2.1. Epidermis

The epidermis consists of non-viable epidermis and viable epidermis. Stratum corneum is recognized as a non-viable epidermis, while the level below the stratum corneum is called the viable epidermis. The viable epidermis is made up of several sub-structures and has 50–100 μm thickness. The cells are arranged collectively with the aid of tonofibrils. Blood capillaries and nerve fibers reach the epidermis by passing through the dermis and subcutaneous/fat layer. Most of the epidermis consists of keratinocytes counting for approximately 95% of the total number of cells in the epidermis.

The epidermis constitutes the following sub-layers:

1. Stratum basale (basal layer)
2. Stratum spinosum (prickle layer)
3. Stratum granulosum (granular layer)
4. Stratum lucidum(transparent layer)
5. Stratum corneum (horny layer)

2.1.1. Stratum corneum (the horny layer)

The top layer of the skin, which accounts for the barrier function of the skin, is the stratum corneum. It is about 10–15 μm in thickness and is composed of flattened corneocytes which are enveloped by an extracellular matrix of lipid. Corneocytes are the concluding product of mortal differentiation of epidermal keratinocytes and are frequently changed. It is a margin amid the body and the surroundings.

2.2. Dermis

As the drug moiety moves across the stratum corneum, it can go through the deeper epidermal tissues and arrive at the dermis. The dermis has a vast network of blood capillaries from which the drug will be absorbed into the bloodstream in general. From the dermis and subcutaneous layer where they originate, sebaceous glands, sweat glands, and hair follicles rise to the skin surface (Fig. 1).

2.3. Hypodermis

Subcutis or hypodermis is considered to be the third surface beneath the dermis. Subcutis, which is considered to be an elastic surface, contains a large proportion of adipose cells which function for blood vessels and nerve endings as a shock absorber. The average thickness of this surface is between 4 and 9 mm. The real thickness, however, varies in every person and is dependent on the region of the body as well [5].

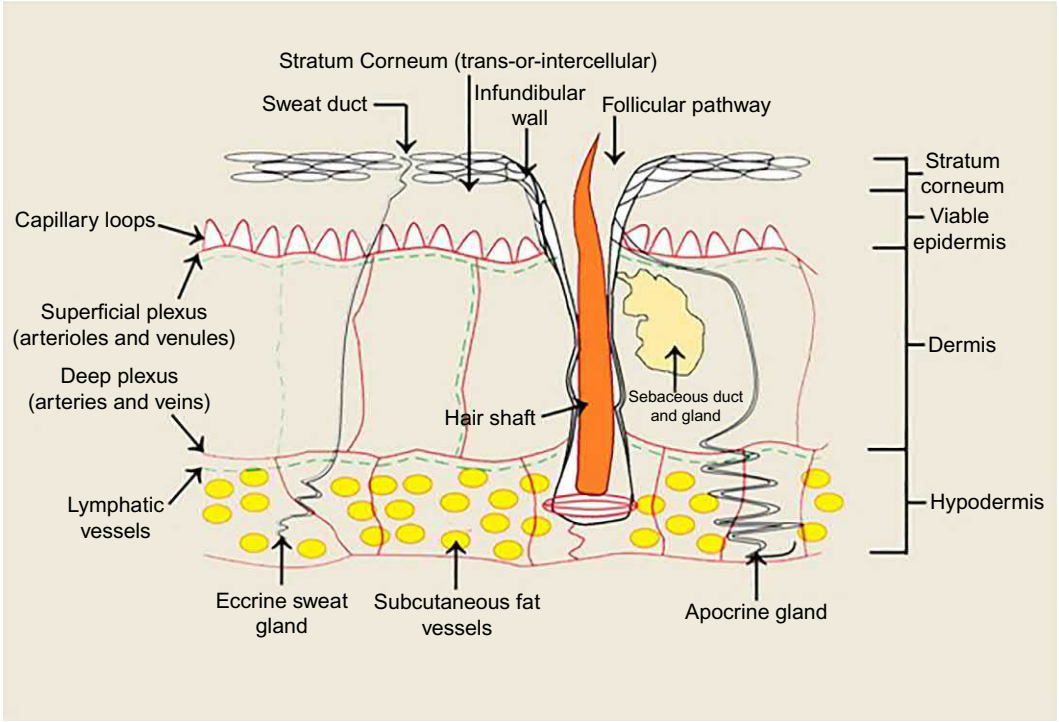

FIG. 1 Morphology of skin.