Review

CUTANEOUS NON-FOLLICULAR CYSTS

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SUMMARY

Cutaneous cysts may derive from appendageal epithelium or lymphatic vessels, or may be due to developmental defects, ectopic growth of tissues, infection with parasites or other causes. The term "pseudocyst" is applied to those cystic lesions which do not show a true epithelial lining. In this article the clinico-pathologic characteristics of the main cutaneous non-follicular cysts (i.e., cysts that are not derived from follicular epithelium) are presented.

KEY WORDS

non-follicular cysts, histopathology, cysts, developmental cysts

Cutaneous cysts are enclosed spaces within the skin lined by an epithelium. They represent a wide group of lesions with different ethiology and variable histogenetic derivation. In Table 1 are summarized the main cystic lesions that can occur within the skin. Cutaneous cysts may derive from appendageal epithelium or lymphatic vessels, or may be due to developmental defects, ectopic growth of tissues, infection with parasites or other causes. The term "pseudocyst" is applied to those cystic lesions which do not show a true epithelial lining.

In what follows the clinico-pathologic characteristics of the main cutaneous non-follicular cysts (i.e., cysts that are not derived from follicular epithelium) will be shortly discussed.

1. NON-FOLLICULAR APPENDAGEAL CYSTS

Eccrine hidrocystoma (1). Eccrine hidrocystomas are usually found on the face as small, translucent, bluish, solitary nodules. Cases with multiple lesions have also been described. Histologically they present with an unilocular cavity within the dermis lined by two layers of cuboidal epithelium with eosinophilic cytoplasm. There is no evidence of decapitation secretion. In some areas, a single row of cells is found to form the cyst's wall.

Apocrine cystadenoma (2). Apocrine cystadenomas are almost invariably solitary lesions located on the face or the neck. However, rare cases with multiple

Table 1. Cutaneous cysts.

Appendageal cysts
Epidermal cyst
Tricholemmal cyst
Proliferating tricholemmal cyst
Vellus hair cyst
Milium
Steatocystoma
Verrucous cyst
Eccrine hidrocystoma
Apocrine cystadenoma
Developmental cysts
Bronchogenic cyst
Branchial cleft cyst
Thyreoglossal cyst
Thymic cyst
Ciliated cyst of the lower limb
Median raphe cyst
Vulval mucinous and ciliated cysts
Cystic teratoma
Dermoid cyst
Lymphatic cysts
Cystic higroma
Other/Miscellaneous
Parasitic cyst
Phaeomycotic cyst
Endometriosis
Cutaneous endosalpingiosis
Bartholin's cyst
Metaplastic synovial cyst

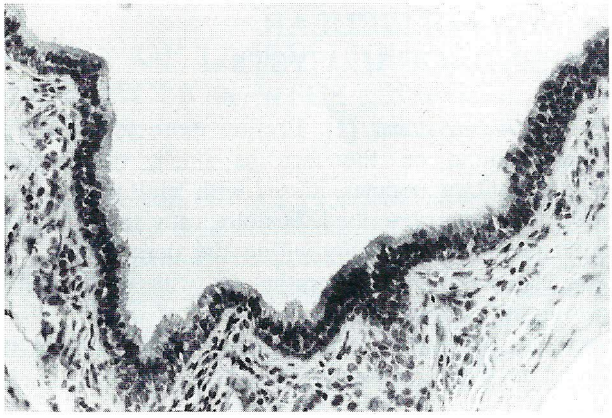

Figure 1. Bronchogenic cyst. The cyst wall is composed of a pseudostratified ciliated epithelium (H&E, x250).

lesions have been described. Clinically, they are often undistinguishable from lesions of eccrine hidrocystoma. Histologically they present frequently with a multilocular cavity lined by cuboidal epithelium. Typical decapitation secretion can be detected, at least in some foci. Myoepithelial cells can be observed at the periphery of the layer of secretory cells.

It must be stressed that in some cases of eccrine hidrocystoma or apocrine cystadenoma both eccrine and apocrine differentiation can be observed in different areas of the same lesion. In fact, some authors believe that most cases of eccrine hidrocystoma show, on serial sections, foci of apocrine differentiation.

2. DEVELOPMENTAL CYSTS

The group of the developmental cysts includes lesions derived from embryological vestiges (i.e., branchial cleft cyst) or arising along lines of embryological closure (i.e., median raphe cyst of the penis).

Branchial cleft cyst (3). Branchial cleft cysts are probably derived from remnants of the branchial cleft. They can be found near the angle of the mandible (first branchial pouch) or along the anterior border of the sternomastoid muscle (second branchial pouch). Histologically they are lined by stratified squamous epithelium, usually associated with a dense lymphoid infiltrate. Germinal centers and even subcapsular lymph sinuses may be found occasionally. Squamous cell carcinoma may arise in long-standing lesions.

Bronchogenic cysts (4). Bronchogenic cysts develop presumably from tracheal buds. They present at birth or soon after it in both male and female patients. The most common location is the chest over the manubrium sterni. However, lesions over the shoulders, neck, and chin have also been described. Histologically a unilocular cavity lined by ciliated and mucin-producing pseudostratified columnar or cuboidal epithelium with globet cells can be observed (Fig. 1). Smooth muscles and mucous glands within the cyst's wall are a common finding.

Thyreoglossal cyst (5). Thyreoglossal cysts are due to a defect in the obliteration of the embryonic thyreoglossal duct. They are diagnosed during the first years of life and usually arise as deep lesions in the middle of the neck, but opening to the skin surface has been described. The cystic cavity is lined by stratified squamous or mucous-secreting columnar epithelium. Intraepithelial smooth muscles are not observed, but thyroid follicles can be found occasionally.

Thymic cyst (6). Thymic cysts arise probably from remnants of the thymopharyngeal duct. They are usually found on the neck of children or adolescents. Histologically they can present with uni- or multilocular cavity lined by one or more types of epithelium including squamous, columnar, cuboidal or pseudostratified columnar. Hassal's corpuscles are usually found within the cyst's wall.

Ciliated cyst of the lower limb (7). The term "ciliated cyst" has been applied to a variety of cysts showing walls composed of ciliated epithelium (i.e., bronchogenic cysts, branchial cleft cysts and thymic cysts among others). A particular type is the cutaneous ciliated cyst of the lower limb arising in middle-aged women. The lesions are presumably of Müllerian origin. Histologically the cavity is usually unilocular but may be multilocular, and it is lined by ciliated cuboidal epithelium with pseudostratified areas. Mucin-secreting cells are not observed.

Figure 2. Median raphe cyst of the penis. Cystic cavity lined by a pseudostratified columnar epithelium (H&E, x250).

Median raphe cyst of the penis (8). The median raphe cyst can be found at any point from the external urethral meatus to the anus along the line of embryological closure. Most commonly is encountered near the glans penis. Histologically the cavity is lined by pseudostratified columnar epithelium with the exception of the distal portion of the raphe, where a squamous epithelium can be observed (Fig. 2).

Several cases of median raphe cyst of the penis were diagnosed in the past as apocrine cystadenoma.

Vulval mucinous and ciliated cysts. Cystic lesions arising in the female genitalia show usually ciliated, mucin-producing epithelium. Bartholin's cysts are included in this group. Histologically there is a cavity lined by pseudostratified ciliated columnar epithelium. In most instances mucinous epithelium can also be observed. There may be areas of squamous metaplasia.

3. OTHERS CYSTS/MISCELLANEOUS CYSTS

In this group are included cutaneous cystic lesions with variable ethiology.

Parasitic cysts (9). The most frequent cysts due to parasites are caused by infection with Taenia solium (cysticercosis). Predilection site is the chest wall, but they may be encountered also in other parts of the body. The cyst is usually located in the subcutaneous tissue, and is characterized by the presence of the scolex of the cysticercus larva. Variable numbers of eosinophils can be observed in the context of the inflammatory response surrounding the cyst.

In addition to cysticercosis, infection with other parasites may also cause formation of cystic cavity in the skin (i.e., sparganosis). Infection with the sand flea Tunga penetrans (tungiasis) causes the formation of an intraepidermal pseudocyst, usually located on the feet.

Endometriosis (10). Cutaneous endometriosis is due to ectopic growth of endometrial tissue within the skin. It may be found in the umbilicus, or in operation scars of the lower abdomen, particularly those caused by caesarean section. The endometrial tissue may respond to the normal hormonal influences, thus there might be enlargement of the lesions and bloody discharge during the time of the menses. Histologically there are multiple endometrial glands surrounded by endometrial stroma. The glands are dilated and may contain blood or debris.

Metaplastic synovial cysts. Cutaneous metaplastic synovial cysts arise usually in surgical scars or at sites of trauma. No relationship to joints or other synovial structures can be observed. Histologically there is a multilocular cavity lined by epithelium resembling synovium. There may be communication with the overlying epidermis.

Cutaneous endosalpingiosis (11). Cutaneous endosalpingiosis is due to aberrant growth of Fallopian tube epithelium within the skin. It has been described around the umbilicus following salpingectomy. Histologically a unilocular cavity lined by columnar, ciliated and secretory epithelium of endosalpingial type can be observed. Papillary projections into the cyst are a frequent finding.

4. LYMPHATIC CYSTS

Cystic higroma. Cystic higroma is a variant of lymphangioma usually found on the neck of newborns and infantes. Histologically presents with large cavernous spaces lined by flattened endothelium.

5. CUTANEOUS PSEUDOCYSTS

Pseudocysts are cystic cavities without a true epithelial lining. They can be due to trauma and subsequent tissue degeneration, or to accumulation of mucinous material within the skin.

Pseudocyst of the auricle (12). The pseudocyst of the auricle is caused by degeneration of cartilagenous tissue of the ear, most often occurring in middle-aged males. Histologically there is an intracartilaginous cavity without epithelial lining. The wall is composed of eosinophilic, amorphous material.

Mucocele (13). Mucocele results from the rupture of a mucous duct of a salivary gland with subsequent extravasation of mucus. The most common location is the lower lip, but it may arise in the buccal mucosa as well. Histologically there is accumulation of mucus within the dermis without epithelial lining.

Mucoid cyst of the finger (14). Mucoid cysts of the finger are usally found on the distal phalanx of a finger or thumb. Previous trauma on the affected site has been reported in some cases. Histologically there is a large mucinous area without epithelial lining.

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