UPDATING THE STATUS OF FEMALE CIRCUMCISION IN RURAL AND URBAN AREAS AND ITS RELATION TO FAMILY PLANNING ACCEPTANCE

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THESIS

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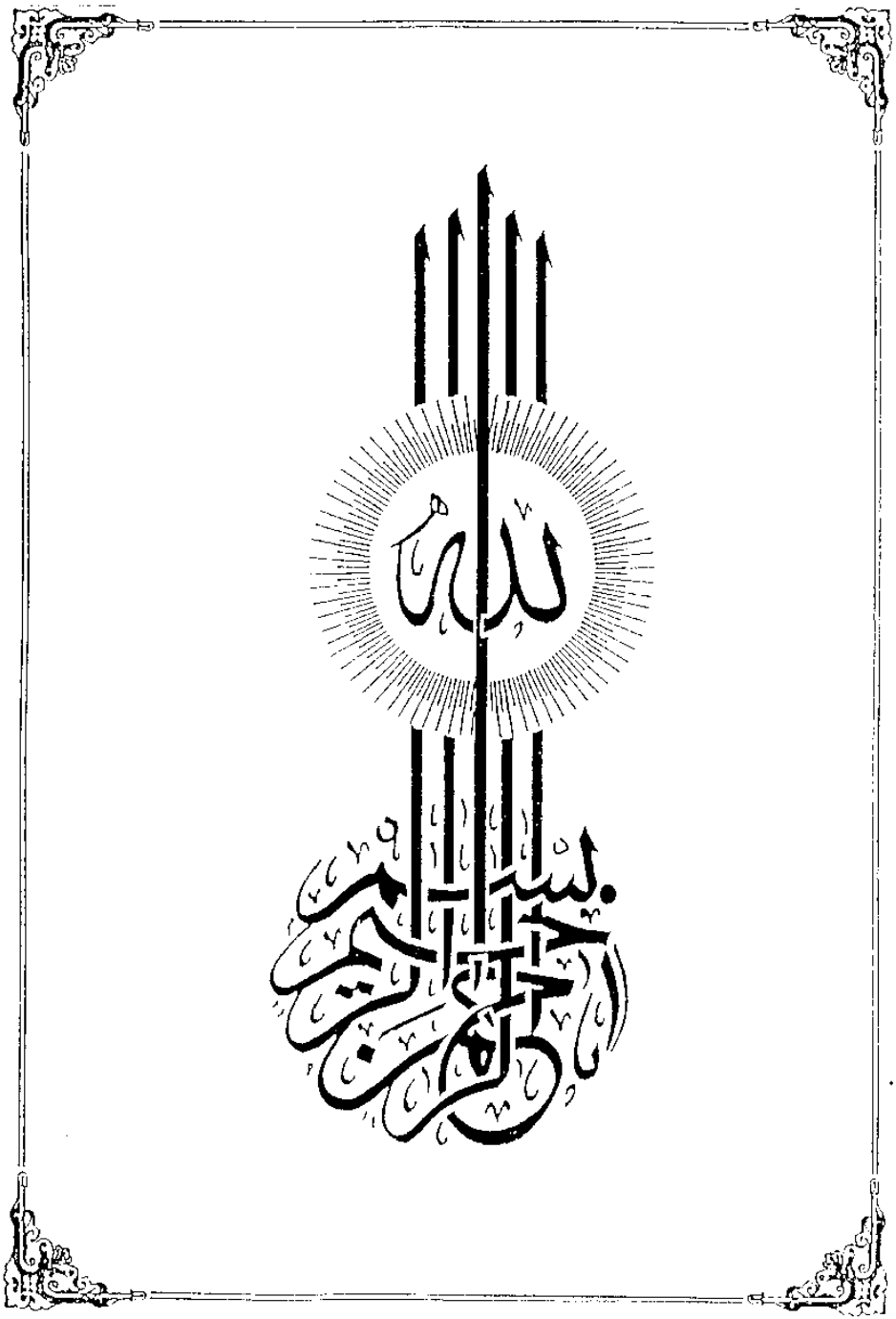

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CHAPTER ONE

Anatomy of the vulva and vagina was stated by Krantz,K.E(1977)

ANATOMY OF THE VULVA

Vulva :

The vulva is comprised of the external genital organs of the female, including the mons pubis, labia majora, labia minora, clitoris, and the glandular structures that open into the vestibulum vaginae.

The size, shape and colouration of various structures comprising the vulva, as well as the hair destribution, vary between racial groups as well as between individuals.

The normal pupic hair in the female is destri-buted in an inverted tringle with the base centered over the mons pubis. In approximately 25% of women, however, extension of the hair upward along the linea alba is not abnormal. The type of hair is dependent, in part, upon the pigment structure of the individual. In varies from heavy, coarse, crinkly hair in negro to sparse, fairly fine, lanugo type hair in the oriental.

The length and size of variousstructures of the vulva are influenced by the pelvic architecture, which also influences the position of the external genitalia in the perineal area.

LABIA MAJORA

The labia majora, are comprised of two rounded mounds of tissue originating in the mons pubis and terminating in the perineum forming the lateral boundaries of the vulva, they are approximately 7 to 9 cm in length and 2 to 4 cm in width, varying in size depending upon the hight, weight, race, age, parity and pelvic architecture of the individual.

Ontogenitically, the perminant folds of the skin are homologous to the scrotum of the male. Hair is destributed over their surfaces, extending superiorly in the area of the mons pubis from one side to the other. The lateral surfaces are adjacent to the medial surfaces of the thighs, with the formation of deep groove when the legs are together. The medial surfaces of the labia majora may oppose each other directly or often separated by the labia minora.

The cleft that is formed by this opposition anteriorly is termed the anterior commissure. Posteriorly, it is less clearly defined and termed the posterior commissure. The middle portion of the cleft between the two labiae has been termed the rima pudendi.

Hair destribution over the mons pubis and labia majora may vary from individual to individual. The great amount of hair is found anteriorly, becoming les posteriorly, to become absent on the medial surfaces.

The microscopic structure of the labia majora and its superficial layers reveals the following cross section through the skin shows hair follicles penetrating through the skin, which has rete pegs and papillae development.

The epithelium is stratified squamous, similar in type to that seen in other areas of the body. Underlying the skin is a thin poorly developed muscle layer called the tunica dartos labialis, whose fibres for the most parts course at right angles to the wrinkles of the surface forming a criss cross pattern. Deep to the dartos layer is a thin layer of fascia best recognisable in the old or the young because of the large amount of adipose and areolar tissue present. This tissue is rich in elastic fibres. Numerous sweat glands are found in the labia majora. The greater number being present on the medial aspect.

In the deeper substance of the labia majora are longitudinal bands of muscle which are contiguous and continuous with the legamentum teres uteri (round ligament) as it emerges from the inguinal canal.

Occasional a persistant processus vaginalis (canal of nuk) can be seen in the upper region of the labia. In most women it has been impossible to differentiate the presence of cremaster muscle beyong its area of origin.

MICROSCOPIC NERVE EDINGS ARE OF SEVEN DISTINCT TYPES

The first modalities

Of touch are the Meissner corpuscles. The corpuscles are normally situated in the connective tissue of the papilla of the normal skin. They contain both myelinated and unmyelinated fibres which branch and terminate among the flattened cells. These terminal cells appear to be modified connective tissue cells which act as a receptor endings. They vary in size and number depending on location, age and degree of development of the individual.

The second modality :

Are Merkel tactile discs, present in great abundance. A merkel tactile disc is considered to be a modification of the Meissner corpuscle and may be the terminal ending that penetrate the epithelium, each becoming attached a modified squamous cell. A translucent area surrounds each cell in the area of attachment. The nerve fibre itself terminates in a small disc-like arrangement in great numbers.

There is evidence that the modified squamous cell to which the nerve ending is attached is sloughed periodically, requiring regeneration of the nerve. The inability of these to be sloughed at the proper time or changes in the superficial layers of the skin as in estrogen deprivation results in thinning of the layer of condensation or zonal cornification and stratum cornium of the superficial layer,

reducing the threshold for stimulation, hence the symptoms of the pruritus.

The third modality

Are peritrichial endings, semilar to those seen elsewhere in the body. The nerve endings are arranged in a basket-like arrangement, with the free nerve endings terminating between the cells at the root of the follicle. They are primarily myelinated in origin.

The second major modality is pressure endings. Pacinian type corpuscles vary in number from person to person. They are situated in aggregates within the fat of the labia majora. The Pacinian type corpuscle modulates the sensation of deep tension pressure. They are the only type of nerve endings that can be seen macroscopically, often with naked eye. A single large myelinated fibre connects with central pore and acts as a cylinder in the centre of the corpuscle. Surrounding this core are concentric layers of modified connective tissue cells distended with fluid. The nuclei of the lamellae can be seen distinctly as they protrude into the fluid spaces. A distinct capsule surrounds the entire corpuscle.

When cut in cross section, the corpuscles frequently appear like a transected onions.

Smaller forms of the same corpuscle are frequently called the corpuscles of Herbst. The corpuscles are

unevenly distributed throughout the labia majora, often in aggregates, and frequently within nerve bundles, within the labia majora adjacent to the artery and vein and nerve bundles.

The role of these corpuscles within nerve bundles may play in sexual arousal and orgasm during pelvic engorgement is no doubt significant.

Pain fibres, the free nerve endings in the skin, arise from both myelinated and unmyelinated fibres. The myelin sheath is lost prior to the elements entry into the epithelium. The fibres after the stratum germinativum, continue their branching to terminate as very fine endings approximately 0.1 um in diameter, with a small bead at the tip which frequently appears to end within an epithelial cell. In addition, many of the free nerve endings terminate between the muscles cells and in the walls of the blood vessels. These fibres are unmyelinated. The distribution of the free nerve endings is uniform over the entire surface of the labia majora.

Other special types

Of nerve ending such as Ruffini corpuscle and Dogiel-Krause corpuscles are seen.

The Ruffini corpuscle lies deep in the subcutaneous connective tissue of the skin. It is composed of a loose arborisation of nerve fibres. These fibres

terminate in flatted plates in an area containing a nucleated granular substance. Whether these corpuscles send endings further into the skin, or are connected with Dogiel-Krause bulbs is not entirely clear. There exact rule are unknown, though many investigator reel that they perceive temperature while others feel they are pressure endings of sexual perception in the genital area.

The corpuscles of Dogiel-Krause and Golgi-Mazzoni vary tremendously in size and shape. Often they appear like degenerated Pacini corpuscle, except that there is an extensive arborisation within the corpuscle. This extensive arborisation is connected to a myelinated fibre which may terminate in an end bulb, in Ruffini corpuscle or as free endings within the skin. The matrix of the corpuscle is granular, with connective tissue nuclei being visible. The corpuscle may be oval, round, or varied in shape.

Investigators feel that these groups of endings act as a cold receptors while, in genital region, they are receptors of genital stimuli, or perhaps a combination of both.

The distribution of these nerve endings varies. Heavy concentration of Ruffini corpuscles are seen throughout the labia majora, with a smaller number of Dogiel-Krause

corpuscles present in comparison to other areas of the external genitalia. No one has reported a complete absence of this type of nerve ending as shown in table (1). Their exact role in sexual stimulus has not yet been totally ascertained.

The arterial supply of the labia majora

Comes from the external and internal pudendals with exterial pattern originating inferiorly from a branch of the perineal artery from the external pudendal artery in the anterior lateral aspect and a small artery superiorly from the ligamentum teres uteri. The inferior branch from the perineal artery, which originates from the internal pudendal as it emerges from Alcock's canal forms the base of the rete with the external pudendal arteries. These arise from the medial side of the femoral and occasionally from the profunda arteries, just beneath the femoral ring and course medially over the pectineus and adductor muscles to which they supply branches. Penetrating the fascia lata adjacent to fossa ovalis to pass over the round ligament with a branch to the clitoris. They terminate in a circular rete within the labium majus. Surgical intervention within this area as welllas trauma to the labia majora will often involve these arterial pattern.

The venous drainage

Is extensive in the form of a plexus, with greater anastomoses than are seen with the arteries. The veins in addition have a communication with the dorsal vein of the clitoris. The veins of the labia minora, and the perineal veins as well as communications with the inferior haemorrhoidal plexus. In addition, the posterior labial veins connect on each side with the external pudendal vein, terminating in the great saphenous vein just prior to its entrance in the fossa ovalis.

This extensive plexus not infrequently shows itself by the presence of extensive varicosities during pregnancy and in cases of pelvic lesions causing obstructions of the large veins.

The lymphatic drainage

Of the labia majora are extensive with two systems being utilised one which lies superficially(under the skin) and the other deeper within the subcutaneous tissues of the labia majora.

From the upper two thirds of the left and right labia majora superficial lymphatics pass towards the symphysis, and there turn latorally to join the medial superficial inguinal nodes, overlying the saphenous fossa. The drainage is into and through the femoral ring (fossa ovalis) to the nodes of Cloquet (deep subinguinal nodes), to

connect with the external iliac chain.

The superficial subinguinal nodes in their situation over the femoral trigone also accept the superficial drainage from the lower extremity, as well as drainage from the gluteal region. This may include afferent lymphatics from the perineum. Therefore, any lesions involving the labia majora allows direct involvement of the lymphatic structures of the contralateral inguinal areas.

The lower pole of the labia majora has superficial and deep drainage, shared with the perineal area. It will, in part, drain through afferent lymphatics to superficial subinguinal lymph nodes, from posterior medial aspects of the labia majora it may join the lymphatic plexus surrounding the rectum.

The innervation of the external genitalia

Is from the lumbar and sacral plexuses. The iliohypogastric nerve originates from T-12 and L-1, and traverses laterally to the iliac crest between the transversus and internal oblique muscles, at which points it devides into two branches :

1. Anterior hypogastric nerve, which descends posteriorly through the skin over the symphysis to supply the superior portion of the labia majora as well as the mons pubis,
2. The posterior iliac-to the gluteal area.