

***IN THE NAME  
OF GOD***

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**SHIRAZ UNIVERSITY OF MEDICAL SCIENCE**  
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Title:

**ADVANCES IN DIAGNOSIS AND TREATMENT  
OF MAXILLOFACIAL AMELOBLASTOMA**

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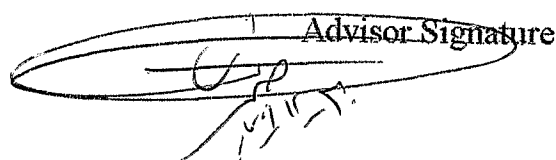
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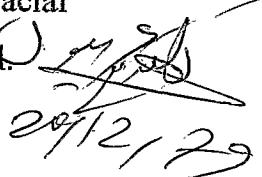
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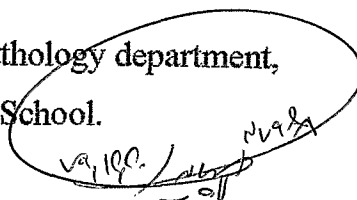
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## ***Dedication:***

*I dedicate this thesis*

*To whom learn, know and understand how  
to live.*

*To everyone who has sacrificed his/her  
life in the way of freedom.*

*To my family, teachers, and colleagues,  
who have made my life so wonderful.*

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# **PART ONE**

## **Preface:**

An oral and Maxillofacial surgeon or a dentist may encounter with many benign and malignant tumors during his/her professional life.

Ameloblastoma, a benign but locally invasive tumor, is one of them. It is the most common clinically significant odontogenic tumor accounting for approximately 1% of oral tumors.

Because of its propensity for local invasion, its management is associated with some problems. Different methods, especially surgical procedure, have been attempted as a curable treatment, but the treatment of choice has been the subject of controversy up to now.

Some surgeons believe that enucleation and/or curettage is enough. However, other suggest radical resection.

Taking into consideration of many aspects including aggressiveness of tumor, extent of invasion, location of involvement and stage of tumor, etc, enucleation and/or curettage is too conservative treatment for ameloblastoma. In other hand, radical resection may be a curable treatment for patient and eliminates the pathosis, but it compromises the function and esthetic of patient.

Another subject of controversy is the proper time of reconstruction. Some surgeons believe that immediate reconstruction should be undertaken because of less postoperative complications, while other believe in multistage and delayed reconstruction of defect caused by surgical intervention because of the risk of recurrence due to daughter cells and soft tissue deficiencies. So there is not any straightforward criteria for management of this tumor. This context try to evaluate different aspects and methods in diagnosis and

management of ameloblastoma with emphasis on different surgical  
and reconstruction modalities.

## **Introduction:**

Ameloblastoma, previously called adamantinoma, is the most common clinically significant jaw tumor. It is accounting for approximately 1% and 11-13% of all oral tumors and all odontogenic tumors, respectively.(1,4,8) It is generally considered to be gender neutral, although it may be slightly more common in men. Incidence peaks between 20 to 50 years, with an average age of 40 years.

It typically occurs in the tooth bearing area of the jaws. The relative frequency mandible: maxilla is reported as varying from 80:20 to 99:11. (4)

Ameloblastomas are slow growing and locally invasive tumors that run a benign course in most cases, but later in their course may demonstrate malignant features and metastasize to cervical nodes and lungs.

The tumor is often asymptomatic, presenting as an incidental finding on X-ray. If symptoms occur, they are usually due to the physical presence of the tumor. Facial swelling producing asymmetry, pain, malocclusion, migration, tipping and mobility of teeth, ill fitting denture, paresthesia of lip, periodontal disease or ulceration, oroantral fistula, and nasal airway obstruction are all presenting symptoms. Root resorption is a common finding on radiographic examination. (8)

Because of locally aggressive tendency, surgical treatment frequently results in failure, since it associated with a relatively high recurrence rate. Recurrence rates of maxillary ameloblastoma (33-

53.3%) are higher than those for mandibular tumors and when a conservative surgery is used, there is a recurrence rate of 82.5%.

# **CHAPTER 1**

**Glossary review of different types  
of ameloblastoma**

Ameloblastoma occur in three different clinicoradiographic situations, which deserve separate consideration because of differing therapeutic consideration and prognosis. These are following:

- 1- Conventional solid or multicystic
- 2- Unicystic
- 3- Peripheral (extraosseous)

Briefly some important clinical, radiographic, histopathologic points are presented and treatment and prognosis are discussed to some extent.

#### **1-1- Conventional solid or multicystic intraosseus**

##### **Ameloblastoma:**

It encountered in patients over a wide age range with an approximate equal prevalence in the third to seventh decades of life. There is no significant gender predilection. Some studies indicate a greater frequency in blacks. Others show no racial predilection.(7)

The tumor is often asymptomatic. A painless swelling or expansion of jaw is the usual clinical presentation (Fig 1-1, 1-2). Pain and paresthesia are uncommon even with large tumors.

About 85 percent of conventional ameloblastoma occur in the mandible, most often in molar-ascending ramus area. Maxillary ameloblastoma (about 15 percent) usually occur in the posterior regions.



Fig 1.1: Huge untreated mandibular ameloblastoma.  
(Courtesy of Dr. B. Zmiri).



Fig 1-2: Mild facial asymmetry in mandibular ameloblastoma; (Courtesy of Dr. B. Zmiri.)

The most common radiographic feature is that of multilocular radiolucent lesion (et, soap bobble and honey comb appearance) The margins of these radiolucent defects often show irregular scalloping (Fig. 1-3). Root resorption of teeth adjacent to the tumor is common.

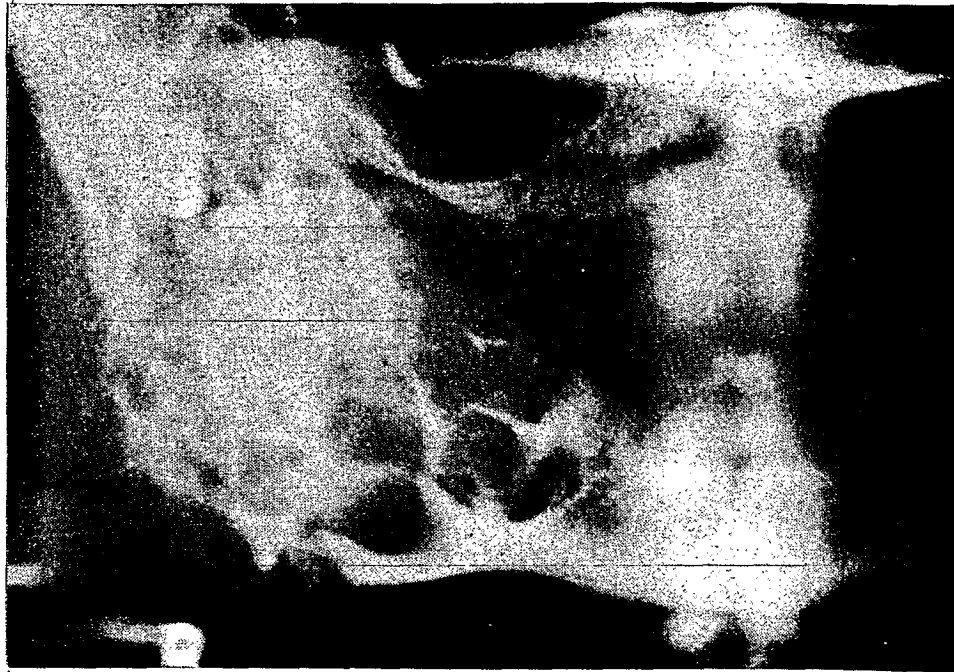


Fig 1-3: Ameloblastoma. Large multilocular lesion involving the mandibular angle and ascending ramus. The large loculation show the "Soap bobble" appearance. An unerupted third molar has been displaced high into the ramus.(7)

In many cases an unerupted tooth, most often a mandibular third molar, is associated with radiolucent defects.

### **I - Histopathologic features:**

Several microscopic subtypes of conventional ameloblastomas are recognized. The follicular and plexiform patterns are the most common (Fig 1-4, Fig 1-5). Less common histopathologic patterns

include the achanthomatous, granular cell, desmoplastic, and basal cell types.

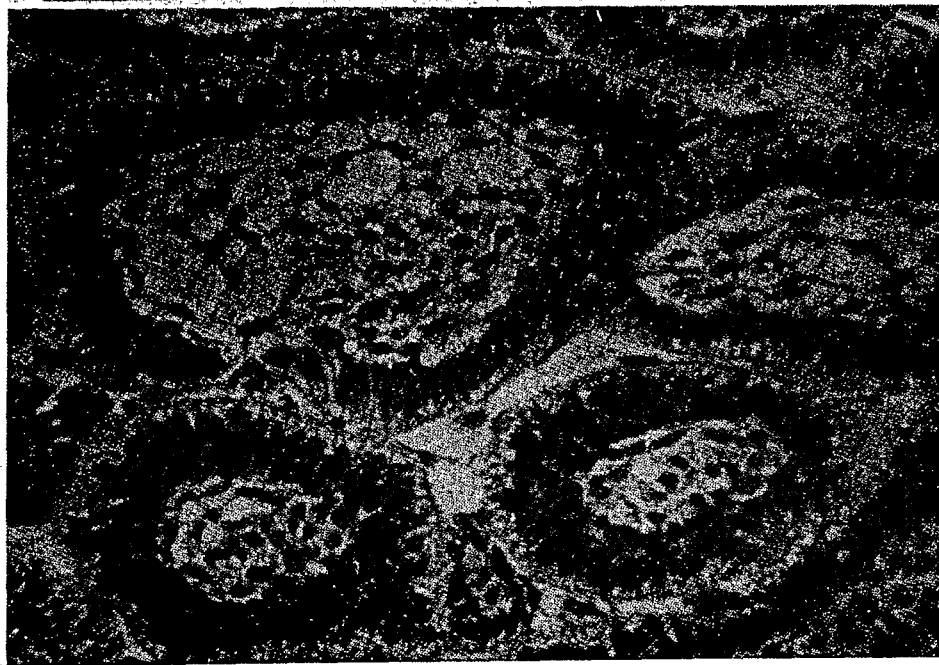


Fig 1-4: Ameloblastoma-Follicular type. Islands of odontogenic epithelium in a fibrous connective tissue stroma.(5)

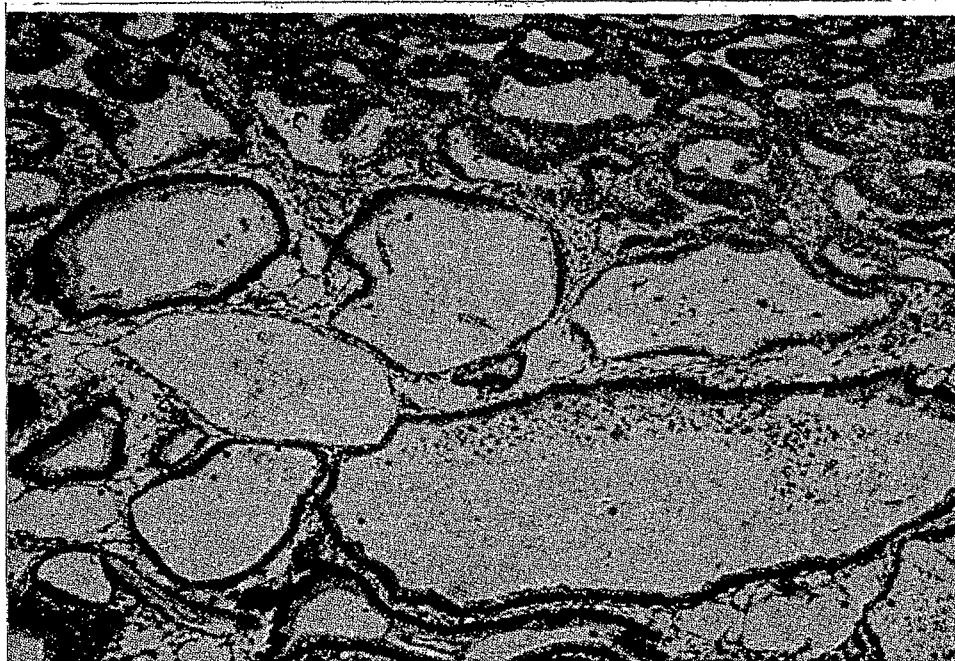


Fig 1-5: Ameloblastoma-plexiform type. Strands of odontogenic epithelium ramify in a fibrous connective tissue matrix.(5)

## **II- Treatment and Prognosis:**

Conventional ameloblastoma have been treated with a variety of means ranging from simple enucleation and curettage to en bloc resection.

Recurrence rates of 55 to 90 percent have been reported in various study after curettage. (7)

Marginal resection is the most widely used treatment, but recurrence rates of up to 15 percent have been reported after marginal or block resection.

Radiation therapy has seldom been used for ameloblastoma. Although some studies suggest that the tumor may be radiosensitive. The conventional ameloblastoma is a persistent, infiltrative neoplasm that may kill the patient by progressive spread to involve vital structures.

Most of these tumors, however, are not life-threatening lesions. Rarely, an ameloblastoma exhibits frank malignant behavior.

### **1-2- Unicystic ameloblastomas:**

Unicystic ameloblastomas account for 10 to 15 percent of all intraosseous ameloblastoma.

Whether the unicystic ameloblastoma originates denovo as a neoplasm or whether it is result of neoplastic transformation of non-neoplastic cyst epithelium has been long debated.

They are most often seen in younger patients with about 50 percent of all such tumors diagnosed at the second decade of life.

More than 90 percent of unicystic ameloblastoma are found in the mandible, usually in the posterior regions.