processing

Data were collected from consultation records, patient clinical files, hospitalization records, and surgical report records. Data entry and analysis were performed

using EPI Info 7 software (French version 7.2.2.2.).

3. Results

3.1. Frequency

During the study period, 278 suspected cases of benign tumours were reported, representing 2.45% of consultations in the department. Of these patients, only 110 who met the inclusion criteria were included in the sample, representing 0.97% of consultations and an annual frequency of 18.33 cases.

3.2. Sociodemographic Data

The sex ratio was 0.7 (65 women and 45 men). The average age of the patients was 32.5 years, with extremes of 1 year and 79 years. Patients aged 10 to 19 years were the most represented (22.72% of the sample), and 30.91% of the patients were under 20 years of age (Figure 1). Sixty-nine (62.73%) patients lived in urban areas and 41 (37.27%) in rural areas.

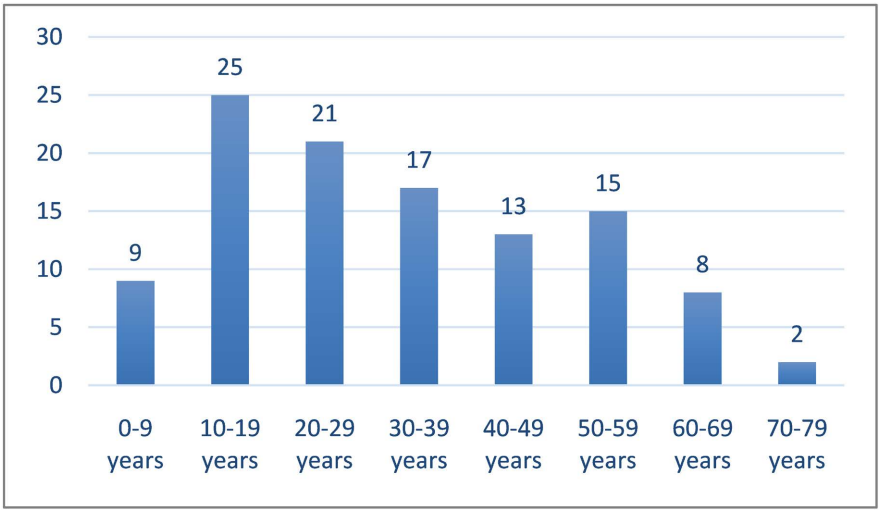

Figure 1. Distribution of the patients by age group (N = 110).

3.3. Clinical Aspects

Swelling prompted consultation in 99 (90%) patients, 4 patients consulted because of pain, 3 patients because of limited mouth opening, 3 patients because of exophthalmos, and 1 patient because of conjunctival hyperaemia. The average time to consultation was 10.2 months, ranging from 1 to 90 months. All the patients were in good general health and had a good level of consciousness. Tumours were located in the mandible in 33.64% of the patients (Figure 2).

Orthopantomography was performed in 47 patients, computed tomography in 21 patients, and parotid ultrasound in 4 patients.

Histologically, non-odontogenic benign tumours represented 64.55% of the sample, and odontogenic benign tumours 35.45%. Ameloblastoma accounted for 31.82% of all the tumours, and pleomorphic adenoma for 18.18% (Table 1).

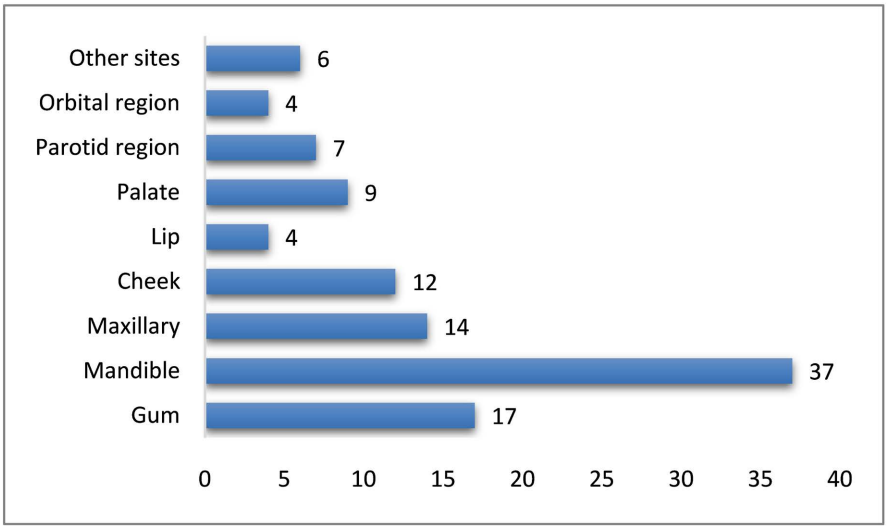

Figure 2. Distribution of the patients according to tumour location (N = 110).

Table 1. Tumour distribution according to histological type (N = 110).

Histological Type	Number	Percentage
Odontogenic tumours	**39**	**35.45%**
Follicular cystic ameloblastoma	8	7.27%
Follicular ameloblastoma	15	13.64%
Plexiform ameloblastoma	4	3.64%
Cystic ameloblastoma	10	9.09%
Osteo-cementing fibroma	2	1.82%
Non-odontogenic tumours	**71**	**64.55%**
Epulis	12	10.91%
Palatal torus	2	1.82%
Mandibular osteoma	1	0.91%
Ossifying fibroma	16	14.55%
Naso-palatal fibroma	1	0.91%
Fibrous dysplasia	2	1.82%
Pleomorphic adenoma	20	18.18%
Botryiomycete	5	4.55%
Cystic lymphangioma	4	3.64%
Labial haemangioma	3	2.73%
Orbital haematoma	1	0.91%
Nerve tumours (neurofibroma and fibrolipoma)	2	1.82%
Primary melanosis	1	0.91%
Frontal mucocele	1	0.91%
Total	**110**	**100%**

The size of the swelling was available for 52 patients and averaged 6.74 centimetres. It was less than 5 centimetres in 19 patients (Figure 3).

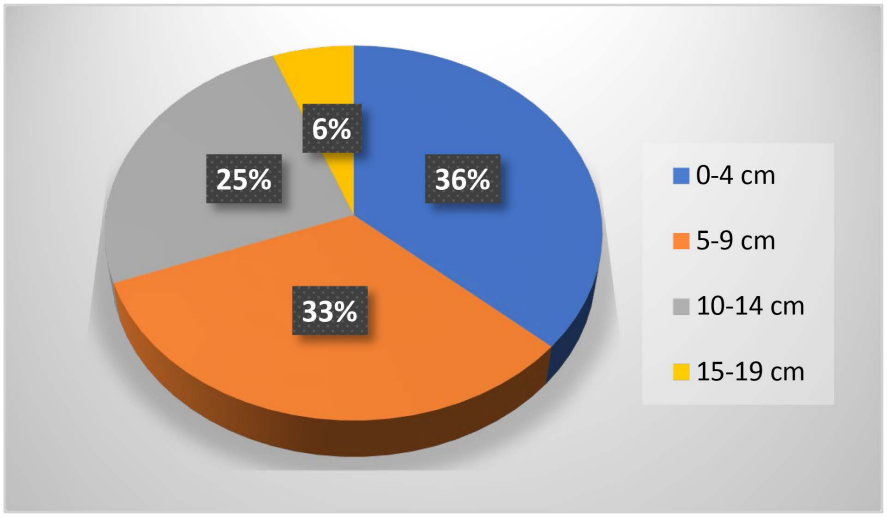

Figure 3. Distribution of the patients according to the size of the swelling (N = 52).

3.4. Therapeutic Aspects

Treatment consisted of surgical excision in 108 (98.18%) patients and no surgery in 2 patients with a palatal torus. Surgical treatment was performed under general anaesthesia in 100 (92.6%) patients and under local anaesthesia in 8 patients. The approach was cutaneous in 77 (71.3%) patients and intraoral in 31 (28.7%) patients. The surgical procedure consisted of non-interruptive enucleation-resection in 27.8% of the patients and tumour enucleation in 25.9% of patients (Table 2).

Table 2. Distribution of the patients according to type of excision (N = 108).

Type of Excision	Number	%
Non-disruptive enucleation-resection	28	25.9
Interruptive resection of the mandible with splint reconstruction	13	12
Complete removal of the tumour	30	27.8
Cosmetic surgery	12	11.1
Hemimandibulectomy	10	9.3
Hemimaxillectomy	3	2.8
Conservative total parotidectomy	8	7.4
Other surgeries	4	3.7
Total	**108**	**100**

All the patients who underwent surgery received adjuvant treatment with antibiotics, analgesics, anti-inflammatory drugs, and local antiseptics (Dakin's solution, povidone-iodine, chlorhexidine mouthwash).

The average follow-up period after surgery was 6 months. In the medium term (30 days), the outcome was favourable in 95 (87.96%) patients, with 13 patients lost to follow-up. In the long term, the outcome was favourable in 39 (36.1%) patients, with 69 (63.9%) patients lost to follow-up.

4. Discussion

With an annual frequency of 18.33 cases (0.97% of consultations), benign orofacial tumours are relatively common in the department. This frequency is probably underestimated, as 168 suspected cases were excluded from the sample due to a lack of histological confirmation or incomplete clinical records. The average age of the patients (32.37 years) is comparable to that of other studies conducted in Africa [3] [4]. However, 30.90% of the patients in this study were under 20 years of age. This predominance of young people could be explained in part by the demographic structure of Burkina Faso, where the average age of the population in 2022 was estimated at 21.1 years [5].

Clinically, benign maxillary tumours are characterised by their large size at diagnosis in developing countries, resulting from late consultation [3] [6]. Our data corroborate this finding, with 90% of the patients consulting resulting from orofacial swelling and an average size at diagnosis of 6.74 cm. The mandible was the most common site for benign maxillary tumours. The predominance of mandibular involvement was also reported by Gassama *et al*., Kouamé *et al*., as well as Tagba *et al*. [3] [4] [6]. Histopathologically, 66.36% of the tumours were benign non-odontogenic tumours and 33.64% were benign odontogenic tumours. Ameloblastoma was the most frequently diagnosed tumour (31.82% of cases), particularly in its follicular and cystic variants. This type of tumour is considered to be the dominant histological type in benign tumours of the oro-maxillo-facial region [6]-[8].

The treatment of benign orofacial tumours is mainly based on surgery [8]. This surgical approach is either conservative or radical, depending on the size of the tumour, its extent, and its histological type. For small tumours and in a context where surgical re-excision is possible, conservative surgery is most often the preferred approach [6] [8]. A radical approach, on the other hand, is often necessary either because of the large tumour size affecting the bone structure or in the face of certain histological types with a high potential for recurrence or local malignancy, such as ameloblastoma [6] [8]. In this series, the surgical approach was as conservative as possible, in accordance with the literature. For cases of ameloblastoma and large tumours, radical interruptive resection was preferred. The surgical treatment provided satisfactory results in the short and medium term. However, the high number of patients lost to follow-up prevented an assessment of the long-term effectiveness of the surgical treatment.

On the other hand, it appears necessary to combine surgery with other oral-dental therapies in order to restore the functions of the masticatory system and improve the patient's quality of life. Maxillofacial prostheses, removable dentures, and implant prostheses are among these complementary therapies [9]. Due to financial constraints or the unavailability of these treatments, none of the patients in this study was able to benefit from prosthetic rehabilitation. However, although resection surgery for ameloblastomas or other tumours is curative, it remains a particularly invasive procedure resulting from the locally aggressive nature of these

benign tumours. In this context of limited technical facilities and financial resources, restoration of mandibular continuity most often relies exclusively on the use of titanium reconstruction splints. Although functional in the short term, this option is not the best choice for mandibular reconstruction, which remains microanastomosed bone flaps or custom-made endoprostheses after computer-aided modelling [8] [10]. Indeed, only the latter allows for a rigid and stable restoration, which is conducive to prosthetic rehabilitation and muscular balance. A more suitable alternative for our context could be to combine a titanium plate with a flexible resin prosthesis, allowing for better functional and aesthetic restoration at a lower cost. This approach underlines the importance of integrating a maxillofacial prosthodontist into the surgical team for comprehensive and coordinated management of jawbone tissue loss.

It should also be noted that a significant proportion of children and adolescents in the sample raises new issues of morphofunctional and psycho-emotional rehabilitation [11]. Indeed, due to the particularities of child growth and development, from newborns to adolescents, it would be appropriate to adapt the therapeutic approach for these patients.

Furthermore, the high rate of patients lost to long-term follow-up (63.9%) prevented an objective assessment of treatment efficacy. Two factors could explain this high proportion of patients lost to follow-up: the prohibitive cost of consultations and biological tests for the majority of patients, the geographical distance from the Yalgado Ouedraogo Teaching Hospital for some patients, and insufficient information leading many patients to believe that they are permanently cured. One effective strategy for improving treatment follow-up could be to implement a mechanism combining awareness-raising, improved affordability, and partial decentralisation of follow-up to peripheral medical centers.

5. Conclusion

Benign orofacial tumours are common in our context. Delays in consultation, the large size of these tumours, and the limited therapeutic options make treatment difficult. The loss of substance and functional oral and dental sequelae caused by the treatment of these conditions requires the involvement of dentists in their prevention and treatment.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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