

Case #1 The findings shown in the image for this case come from the Pap smear of a 26-year-old pregnant patient. Which of the following is the best diagnosis?

A. Cockle burr

Answer: A. Cockle Burr. The image for this case represents a cockle burr, which is found rarely but usually in pregnant patients. Cockle burrs are radiant crystalline arrays (up to 100µm in diameter), and in the past were thought to be hematoidin crystals. They're not known to be associated with any pathology. They have a reddish to golden brown appearance and are often surrounded by histiocytes. (DeMay, page 23)

Case #2 The cervical cytology from a 25 y/o female who presents for her annual exam is shown. Based on the morphologic findings, the best diagnosis is:

D. Trichomonas

Answer: D. The image for this question shows normal squamous cells with trichomonas organisms (gray “blobs”) in the background. The findings of trichomonas are often subtle, especially if ones focus is on the cytology of the squamous cells. Identifying trichomonas is similar to finding Giardia in the duodenum, one has to look in the “empty” space to find the pathology.

Case #3 The lesion illustrated in this case comes from the jaw of a 40 y/o male. Based on the findings, the best diagnosis is:

A. Ameloblastoma

Answer: A. Ameloblastoma. This case illustrates an ameloblastoma. Note both the loose stellate reticulum which resides below the palisaded epithelial layer with reverse polarity of the nuclei.

Case #4 The lesion illustrated in this case was found in a 30 y/o male with a destructive jaw lesion. Based on these findings, the best diagnosis is:

C. Odontogenic keratocyst

Answer: C. Note the palisaded basal layer that is characteristic of an odontogenic keratocyst. In addition to the absence of a granular cell layer, there is usually a corrugated appearance along the surface of the squamous epithelium. In this particular image, the surface is flattened but does not have a granular cell layer. It is particularly important to recognize an odontogenic keratocyst given its tendency to recur and destructive nature if gone unrecognized.

Case #5 A 40 y/o female noticed a 3cm breast mass and presented to her primary care physician. The pathologist was consulted who performed a FNA. Representative images from the FNA are shown. Based on the findings, the best diagnosis is:

D. Fibroadenoma

Answer: D. This case illustrates a classic case of a fibroadenoma. Note the cohesive clusters of epithelial cells with a background of naked myoepithelial cells.

Case #6 The histologic image in this case comes from a breast lesion in a 45 year old female. Based on the findings, which of the following is the best diagnosis?

B. Mucinous Adenocarcinoma

Answer: B. Mucinous Adenocarcinoma. This image shows mucin dissecting bands of collagen with floating islands of tumor cells. The presence of mucin with floating islands of tumor cells is diagnostic of mucinous adenocarcinoma. Mucoceles are not infrequently found in breast tissue, but must be completely excised and examined to rule out a mucinous adenocarcinoma. This is particularly important when examining limited biopsy material which may show some mucin but no epithelial cells. One should not fall into the trap of diagnosing a mucocele on biopsy!

Case #7 The images for this case come from a parotid mass. Which of the following is the best diagnosis?

D. Warthin's tumor

Answer: D. Warthin's tumor. The images for this case show the classic appearance of a Warthin's tumor. There is a double layer of oncocytic epithelium with underlying lymphoid tissue. Germinal center formation may be present. Although not present in this case, a uniform presence of lymphoid cells may raise the possibility of a lymphoma, which would require special stains and studies to diagnose. Warthin's tumor is the most common bilateral parotid neoplasm (popular question).

## Odontogenic Lesions

1. Below the gum line, dentin is covered by cementum, which helps to anchor the tooth along with the periodontal ligament. Which of the following embryological elements is responsible for the formation of cementum?

D. Mesenchymal cells outside the tooth

Answer: D. The mesenchymal cells outside the tooth are responsible for the formation of cementum, which covers dentin below the gum line, and the periodontal ligament, which anchors the tooth to the bone. (Sternberg, S.S. *Histology for Pathologists*. 2<sup>nd</sup> Ed. Lippincott-Raven, 1997. pp. 367-390)

2. Primitive embryological structures of the tooth are present from early fetal development until:
- C. 25 years of age

Answer: C. Embryological structures of the tooth are present from early fetal development until the mid-20s. After 5-6 years of activity, the dental lamina breaks up into epithelial rests. These can give rise to odontogenic tumors or cysts. Understanding the embryology of the tooth and the time period of the presence of embryological structures is important to understanding the appearance and distribution of these lesions. ([www.pathologyoutlines.com/mandiblemaxilla.html](http://www.pathologyoutlines.com/mandiblemaxilla.html))

3. This cyst is composed of a non-keratinized stratified squamous epithelium with a fibrous wall. Radiographically it is associated with an impacted or unerupted tooth. The best diagnosis is:
- D. Dentigerous cyst

Answer: D. This is the classic description of a dentigerous cyst (non-keratinized squamous epithelium and association with an impacted or unerupted tooth). (Kumar V, et al. *Robbins and Cotran Pathologic Basis of Disease*. 7<sup>th</sup> ed. 1999. p. 782)

References:

*Practical Principles of Cytopathology*, DeMay, RM. 1999.

**Notes for question set:**<sup>1</sup>

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<sup>1</sup> PathMD strives for the highest quality and accuracy. However, the *PathMD: Board Review Letter* is for review purposes and not meant for clinical decision making. It should not be used in place of review of primary reference texts and the current medical literature. If inaccuracies are identified, please notify us so that a correction may be published. ([info@PathMD.com](mailto:info@PathMD.com))