Introduction

Among the important duties of attending a vaginal birth is managing the integrity of the perineum. In current obstetric practice, the incision of the perineal body and the vagina to enlarge the vaginal opening and facilitate delivery is referred to as an episiotomy. The term episiotomy actually refers to an incision into the external genitals. The more precise name for the obstetric incision is perineotomy, an incision made in the perineum ***(Varner, 1986).***

It is the most common operation in obstetrics, with the exception of cutting and tying the umbilical cord ***(Pritchard et al., 1985).***

It aims to increase the vulval outlet during childbirth ***(Arulkumaran, 2004).***

The use of episiotomy has been said to decrease trauma to the fetus, decrease the frequency of extensive perineal tears, and protect the soft maternal tissues, yet disagreement persists about its actual effectiveness ***(Bartscht and DeLancey, 2008).***

Episiotomies are known to provide the following benefits; speed up the birth, prevent vaginal tears, protect against incontinence, protect against pelvic floor relaxation and heals easier than tears ***(Arulkumaran, 2004).***

In a strict sense, episiotomy is incision of the pudenda. The incision may be made in the midline, creating a median or midline episiotomy, or it may begin in the midline but be directed laterally and downward away from the rectum, termed a mediolateral episiotomy; or start as median one then curve to take a J-shaped episiotomy ***(Cunningham et al., 2010).***

Perineal trauma is conventionally repaired in three layers. First, a continuous locking stitch is inserted to close the vaginal trauma, commencing at the apex of the wound and finishing at the level of the fourchette with a loop knot. A traditional locking stitch is used to repair the vaginal trauma, as a continuous running stitch may cause shortening of the vagina if it is pulled too tight, but no controlled studies have been carried out to investigate this theory. Next, the deep and superficial perineal muscles are re-approximated with three or four interrupted sutures, or sometimes a continuous running stitch is used. Finally, the skin is closed using continuous subcutaneous or interrupted sutures ***(Sultan et al., 2007).***

Choice of suture material for repair, suture technique and the operator's surgical competence can influence the short and long-term morbidity related to perineal repair ***(Kettle and Johanson, 2000).***

Rapidly absorbed synthetic materials are reported to be superior to monofilament sutures and other synthetic products with slower absorption when perineal pain and wound healing

are evaluated ***(Dencker et al. Kettle et al., 2006)***.

The use of a simple, non-locking, loose continuous suturing technique for all layers with subcutaneous stitches placed well below the perineal skin surface had low levels of pain with the continuous techniques ***(Fleming, 1990).***

Pain can also be reduced if the perineal skin is not sutured ***(Oboro et al., 1998)***.

Results of a systematic review of four randomized controlled trials consisting of 1864 primiparous and multiparous women, showed that continuous subcutaneous techniques of perineal skin closure were associated with less short-term pain than interrupted transcutaneous stitches. However, these four studies analyzed techniques only for skin closure ***(Kettle and Johanson, 2003).***

Aim of the Work

To compare outcome and patient compliance between chromic catgut versus polyglactin 910 in continuous suture technique in repair of episiotomy.

Anatomy of Perineum

A clear understanding of the structures of the female perineum, vagina, and rectum is essential to successfully restore normal structure and function. The anatomic structures of greatest importance are the vestibule, the vagina, the hymenal ring, the perineal body, the external and internal anal sphincters and the rectum ***(Goldberg et al., 2002).***

The skeleton of the pelvis is formed by the sacrum,the coccyx and the paired hip bone which fuse anteriorly to form symphysis pubis ***(Anderson and Genadry, 2007).***

The bony pelvic outlet is bordered by the ischiopubic rami anteriorly and the coccyx and the sacrotuberous ligaments posteriorly.it can divided into anterior and posterior triangles, which share a common base along a line between the ischial tuberosities ***(Delancey, 2008).***

The perineum could be classified into gynecological and surgical perineum. The gynecological perineum comprises the less hairy skin and subcutaneous tissue which lie between the vagina orifice and the anus and cover the muscular perineal body. Its length from before backwards, varies from 2 to 5 cm or more, and influences the resistance it offers and the injuries it sustained during childbirth ***(Smout et al., 1979).***

The surgical perineum is situated at the lower end of trunk and buttocks. Its bony boundaries include the lower

margin of the symphysis pubis anteriorly, tip of the coccyx posteriorly, and the ischial tuberosity laterally, the diamond shape of the perineum is customarily divided by imaginary line joining the ischial tuberosity immediately in front of the anus, at the level of perineal body into:

i) Urogenital triangle

ii) Anal triangle

Urogenital triangle

It includes the external genital structures and the urethral opening. These structures cover the superficial and deep perineal compartment and are known as the vulva ***(Anderson and Genadry, 2007).***

The tissues filling the anterior triangle have a layered structure similar to that of the abdominal wall. There is a skin and adipose layer (vulva) overlying a fascial layer (perineal membrane) that lies superficial to a muscular layer (deep perineal muscles ***(Delancey, 2008).***

A) Vulva

It includes all structures visible externally from the pubis to the site of the perineum, that are the mons pubis, labia minora and majora, clitoris, hymen, vestibule, urethral orifice, and various glandular and vascular structures ***(Cunningham et al., 2005a)*** **(Fig.1).**

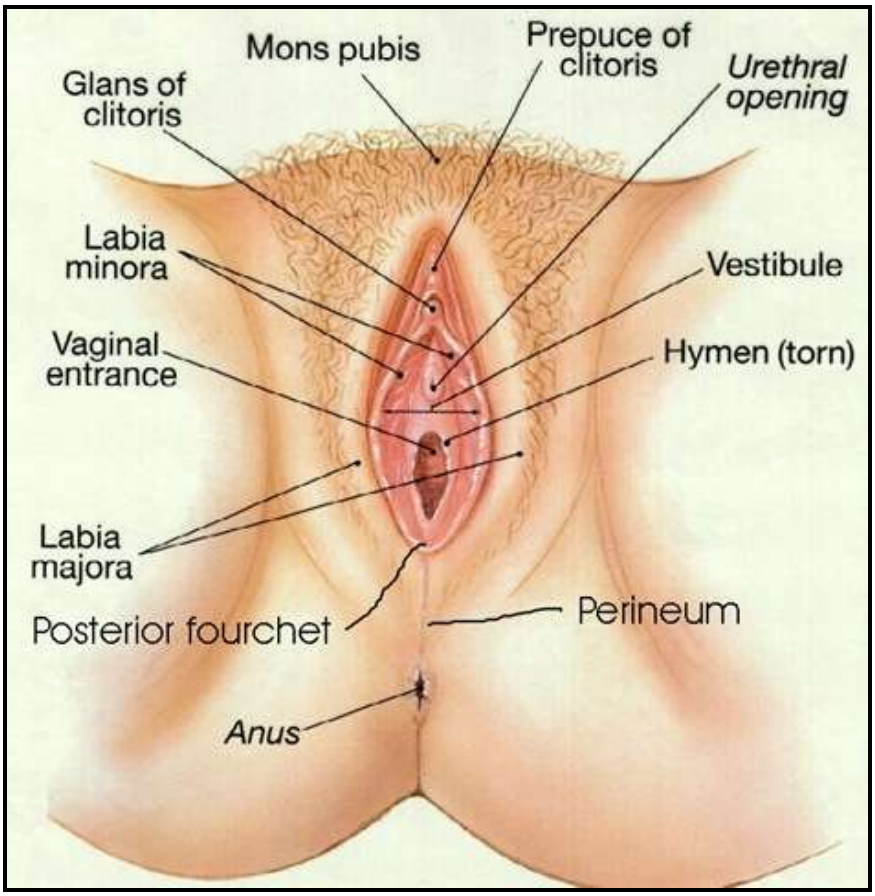

Figure (1): Anatomy of vulva ***(Quoted from Delancey, 2008).***

1 - Labia majora:

A pair of fibroadipose folds of skin that extend from the mons pubis downwards and backwards to meet each other in the midline in front of the anus at the posterior fourchette ***(Anderson and Genadry, 2007).***

2 - Labia minora:

The labia minora lies between the labia majora. They merge posteriorly and are separated into two folds as they approach the clitoris anteriorly. The anterior folds unite to form

the prepuce of the clitoris. The posterior folds form the frenulum of the clitoris as they attach to its inferior surface. The area between the posterior labia minora form the vestibule of the vagina inferiorly, the labia minora extend to approach the midline as low ridges of tissue that fuse to form the fourchette ***(Anderson and Genadry, 2007).***

3 - Vestibule:

The vestibule is an almond-shaped area that is enclosed by the labia minora laterally and extends from the clitoris to the fourchette. It is the functionally mature female structure of the urogenital sinus of the embryo. In the mature state, the vestibule is perforated by six openings: the urethra, the vagina, the two ducts of the Barthol in glands, and at times, the two ducts of the paraurethral glands, also called the Skene's ducts and glands. The posterior portion of the vestibule between the fourchette and the vaginal opening is called the fossa navicularis, and it is usually observed only in nulliparous women ***(Cunningham et al., 2005a).***

4 - Vestibular glands:

The vestibular glands are situated on either side of the vestibule under the posterior end of the vestibular bulb. They drain between the hymen and the labia minora ***(Smout et al., 1979).***

5 - Vaginal opening and hymen:

The vaginal orifice is surrounded by the hymen, a variable crescent mucus membrane that is replaced by rounded caruncles after its rupture. The opening of the duct of the greater vestibular glands (Bartholin) is located on each side of

the vestibule. Numerous lesser vestibular glands scattered posteriorly between urethral opening and vaginal orifice ***(Anderson and Genadry, 2007).***

6-Vagina:

This musculomembranous structure extends from the vulva to the uterus and is interposed anteriorly and posteriorly between the urinary bladder and the rectum. Anteriorly, the vagina is separated from the bladder and urethra by connective tissue, often referred to as the vesicovaginal septum. Posteriorly, between the lower portion of the vagina and the rectum, there are similar tissues that together form the rectovaginal septum. The vaginal length varies commonly the anterior and posterior vaginal walls are respectively 7 to 10cm in length. The vaginal mucosa is composed of non cornified stratified squamous epithelium. Beneath the epithelium is a thin fibromuscular coat, usually consisting of an inner circular layer and an outer longitudinal layer of smooth muscle. A thin layer of connective tissue beneath the mucosa and the muscularis, is rich in blood vessels ***(Cunningham et al., 2005a).***

B- Urethral orifice:

It lies immediately anterior to the vaginal orifice about 2-3cm beneath the clitoris. Ordinarily, the skene's glands (paraurethral) ducts open onto the vestibule on either side of the urethra. The ducts occasionally open on the posterior wall of the urethra just inside the meatus ***(Delancey, 2008).***

I) Superficial perineal compartment:

The superficial perineal compartment lies between the superficial perineal fascia and the inferior fascia of the urogenital diaphragm (perineal membrane) ***(Anderson and Genadry, 2007)*** **(Fig.2).**

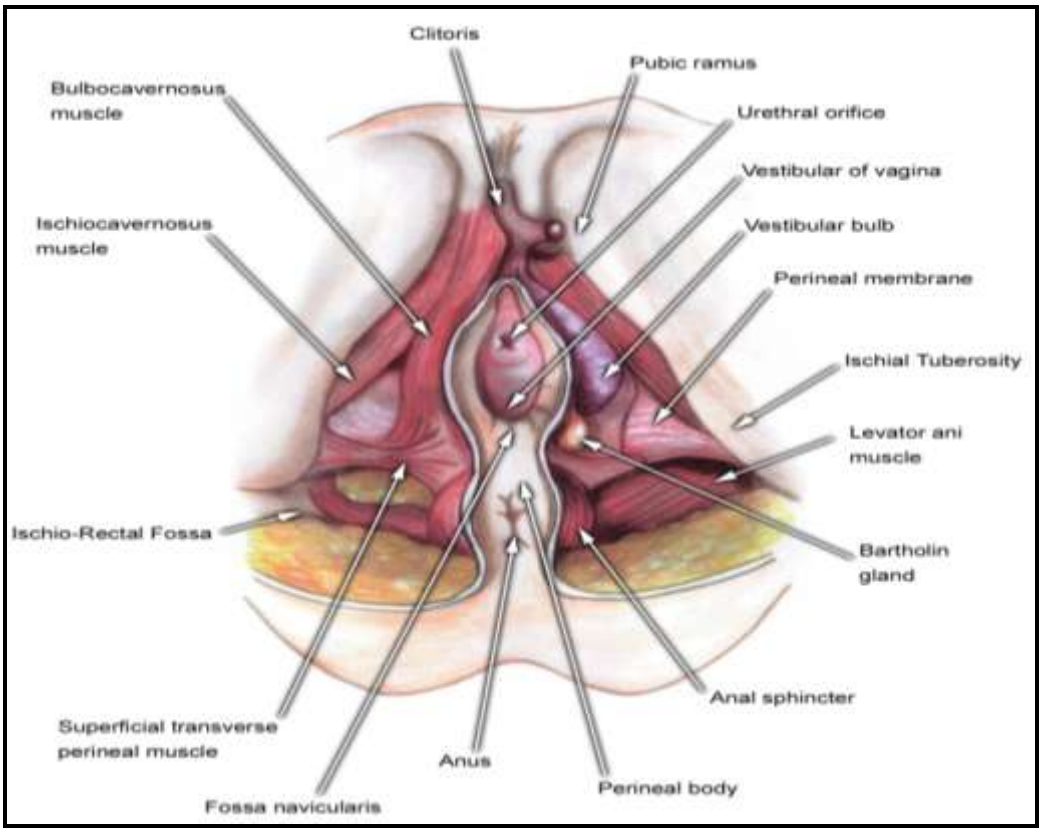

Figure (2): Superficial perineal compartment ***(Anderson and Genadry, 2007)***

The superficial perineal fascia has a superficial and a deep component. The superficial layers are continuous superiorly with Camper's fascia. It continues laterally as fatty layer of thighs. The deep or Collen's fascia is continuous superiorly with the deep layer of the superficial (Scrapa's

fascia) which attaches firmly to the ischiopubic rami and ischial tuberosities. The superficial perineal compartment is continuous superiorly with the superficial fascial spaces of the anterior abdominal wall ***(Anderson and Genadry, 2007).***

The superficial perineal compartment includes the following:

a - Vestibular bulbs:

Embryologically, the vestibular bulbs correspond to the analogue of the corpus spongiosum of the penis. These are almond-shaped aggregations of veins, 3 to 4cm long, 1 to 2cm wide, and 0.5 to 1 cm thick, that lie beneath the mucous membrane on either side of the vestibule. They are in close apposition to the ischiopubic rami and are partially covered by the ischiocavernosus and constrictor vaginae muscles. The vestibular bulbs terminate interiorly at about the middle of the vaginal opening and extend upward toward the clitoris. During childbirth, they may be injured and may even rupture to form a vulvar hematoma ***(Cunningham et al., 2005a).***

b)The superficial perineal muscles:

Include 3 pairs of muscles, 2 ischiocavernosus, 2 bulbo-cavernosus and 2 superficial transverse perinei one on each side.

1 - The ischiocavernosus muscle:

Arises from the medial aspect of the inferior ramus of ischium often extending as far as the ischial tuberosity and is inserted into the lateral aspect of the cruras. It is innervated by terminal branches from the perineal nerve. It compresses the crus, and by blocking the venous blood flow helps the clitoris to

stiffen and become erect ***(Anderson and Genadry, 2007).***

2 - The bulbocavernous muscle:

Which blends with sphincter ani extends and forms a Figure of 8 around the vagina and anal canal. It arises from the central point of the perineum, passes forwards around the orifice of the vagina, forming a weak sphincter for that organ, surrounds the bulb of vestibule and is inserted into the body of the clitoris on its dorsal aspect. It is innervated by the perineal branch of the pudendal nerve, it compresses the erectile tissue (bulb of vestibule) around the vaginal orifice, and it also compresses the dorsal vein of the clitoris ***(Smout et al., 1979).***

3 - The superficial transverse perineal muscle:

Arises from the ischio-pubic ramus and blends with its fellow of the opposite side at the central perineal tendon and is also innervated by the perineal branch of the pudendal nerve ***(Smout et al., 1979).***

II) Deep perineal compartment:

Afascial space bounded inferiorly by the perineal membrane and superiorly by a deep facial layer, which separates the urogenital diaphragm from the anterior recess of the ischiorectal fossa. It is stretched across the anterior half of pelvic outlet between the ischiopubic rami ***(Delancey, 2008).***

The deep perineal compartment includes the sphincter urethrae, and the deep transverse perineal muscle ***(Robinson and Bienstock, 2007)*** (Fig. 3)

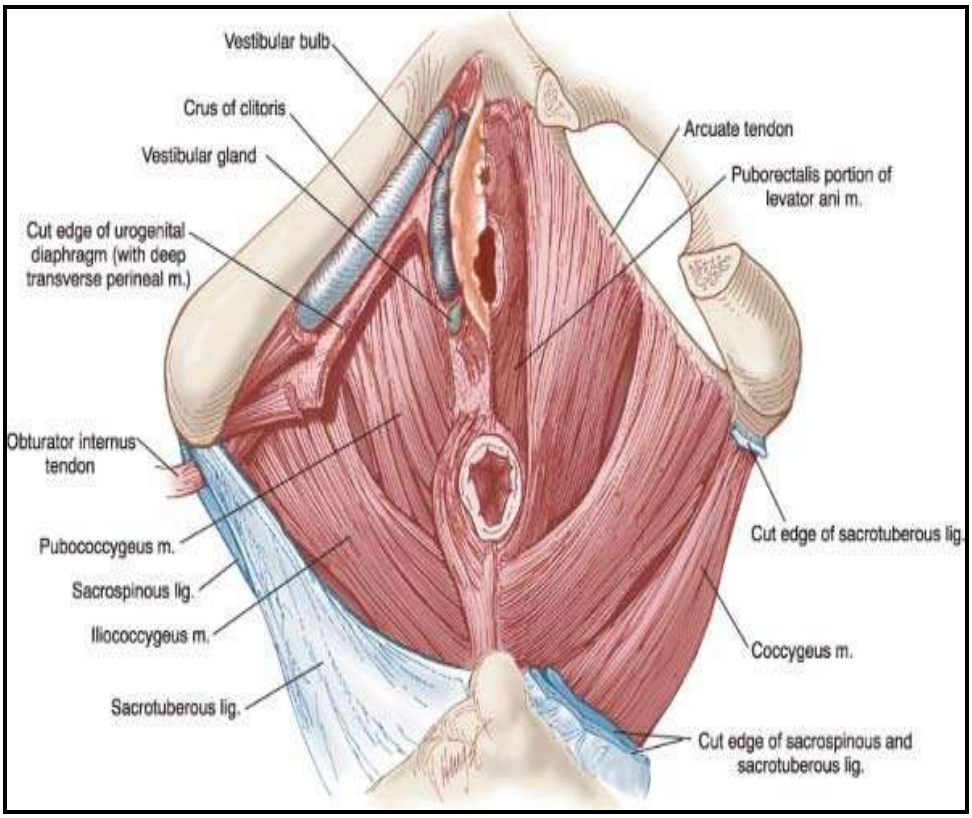

Figure (3): Deep perineal compartment ***(Robinson and Bienstock, 2007).***

1-The sphincter urethrae:

It is a continuous muscle fanning out as it develops proximally and distally, including the following:

- The external urethral sphincter, which surrounds the middle third of the urethra.
- The compressor urethrae arching across the ventral side of the urethera.
- Urerthrovaginal sphincter, which surrounds the ventral aspect of the urethra and terminates in lateral vaginal wall ***(Anderson and Genadry, 2007).***

2. The deep transverse perineal muscles:

Originate at the internal aspect of ischial bone, parallel the muscle compressor urethrae, and attach to the lateral vaginal wall along the perineal membrane to which they intimately attached ***(Anderson and Genadry, 2007).***

The superficial and deep compartments are supplied through branches of the internal pudendal artery while drained into the internal pudendal vein. Innervation is via the perineal nerve, a branch from pudendal nerve that originates from S2, S3, and S4 portions of the spinal cord ***(Anderson and Genadry, 2007).***

Perineal body:

The median raphe of the levator ani, between the anus and the vagina, is reinforced by the central tendon of the perineum. The bulbo-cavernosus, superficial transverse perineal, and external anal sphincter muscles also converge on the central tendon. Thus, these structures contribute to the perineal body, which provides much of the support for the perineum ***(Cunningham et al., 2005).***

ii) Anal Triangle

The anal triangle includes the lower end of the anal canal and its external sphincter, the anococcygeal body and ischiorectal fossa is on each side, together with the blood vessels, nerves and lymphatics in this region ***(Tindall, 1981).***

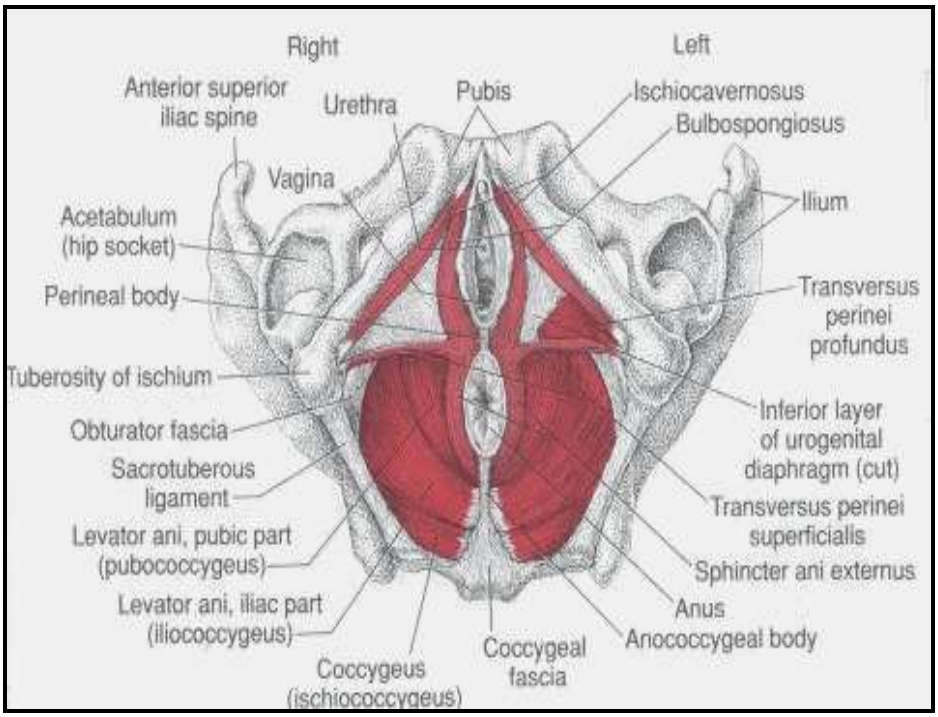

Figure (4): Anal Triangle ***(Anderson and Genadry, 2007).***

a) The external anal sphincter:

Forms a thick band of muscular fibers arranged in three layers running from the perineal body to anococcygeal ligament. The subcutaneous fibers are thin and surround the anus and, without bony attachment, decussate in front of it. The superficial fibres sweep forward from the anococcygeal ligament, and the tip of the coccyx around the anus and inserts into the perineal body. The deep fibers arise from the perineal body to encircle the lower half of the anal canal to form a true sphincter muscle, which fuses with puborectalis portion of the levator ani ***(Anderson and Genadry, 2007).***