D. Sweat gland tumors

1. Eccrine hidrocystoma

A small, translucent-bluish papule 2 mm to 3 mm in diameter occurs on the face, usually solitarily but sometimes multiply (Fig. 21.12). When there are multiple papules, the number tends to increase in summer and decrease in winter. The skin lesion is thought to be a cystic intradermal channel enlarged by sweat deposition; it is known to be a stagnating cyst that accompanies deformity of the eccrine sweat ducts (Fig. 21.13). Sweat deposition can be identified by puncture with a needle.

2. Syringoma

Clinical features

Small, multiple, flatly elevated papules with a diameter of 1 mm to 3 mm and normal skin color result from localized proliferation of intradermal sweat ducts. The eyelids are the most commonly affected. The papules may disseminate on the trunk and coalesce (Fig. 21.14). The incidence is higher among women than men, and the disease is seen most often in puberty, when sweat secretion increases. It is asymptomatic and rarely heals spontaneously.

Pathology

Strands of epithelia form luminal structures of various sizes in the upper and middle dermal layers. The strands form cystic luminal structures with a tadpole-like shape. The lumen is composed of double-layered mural cells with peripheral proliferation of connective tissue (Fig. 21.15).

Differential diagnosis

Differentiation from lupus miliaris disseminatus faciei (LMDF), milium and angiofibroma is easy by histopathological imaging.

Treatment

Treatment is usually unnecessary, as syringoma is asymptomatic and there is no malignant transformation. Carbon dioxide gas laser therapy and cryotherapy may be conducted for cosmetic purposes.

3. Eccrine poroma

Definition, Clinical features

Outer cells of eccrine sweat ducts proliferate in eccrine sweat
glands. Some of the cells differentiate into sweat duct luminal cells and further into sweat duct excretion cells. A small, dome-shaped or pedunculated nodule occurs on any site of the body, particularly on the soles and palms. The nodules are characterized by dark red color and easy bleeding (Fig. 21.16).

**Pathology**

There is a proliferating nest of poroid cells in the epidermis and the dermis. Eosinophilic cells form small lumens in the focus (cuticular cells, Fig. 21.17). The tumor cells contain large quantities of glycogen.

**Treatment**

Eccrine poroma may become malignant in rare cases (eccrine porocarcinoma). The skin lesion should be surgically removed.

### 4. Eccrine spiradenoma

A firm, solitary, sharply margined, intradermal or subcutaneous nodule 1 cm to 2 cm in diameter occurs on the face, neck, trunk or upper arm. The nodule is normal skin color or bluish. It is accompanied by spontaneous pain and tenderness. Large light cells and small dark cells are pathologically observed to proliferate in a palisading pattern or in clusters, forming a tubular structure.

### 5. Papillary eccrine adenoma

Small solitary nodules of 1 cm to 3 cm in diameter occur on the extremities. Histopathologically, cystic structures of several sizes, and columnar strands of epithelium are found. Papillary eccrine adenoma is thought to be a benign tumor that differentiates into the eccrine sweat ducts; however, it is not known whether it originates from eccrine sweat gland cells or apocrine sweat gland cells.

### 6. Nodular hidradenoma

This is a solitary intradermal nodule. The tumor cells are

---

**Classification and subtypes of eccrine poroma**

**Hidracanthoma simplex**: Tumor cells proliferate within the epidermis. The lower legs are most commonly involved. The surface of the lesion is slightly keratinized.

**Eccrine poroepithelioma**: Tumor cells proliferate in the direction of the dermis. Atypism is slight.

**Dermal duct tumor**: Tumor cells proliferate only in the dermis, without connection to the epidermis.

**Eccrine porocarcinoma**: Eccrine poroma often progresses to eccrine porocarcinoma. High atypism and infiltrative proliferation result in canceration.
polygonal cells containing eosinophilic cell bodies. Histopathologically, there are spindle-shaped cells containing long, thin nuclei, and round cells containing round nuclei. Nodular hidradenoma is a benign tumor that differentiates into eccrine sweat glands. There may be malignant formation (malignant nodular hidradenoma) in some cases.

7. Mixed tumor of the skin

Synonym: Chondroid syringoma

Relatively firm intradermal nodules of 3 cm or less in diameter occur, most frequently on the face, head and scalp of young and middle-aged persons (Fig. 21.18). Mobility is present at the bottom of the nodules on the skin surface. There are luminal structures of several sizes in the skin lesion, which are surrounded by single- or double-layered cell walls. Epithelial adenomatous tissue is interspersed with luminal structures and mucus-like or cartilage-like fibrotic stroma. Mixed tumor of the skin is thought to be a benign tumor that differentiates into sweat ducts in the secretory part of the eccrine and apocrine sweat organs. It may be cancerous in rare cases.

8. Apocrine hidrocystoma

This is a tumor of the apocrine organs. A small, solitary, dome-shaped nodule with a diameter of several millimeters to 2 cm occurs around the eye or elsewhere on the face, or on the ear or scalp, of persons middle aged or older. The nodule is transparent or bluish. A large cystic structure is found in the dermis. The nodule is composed of single-layered pillar cells that show apocrine secretion, and myoepithelial cells that are located on the outer side of the pillar cells. It is asymptomatic. Excision may be conducted at the patient’s request.

9. Cylindroma

Multiple dome-shaped or slightly pedunculated tumors of 1 cm to 10 cm in diameter and normal to brown skin color occur, most commonly on the scalp of adolescent boys and girls (Fig. 21.19). When the entire scalp is affected, the head has the appearance of being wrapped by a turban (turban tumor). The condition seldom occurs in ethnic Japanese. Cylindroma may occur solitary in rare cases. Multiple cylindroma is an autosomal dominant disorder in which abnormality of the cylindromatosis gene (CYLD1 gene) has been identified, and multiple papular trichoepithelioma is seen. Cylindroma is thought to be a tumor of the sweat organs. There may be malignant formation in rare cases (malignant cylindroma).
10. Hidradenoma papilliferum

A small, dome-shaped tumor occurs, often accompanied by erosion and bleeding. It most frequently appears on the female genitalia. The tumor resembles granulation tissue. Pathologically, there is dense papillary proliferation of glandular epithelial cells of apocrine-type secretion. Hidradenoma papilliferum is the typical type of apocrine neoplasm.

11. Syringocystadenoma papilliferum

An erosive rose-pink-surfaced verrucous nodule occurs, most commonly on the scalp or face of infants (Fig. 21.20). It is an apocrine organic hamartoma and often occurs secondarily after sebaceous nevus. Histopathologically, there is a double-layered luminal structure with long cylindrical cells on the inner side, cubical cells on the outer side, and marked plasmacytic interstitial infiltration in the nodule (Fig. 21.21). Basal cell carcinoma occurs secondarily in 10% of cases.

12. Tubular apocrine adenoma

A nodule of 1 cm to 2 cm in diameter and normal skin color or brown occurs, usually on the scalp. Histopathologically, proliferation of small, multiple cyst-like lumens is seen.

13. Erosive adenomatosis of the nipple

A benign tumor occurs in the nipple, often accompanied by erosion and exudation. Differentiation from mammary Paget’s disease and breast cancer is necessary. A dense concave structure and a luminal structure are histopathologically observed. Erosive adenomatosis of the nipple is a benign tumor that differentiates into the apocrine sweat glands. The only treatment is total excision; unless it is complete, there is recurrence.

E. Cysts

1. Epidermal cyst

Clinical features

A dome-shaped, intradermal or subcutaneous tumor with a diameter of 1 cm to 2 cm (or more than 10 cm in rare cases) occurs, most frequently on the head or neck, upper trunk, or lumbar region (Fig. 21.22). The tumor adheres to the skin surface;