Study Questions:

Odontogenic Tumors

* Classifications:
	+ Tumors of odontogenic epithelium without ectomesenchyme:
		- Ameloblastomas
		- Calcifying epithelial odontogenic tumors (CEOT)
		- Squamous odontogenic tumors (not covered)
		- Clear cell odontogenic tumors (not covered)
	+ Tumors of odontogenic epithelium and ectomesenchyme with or without dental hard tissue formation:
		- Ameloblastic fibroma
		- Ameloblastic fibro-odontoma
		- Adenomatoid odontogenic tumor
		- Complex and Compound odontoma
		- Odontoameloblastoma (not covered)
	+ Tumors of ectomesenchyme with or without included odontogenic epithelium
		- Myxoma
		- Cementoblastoma
		- Odontogenic fibroma (not covered)
* Inductive effect: the action of epithelial components to induce the ectomesenchyme to produce **dentin**
* **Ameloblastoma**:
	+ These are the 2nd **most common odontogenic tumors** (second to odontomas)
	+ They are classified as **benign** and **aggressive** (locally invasive)
	+ Types of ameloblastomas:
		- **86%** are **solid/multicystic** (predominant form)
		- **13%** are **unicystic**
		- **1%** are **peripheral/extraosseous**
	+ **Multicystic Ameloblastomas**
		- Histologically, ameloblastomas are **solid tumors** with **islands of epithelium** that resemble the enamel organ set with **fibrous CT**
			* With multicystic ameloblastomas, the most common histological patterns are the **follicular** and **plexiform** patterns
		- Wide age range (**from 3rd to 7th decades**)
			* **Rare** to find MCA’s in patients **<10 years old**
		- MCA’s produce intraosseous **painless expansion of bone; parasthesia** is uncommon
		- **85%** of MCA’s are found in the **ascending ramus** of the **mandible** while **15%** are found in the **posterior maxilla**
		- Radiographically, MCA’s produce a **multilocular radiolucency**
			* Small loculations look like **“soap bubbles”**
			* Large loculations look like **“honeycombs”**
		- MCA’s cause **buccal and lingual cortical bone expansion** and commonly causes **root resorption**
		- The optimal treatment of MCA’s is not yet standardized, but treatment involves **enucleation/curettage** to **en bloc resections**
			* **55-90%** recurrence rate with just **curettage**
			* **15%** recurrence rate with **marginal resection**
				+ This is the most common treatment for MCA’s
				+ **Resect 1cm past the radiographic margins** of the lesion
	+ **Unicystic Ameloblastomas**:
		- **50%** of UCA’s are found in patients within their **2nd decade**, making this an early adulthood tumor
		- **90%** are found in the **posterior mandible**
		- UCA’s appear as well-circumscribed **unilocular radiolucencies** that are **predominantly cystic**
		- There is a **10-20%** chance for recurrence with **curettage**
		- if there are **mural islands/changes** in the fibrous CT walls of the UCA, resection (not curettage) is indicated
	+ **Peripheral/extraosseous Ameloblastomas**:
		- PA’s are indolent ameloblastomas
		- Clinically presents as **painless**, non-ulcerated, **sessile or pedunculated posterior gingival/alveolar** lesions found on the mandible more often than the maxilla
* A **malignant ameloblastoma** differs from an **ameloblastic carcinoma** in that a **malignant ameloblastoma** looks exactly the same, histopathologically, as a normal ameloblastoma in a primary tumor, but has the **potential to metastasize**, while an **ameloblastic carcinoma** is an aggressive course primary tumor with **cytologic features of malignancy**
	+ Both MA and AC are **rare**
* **Calcifying epithelial odontogenic tumor**:
	+ Also known as a “**Pindborg tumor**”
	+ CEOT’s are **uncommon** tumors, accounting for <1% of all odontogenic tumors
	+ CEOT’s are **benign** and **less aggressive** than ameloblastomas
	+ They are **adult** tumors; age range of **30-50 years**
	+ Produces a **painless**, slow growing swelling, most often (**75%**) in the **posterior mandible**
	+ Radiographically, they present as **multilocular radiolucencies** with **scalloped margins** and **calcified structures**
	+ The optimal treatment of CEOT is **conservative local resection**, which has a good prognosis and a **15% recurrence rate**
	+ CEOT are **less aggressive** than ameloblastomas
* **Ameloblastic fibroma:**
	+ AF’s are **benign, indolent childhood tumors** that is **common** in the **first 2 decades**
	+ Causes **painless swelling/expansion** in the **posterior mandible** (**70%**)
	+ Radiographically presents as a **unilocular or multilocular radiolucencies**
	+ There is a **20% rate of recurrence** and **50%** of the recurrences produces an **ameloblastic fibrosarcoma,** which is **malignant** and **aggressive**
* **Ameloblastic fibro-odontoma**:
	+ AFO’s are **benign**, **indolent** tumors of **childhood** (average age of **10 years**)
	+ Causes **asymptomatic, painless expansion** of **maxilla** or **mandible** (equal frequency), but they can cause severe deformities
		- occurs most frequently in the **posterior mandible**
	+ Radiographically presents as **unilocular** (rarely multilocular) **radiolucency** with **multiple or single radioopacities**, usually associated with an unerupted tooth
	+ Conservative curettage is the indicated treatment and it produces minimal recurrences
	+ AFO’s can very rarely recur after curettage as a malignant **ameloblastic fibrosarcoma**
* **Adenomatoid odontogenic tumor**:
	+ An **uncommon** tumor (**3-7%** of all odontogenic tumors) which usually is **benign** and **indolent**
	+ Is usually **asymptomatic** and **painless**
	+ Clinically found in an **anterior** location, with a **2:1** predilection for the **maxilla**
		- Most commonly found in the **maxillary canine** area
	+ Radiographically presents as a **unilocular radiolucency** involving a crown of an unerupted tooth or extending apically beyond the crown
	+ Enucleation of the tumor is usually curative and it **very rarely recurs**
* **Odontoma**:
	+ Odontomas are the **most common odontogenic tumor**
	+ **Compound** odontomas contain **multiple tooth-like structures** while **complex** odontomas contain a **conglomerate mass of enamel and dentin**
	+ Odontomas are **benign** and **indolent**, producing small tumors with **no bone expansion**
	+ Usually occurs within the **first 2 decades** of life, with the mean age of **14 years**
	+ Is usually **asymptomatic** and is **painless**
	+ Locations:
		- Compound odontomas – **anterior maxilla**
		- Complex odontomas – **posterior mandible**
	+ Radiographic presentation:
		- Compound odontomas – **radioopaque** tooth like structures/mass with **radiolucent** rim
		- Complex odontomas – calcified **radioopaque** mass with **radiolucent** rim
	+ Odontomas do **not** expand bone
	+ After curettage, odontomas are **not likely** to recur
* **Myxoma**:
	+ Myxomas are **benign, aggressive** tumors of **young adulthood** (average age of **25-30 years**)
	+ Produces **painless expansion** of bone
	+ Slight predilection for the **mandible** over the maxilla
		- Most often in the **posterior mandible**
	+ Radiographically presents as a **unilocular or multilocular radiolucency** with a “**soap bubble**” appearance (much like ameloblastomas)
	+ **Resection** is the optimal treatment as **curettage** produces a **25% recurrence rate**
* **Cementoblastoma**:
	+ A **benign, aggressive** tumor closely related to osteoblastomas
	+ It is a **childhood/young adult** tumor where it clinically appears in patients **<25 years old**
	+ Cementoblastomas are one of the few tumors which cause **pain** (in 2/3 of patients) and **swelling**
	+ The tumor is **intimately associated** with the tooth apex of, most often, the **mandibular permanent 1st molar** in the posterior jaw
		- Rarely associated with a deciduous tooth
	+ Radiographically presents as a **calcified radioopaque** mass with a thin **radiolucent rim**
	+ Cementoblastomas are distinctive in that they are **attached** to the affected tooth (thus, pain), which causes the radiographic outline of the root to be obscured by the tumor
	+ Optimal treatment involves the **surgical extraction** or **root amputation** of the affected tooth and attached mass; excellent prognosis
* General considerations:
	+ Which odontogenic tumors are found in children, teens, young adults, and older adults?
		- Children:
			* **Ameloblastic fibro-odontoma**
		- Teens:
			* **Ameloblastic fibroma**
			* **Adenomatoid odontogenic tumor**
			* **Odontoma (complex and compound)**
		- Young adults:
			* **Ameloblastoma (unicystic)**
			* **Myxoma**
			* **Cementoblastoma**
		- Adults:
			* **Ameloblastoma (multicystic/solid)**
			* **Calcifying epithelial odontogenic tumor**
	+ Which tumors are associated with an unerupted tooth?
		- **Ameloblastoma (unicystic and multicystic)**
		- **Ameloblastic fibroma**
		- **Calcifying epithelial odontogenic tumor**
		- **Adenomatoid odontogenic tumor**
		- **Odontoma**
		- **Ameloblastic fibro-odontoma**
		- **Cementoblastoma**
	+ Not associated with unerupted teeth:
		- **Myxoma**
	+ The most common odontogenic tumor is an **odontoma** and the 2nd most common is an **ameloblastoma**