**Ameloblastoma**

By Edith Johanna Suarez Correa

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Section 3B

**Overview**

 Ameloblastoma originates from the word “amel,” which means enamel, and from the word “blastos,” which means germ. They are rare, odontogenic tumors, that histologically are composed of ectodermal epithelium, Therefore, these tumors emerge from the cells derived from enamel in the ectoderm germ layer. Ameloblastomas constitute 14% of all jaw tumors. However, they are the second-most common odontogenic tumor. They are usually seen in the mandible more than the maxilla. The location is usually in the ascending ramus of the mandible close to the third molar region. The majority of ameloblastomas are benign with aggressive behavior, but they not often are associated with malignant tumors.

The World Health Organization in 2005 divided ameloblastomas into four variants: solid/multicystic, unicystic, desmoplastic, and extraosseous/peripheral. The most common is the solid/ multi-cystic which represents 91% of the cases. (2)(1)

**Etiology**

The origin of Ameloblastoma is unknown. However, some authors have developed different theories some of them include the following:

* Brown and Betz stated that ameloblastomas are related to trauma, inflammation, nutritional deficiencies, irritation due to extraction, and dental caries.
* Sciubba et al stated that the origin of ameloblastomas is linked to enamel organs.
* Fan et al, their theory was correlated with the differentiation of pre-ameloblast in the bell stage of tooth development. They believe that affected pre-ameloblast are disseminated instead of functional ones during tooth development.
* Other authors stated that the absence of stratum intermedium during tooth development interferes in the development of pre- ameloblasts to functional ameloblasts. (2)(1)

**Clinical presentation**

Ameloblastoma are seen clinically as slow-growing tumors that are relatively painless. They are aggressive tumors that can rapidly become massive. Ameloblastomas can cause tooth mobility, tooth displacement root resorption, and facial asymmetry if the patient has not undergone treatment. (2)

**Demographic**

* Age: The acanthomathous subtype is seen in the 5th decade of life, and the follicular subtype is seen in the 4th decade of life as well as the plexiform subtype. The unicystic subtype is seen in younger patients with an average age of 26.
* Gender: There is No significant difference in gender distribution.
* Race: There is no significant difference in race distribution. (2)

**Location:**

The mandible is more affected than the maxilla. It is found in the ascending ramus of the mandible close to the third molar region and in the premolar/ molar area in the maxilla. (2)

**Biopsy -Histology – Radiographs**

The current management of Ameloblastoma combines clinical, radiographic, and histopathological evaluation, also known as Biopsy. Among the most common radiographs used are panoramic, CT scans, and MRI.

The most common ameloblastoma is the solid/multicystic. Histologically is seen in two patterns: the follicular and plexiform types. The follicular type presents odontogenic epithelial cells that are organized in islands and are surrounded by peripheral columnar cells (non-functional ameloblasts). The plexiform type presents epithelial cells arranged in continuous filaments. In addition to these two types, there are other subtypes: cystic, granular, acanthomatous, spindle cell, basal cell, clear cell.

The two variants of unicystic ameloblastoma are luminal and mural. Histologically can be seen as ameloblasts that extend into the lumen and are arranged in a plexiform manner. (2)

Radiographic findings:

* Multicystic/ solid Ameloblastoma: Multilocular radiolucency in the posterior ramus of the mandible, large well demarcated areas or honeycomb appearance. The presence of root resorption is related to malignancy.
* Unicystic: These are typically associated with an unerupted molar and are seen as unilocular radiolucency with well-defined borders in the posterior border of the mandible (3)(2)(4)

**Differential Diagnosis**

Ameloblastomas can often be diagnosed as: Dentigerous cyst, Odontogenic keratocyst, Odontogenic myxoma, Aneurysmal bone cyst, Fibrous dysplasia, odontoma, Osteosarcoma.

**Treatment**

The approach for the treatment of ameloblastomas is surgical conservative type I and radical type II.

The type I could be: enucleation, cauterization, curettage, cryotherapy, or marsupialization. These procedures are less invasive and preserve the normal tissues. However, the recurrence tends to be higher.

The gold standard to treat ameloblastomas is radical surgery. This includes resection of 1 cm in the mandible and 1,5 cm in the maxilla. Followed by bone reconstruction with tissue graft and prosthetic rehabilitation. (6)(5)

**Prognosis**

The recurrence of Ameloblastoma is very high for the multicystic/ solid type especially when the treatment of choice is surgical type 1. On the other hand, when the treatment of choice is radical surgery the survival and absence of recurrence can go up to 10 years. A patient has to be continuously monitored during this amount of time. The least recurrence is seen in unicystic Ameloblastoma up to 10%. (2)

**Professional Relevance**

Ameloblastoma is not a preventable disease. However, the role of dental hygienists is to help detect diseases at early stages through regular dental checkups and radiographs. It is possible to detect signs of different tumors by noting swelling, tooth resorption, or radiolucency among our patients. Hygienists can also play an important role in maintaining healthy teeth and gums. This can translate into having better post-surgical outcomes and healing in our patients.

**Citations**

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