

Fig. 1.35 Pacinian corpuscle (hematoxylin and eosin).

D. Subcutaneous fat tissue

The subcutaneous tissue is the layer between the dermis and the fascia. The fat tissue acts to preserve neutral fat, cushion against external physical pressure, retain moisture and generate heat.

The subcutaneous tissue is largely composed of fat cells. Assembled fat cells separated by the connective fibroid fat septum are called fat lobules. Fiber bundles produced in the dermis and firmly connected with the fascia and periosteum through the subcutaneous tissue are found throughout this region. These fiber bundles are called retinaculae cutis, and they strengthen the connection between the dermis and deeper tissues.

The main component of the fat droplet is triglyceride, composed of oleic acid and palmitic acid. Since a large droplet accounts for most of the contents of the cellular cytoplasm in the fat cell, other cellular organelles are pushed to the edge.

Multiple smooth muscles called tunicae dartos are characteristically seen in the dermal deep layers and subcutaneous tissues of the scrotum, penis, labia majora and nipples (**Fig. 1.36**).

The boundary between the subcutaneous tissue and skeletal muscle is called the musculus cutaneus. It is not clear in sites with muscles of expression, such as in the face.

The thickness of the subcutaneous tissue depends on the body site, age and other factors. It is particularly thick in the cheeks, breasts, buttocks, thighs, palms and soles; it is thin in the eyelids, dorsal nose, lips of the mouth, and labia minora; subcutaneous tissue is absent in the foreskin. Subcutaneous tissue tends to develop and enlarge in newborn infants and in children at puberty. In embryos and newborn infants, heat is produced at a rapid rate by brown fat tissue in the dorsal region, which contains multiple fat droplets.

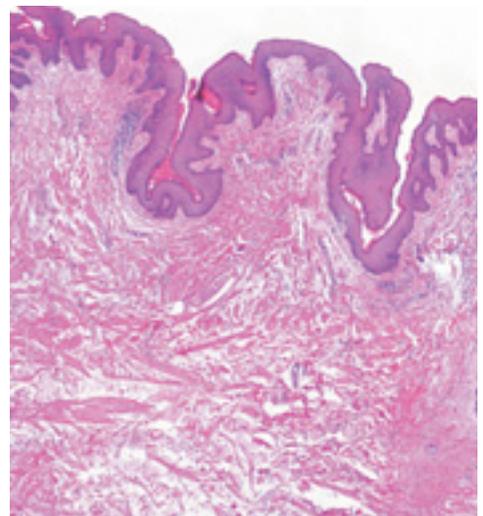


Fig. 1.36 Tunica dartos in the skin of the scrotum.

E. Appendages

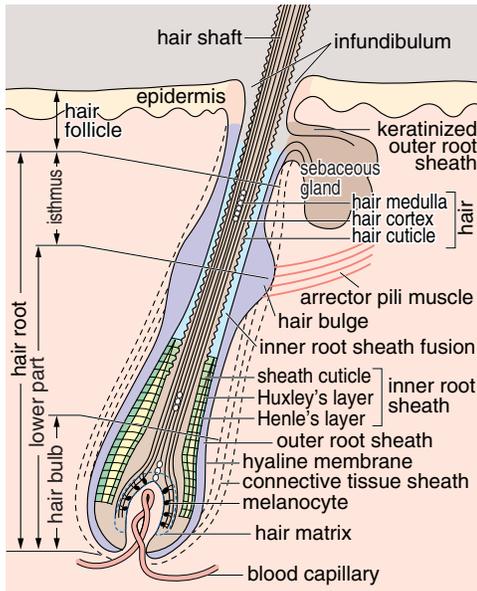


Fig. 1.37 Longitudinal section of the hair follicle.

a. Hair apparatus

The hair apparatus plays a role subsidiary to that of the sensory nerves in protecting the scalp from external forces and light, and in moderating heat in the head. Eyelids protect the eyes from dirt, and armpit hair and pubic hair absorb mechanical friction. The number of hairs on a person's head averages 100,000. The hair apparatus is found throughout the skin except on the lips of the mouth. It consists of hair and hair follicles that enclose the hair.

1. Hair follicle ★

The layer of tissue that encloses a hair is called a hair follicle. It is aligned obliquely to the skin surface. Part of the hair follicle is slightly enlarged to form a hair bulge to which the base of the arrector pili muscle is connected (**Figs. 1.37, 1.38-1** and **1.38-2**). Dermal stem cells reside in the hair bulge. Sebaceous glands are seen above the bulge stem cells, and apocrine glands open further above. The bottom of the hair root during the growth stage bulges out spherically; it is called a hair bulb and contains a hair group of cells known as the hair papilla. The hair follicle opens in a funnel shape (hair infundibulum).

The hair follicle is double-bounded with two layers, with an epithelial interior and connective tissue component on the exterior.

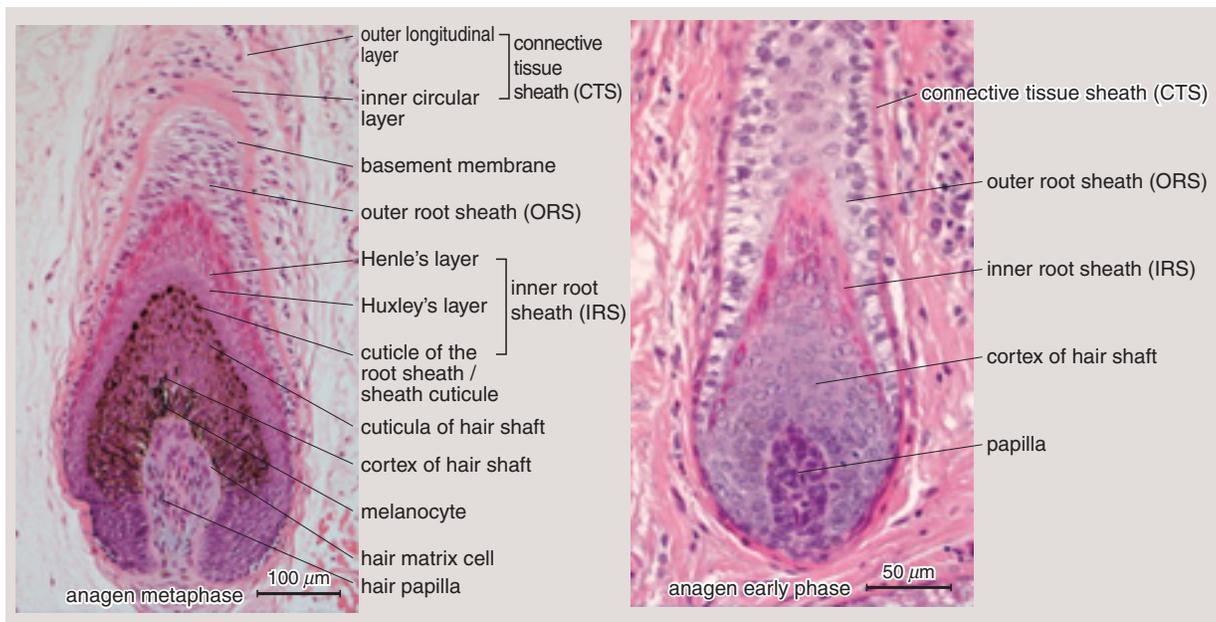


Fig. 1.38-1 Structure of the hair follicle (longitudinal section).