

HIRSUTISM IN THE FEMALE

A REVIEW

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BY

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" وليس الذكر كالأنثى "

سورة ال عمران الآية ٣٦



TO MY HUSBAND

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I N T R O D U C T I O N

INTRODUCTION

Hair is one of skin appendages, normally present in both men and women, but it varies in amount, coarseness and distribution.

Hirsutism is a distressing problem which may affect females at different ages, it is characterized by growth of the terminal coarse hairs on the mid-line area of the body (lips, chin, chest, abdomen and back regions).

It indicates an increase of androgen effect.

ANATOMY OF THE HAIR FOLLICLE

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Structure of hair:

In longitudinal section, the mature hair follicle can be divided anatomically into three segments.

(1) Infundibulum:

The upper funnel shaped invagination that extends from the follicular orifice above to the entrance of the sebaceous duct below.

(2) Isthmus:

The short midsection of the follicle bounded superiorly by the sebaceous duct and inferiorly by the insertion of the hair arrector pili muscle.

(3) Inferior segment:

Extending from the insertion of the hair arrector pili muscle to the base of the follicle and including the outer root sheath and the hair bulb (Montagna and Parakkal, 1974) (Fig. 1).

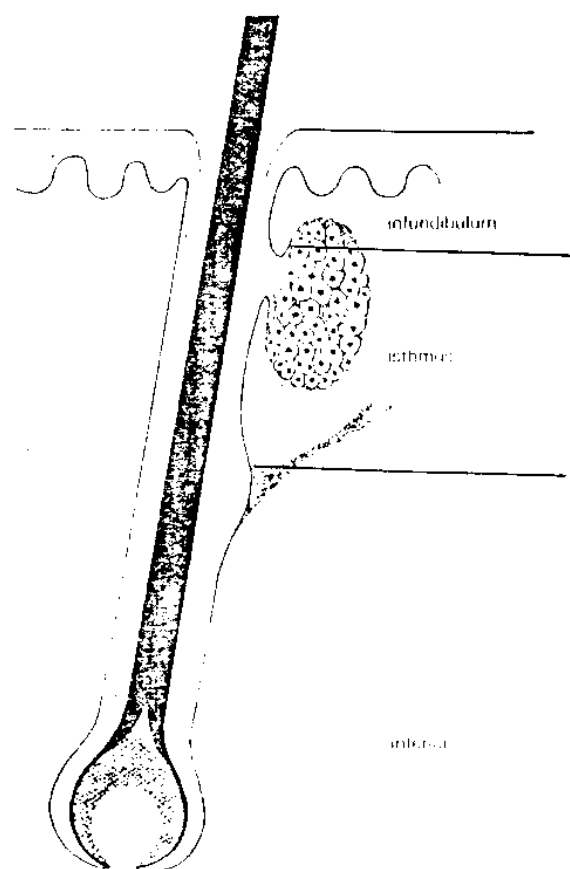


Fig. (1)

(1) Hair bulb:

It is the expanded lower portion of hair follicle. It is composed of a matrix of epithelial cells which is rapidly dividing cells, in the lower bulb and the upper bulb surrounding the dermal papilla.

These cells are several layers and have a very rapid turnover. It has been suggested that each matrix cell divides every 23-72 hours (Van Scott et al., 1963).

There are considerably fewer cell attachment sites between the matrix cells, this may facilitate easier movement of cells from the matrix to the upper bulb and supra-bulbar area.

The cells surrounding the dermal papilla are precursors of the hair fibre. The more peripheral matrix cells give rise to the outer most root sheath and inner root sheath. (Fig. 2).

(2) Inner root sheath:

The inner root sheath positioned inside the outer root sheath. It consists of three layers from outside in:

- a) Henle's layer
- b) Huxley's layer
- c) Cuticle of the inner root sheath.

The Henle's layer keratinizes earliest, not only among these three layers of inner root sheath but in the entire hair follicle.

The cuticle of the inner root sheath keratinizes next, and the Huxley's layer is last.

The prime function of the inner root sheath is to mould the hair within it. It affects this by hardening in advance of the hair, since the cuticle of the hair and inner root sheath are closely opposed. In health, the fully keratinized fibre takes the shape of the root sheath (Swift, 1977). (Fig. 2).

(3) Outer root sheath:

This layer surrounds the hair follicle as a sleeve of cells several layers thick that is continuous with the epidermis. It is divisible into two parts; a short lower part surrounding the outer part of the bulb and the upper part from the neck of the bulb to the level of the sebaceous duct.

The area surrounding the follicular opening has the same structure and biochemical characteristics as the surface epidermis. The part surrounding the hair bulb is one or two cells thick, the outer layer being elongated and the inner layer markedly flattened. In the suprabulbar area it is usually three cells thick and only becomes multi-layered approximately half way along the follicle.

The outer cell layer is the germinative layer continuous with the epidermal basal cells (Parakkal, 1969). Differentiation occurs in a centripetal direction towards the inner root sheath. (Fig. 2).

(4) Presumptive hair:

(a) Cuticle of cortex:

In the bulb and just above it the young cuticle cells of the cortex are perpendicular to the axis of the follicle. Thus they are at right angle to the cortical cells. Very small, round trichohyaline granules are produced in the cytoplasm. They move to the cell periphery particularly toward the outer border and coalesce. Increased production and degree of coalescence result in the formation of a dense outer layer (exocuticle) in each cell.

Debris of nucleus, ribosomes and other organelles, as well as a large variety of trichohyaline granules, which they also produce are shifted to the inner side of the cytoplasm and form the endocuticle (Brikbeck and Mercer, 1957).

(b) Cortex:

Cortical cells originate from the matrix cells located on or near the vertex of the hair papilla. In this region many melanocytes are intermingled and transfer melanosomes to young cortical cells. Although some cuticular cells

receive melanosomes, the majority goes to the cortical cells. Cortical cells undergo keratinization (Parakkal, 1969).

(c) Medulla:

The matrix cells of the medulla are located most centrally in the follicle.

In humans, the medulla is vestigial in a small follicle. In larger follicles it is a rapidly disintegrating layer.

It starts as a group of non descript matrix cells surrounding the upper portion of the hair papilla. These cells are connected by desmosomes and gap junctions (Montagna and Parakkal, 1974). (Fig. 2).

(5) Hair papilla:

The connective tissue contained within the hair bulb is the dermal papilla. The size of the papilla and the surrounding bulb are directly related to the size of the hair produced (Schinckel, 1961).

In anagen follicles the dermal papilla is attached to a basal plate of connective tissue by a narrow stalk. In small follicles there may be no visible vasculature but terminal hair follicles show variable numbers of papillary blood vessels.