Cyst on the Eyebrow

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The best diagnosis is:

a. bronchogenic cyst  
b. dermoid cyst  
c. epidermal inclusion cyst  
d. hidrocystoma  
e. steatocystoma

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Dermoid cysts often present clinically as firm subcutaneous nodules on the head or neck in young children. They tend to arise along the lateral aspect of the eyebrow but also can occur on the nose, forehead, neck, chest, or scalp. Dermoid cysts are thought to arise from the sequestration of ectodermal tissues along the embryonic fusion planes during development. As such, they represent congenital defects and often are identified at birth; however, some are not noticed until much later when they enlarge or become inflamed or infected. Midline dermoid cysts may be associated with underlying dysraphism or intracranial extension. Thus, any midline lesion warrants evaluation that incorporates imaging with computed tomography or magnetic resonance imaging. Histologically, dermoid cysts are lined by a keratinizing stratified squamous epithelium (quiz image A), but the lining may be brightly eosinophilic and wavy resembling shark teeth. The wall of a dermoid cyst commonly contains mature adnexal structures such as terminal hair follicles, sebaceous glands, apocrine glands, and/or eccrine glands (quiz image B). Smooth muscle also may be seen within the lining; however, bone and cartilage are not commonly reported in dermoid cysts. Lamellar keratin is typical of the cyst contents, and terminal hair shafts also are sometimes noted within the cystic space (quiz image B). Treatment options include excision at the time of diagnosis or close clinical monitoring with subsequent excision if the lesion grows or becomes symptomatic. Many practitioners opt to excise these cysts at diagnosis, as untreated lesions are at risk for infection and/or inflammation or may be cosmetically deforming. Surgical resection, including removal of the wall of the cyst, is curative and reoccurrence is rare.

Bronchogenic cysts demonstrate an epithelial lining that often is pseudostratified cuboidal or columnar as well as ciliated (Figure 1). Goblet cells are present in the lining in approximately 50% of cases. Smooth muscle may be seen circumferentially surrounding the cyst lining, and rare cases also contain cartilage. In contrast to dermoid cysts, other types of adnexal structures are not found within the lining. Bronchogenic cysts that arise in the skin are extremely rare. These cysts are thought to arise from respiratory epithelium that has been sequestered during embryologic formation of the tracheobronchial tree. They often are seen overlying the suprasternal notch and occasionally are found on the anterior aspect of the neck or chin. These cysts also are present at birth, similar to dermoid cysts.

Epidermal inclusion cysts have a lining that histologically bears close resemblance to the surface epidermis. These cysts contain loose lamellar keratin,
similar to a dermoid cyst. In contrast, the lining of an epidermal inclusion cyst will lack adnexal structures (Figure 2). Clinically, epidermal inclusion cysts often present as smooth, dome-shaped papules and nodules with a central punctum. They are classically found on the face, neck, and trunk. These cysts are thought to arise after a traumatic insult to the pilosebaceous unit.

Hidrocystomas can be apocrine or eccrine. Eccrine hidrocystomas are unilocular cysts that are lined by 2 layers of flattened to cuboidal epithelial cells (Figure 3). The cysts are filled with clear fluid and often are found adjacent to normal eccrine glands. Apocrine hidrocystomas are unilocular or multilocular cysts that are lined by 1 to several layers of epithelial cells. The lining of an apocrine hidrocystoma will often exhibit luminal decapitation secretion. Apocrine and eccrine hidrocystomas are clinically identical and appear as blue translucent papules on the cheeks or eyelids of adults. They usually occur periorbitally but also can be seen on the trunk, popliteal fossa, external ears, or vulva. Eccrine hidrocystomas can wax and wane in accordance with the amount of sweat produced; thus, they often expand in size during the summer months.

Steatocystomas, or simple sebaceous duct cysts, histologically demonstrate a characteristically wavy and eosinophilic cuticle resembling shark teeth (Figure 4) similar to the lining of the sebaceous duct where it enters the follicle. Sebaceous glands are an almost invariable feature, either present within the lining of the cyst (Figure 4) or in the adjacent tissue. In comparison, dermoid cysts may have a red wavy cuticle but also will usually have terminal hair follicles or eccrine or apocrine glands within the wall of the cyst. Steatocystomas typically are collapsed and empty or only contain sebaceous debris (Figure 4) rather than the lamellar keratin seen in dermoid and epidermoid inclusion cysts. Steatocystomas can occur as solitary (steatocystoma simplex) or multiple (steatocystoma multiplex) lesions. They are clinically comprised of small dome-shaped papules that often are translucent and yellow. These cysts are commonly found on the sternum of males and the axillae or groin of females.

REFERENCES