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Ameloblastoma Treatment: Clinical Experience.

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ABSTRACT

An adamantinoma is a slow growing, noninvasive, locally aggressive, histologically benign, relatively rare bone tumor that is most often found in the shine bone (tibia) or the jaw bone (mandibla). It is characterized by an asymptomatic intraoral swelling in the early period (75% of patients). The study reviews 19 ameloblastoma cases (14 mandibulary and 5 maxillary), treated at the University Clinic for Maxillofacial Surgery in Skopje during 1994-2011, with the emphasis on the gender, age, type of surgery, recurrence and the follow-up.

Keywords: Adamantinoma, ameloblastoma, jaws, treatment, local recurrence

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INTRODUCTION

An adamantinoma is a slow growing, noninvasive, locally aggressive, histologically benign, relatively rare bone tumor that is most often found in the shine bone (tibia) or the jaw bone (mandible) and it accounts for approximately 1% of all oral tumors [1]. It is characterized by an asymptomatic intraoral swelling in the early period (75% of patients). According to Larsonn and Almeren [2], its incidence is 0,6 cases per million.

The symptoms of this condition are variable and include pain, numbness, toothache, ill-fitting dentures, malocclusion, ulcerations, draining sinuses, nasal obstruction or even epistaxis. Pathological fracture of the jaws is a very unusual finding. Clinically, due to its asymptomatic appearance, it may cause difficulties in diagnosis and treatment, therefore it frequently remains undiscovered until the lesion growth leads to jaw swelling, tooth eruption and dental occlusion disturbances.

The cause of this condition is unknown (patients usually have history of trauma to the affected bone, but is unclear whether the trauma leads to formation of the tumor or the formation of the tumor weakens the bone and makes it susceptible to injury). They are often found incidentally with the use of routine dental x-rays.

Cassock (1827) gave the first original description of the tumor, while Broca (1868) wrote the first report in the scientific literature [3]. Falkson (1879) gave the first complete histological description [3]. Mallasez (1885) introduced the term adamantinoma [4] and Churchill (1934) proposed the term “ameloblastoma” to substitute the term “adamantinoma” [5].

Radiographic diagnosis is usually performed by dental x-rays, orthopantomogram radiography, computed tomography (CT) scan and magnetic resonance imaging (MRI). It usually appears as a central or eccentric, multilocular with sclerotic margins of overlapping radiolucencies, slightly enlarging, sharply or poorly delineated osteolytic lesion with variable periostal reaction in bones. CT-scans and MRI in the diagnosis of adamantinoma lesions give non-specific findings. CT-scans shows the cortical involvement and the soft tissue extension when it exists. MRI is useful in determination of the tumor-free margins and strategy planning for prospective reconstructive surgery.

Differential diagnosis includes cherubism, giant cell granuloma, odontogenic myxoma, aneurysmal bone cysts, fibrous dysplasia and odontogenic keratocysts. Histologically, these tumors can be divided into plexiform and follicular, as well as a combination of both types. The clinical appearance can be are monocystic, multicystic, solid, peripherial, malignant and pituitary.

One of the points of controversy in the ameloblastoma cases is the differential diagnosis between ameloblastoma showing cystic degeneration and one arising from an odontogenic cyst; with the ameloblastomatous hyperplasia in the odontogenic cysts.

The treatment of choice in ameloblastoma cases is segmental or radical resection. Treatment modalites range from conservative excision to wide block resection and bone grafting. Despite being a benign tumor, it has an invasive behavior with a high rate of recurrence if not treated properly with radical extirpation and with broad surgical resection of the lesion with wide safety margins.

The purpose of the present study is clinical presentation of ameloblastoma cases, treated at the University Clinic for Maxillofacial Surgery in Skopje during 1994-2011.

MATERIAL AND METHODS

The present study is a retrospective clinical study of a consecutive series of 19 patients with ameloblastoma (14 in the mandible and 5 in the maxilla), in the period from 1994 to 2011, treated at the University Clinic for Maxillofacial Surgery in Skopje, with the emphasis on the gender, age and recurrence of the tumor. Additionally, a follow-up review has been performed.

On all of the patients, surgery was performed and the diagnosis was confirmed histopathologically. Post-treatment follow-up and evaluation was made by clinical and radiographic examination.

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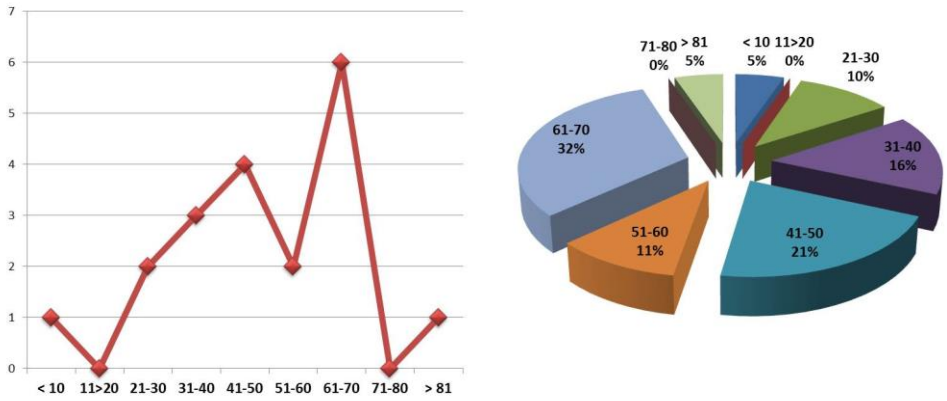
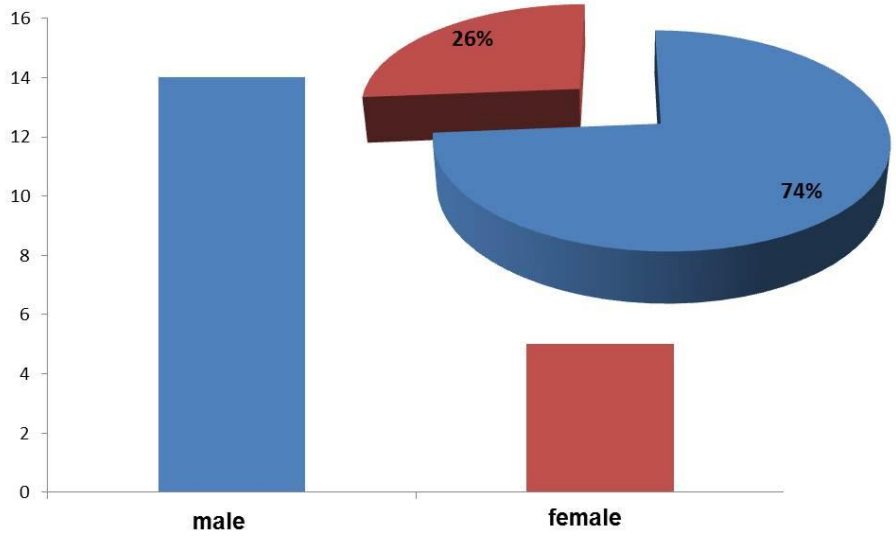
RESULTS AND DISCUSSION

The age distribution of the patients shows that the youngest was 8 years old, while the oldest was 85 years (most frequent group was between 30-50 years) (Graph 1.). Although the tumor can occur in any age and has been described in the literature in patients as young as 21 months, it usually appears in patients in the third or fourth decade of life, which is a common finding in other several reports [6-11].



Graph 1: Age distribution of ameloblastoma cases

The gender analysis (Graph 2.) showed significant differences in the male to female ratio: 14 male (74%) and 5 female (26%) patients were treated. This finding is not in accordance with several other studies, where ameloblastoma occurs with equal frequency in men and women [10-13]; while a Nigerian [14,15] and Indian studies showed a male preponderance [16].



Graph 2: Prevalence in relation to gender

Most of the tumors occur in mandible- 14 (74%) and 5 (26%) in maxilla (Graph 3.). Previous experience in the medical literature show similar findings: the ameloblastomas affect the mandible four times more often than the maxilla [9, 15, 17].

Recurrences of the tumor were found in 3 cases during the follow-up period (in the first patient the recurrence appeared after 4 years, in the second after 7 years and in third appeared twice- after one year and after 4 years from the first surgery); therefore the surgery was necessary again.

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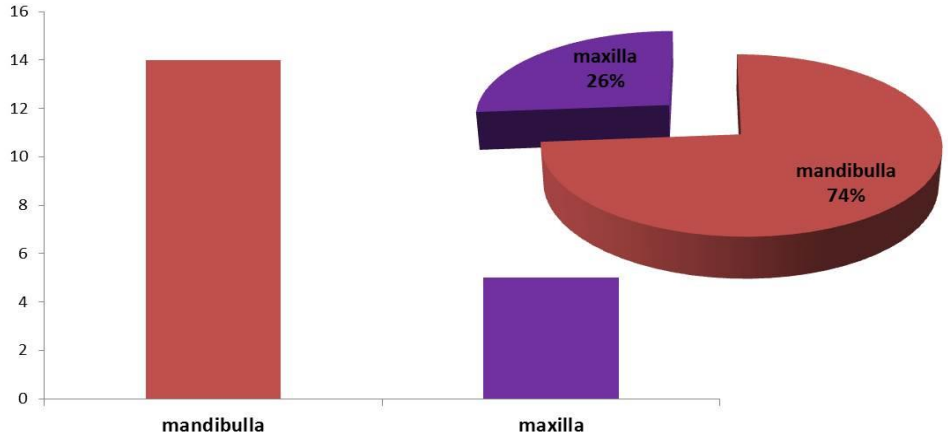
Normal postoperative function and satisfactory esthetic results were found in majority of the examined patients.



Graph 3: Distribution of ameloblastoma in the maxilla and mandible

CONCLUSIONS

Based upon results of this study, we may conclude that the youngest patient is 8 years and the oldest is 85 years old (most frequent group between 30-50 years age). Significant differences were found in male to female ratio, with male (74%) dominance. Most of the tumors occurred in the mandible- 14 (74%). Recurrent episodes of the tumor were found in 3 cases (15.7%) during the follow-up period. No malignancies were found.

The treatment must be conducted in accordance to the behavior and the growth potential of the tumor, the anatomic site, size and histological analysis. Curretage and enucleation of the tumor resulted in recurrence. Total removal with wide tumor excision is a procedure of choice and post-treatment follow-up of the patient is obligatory.

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