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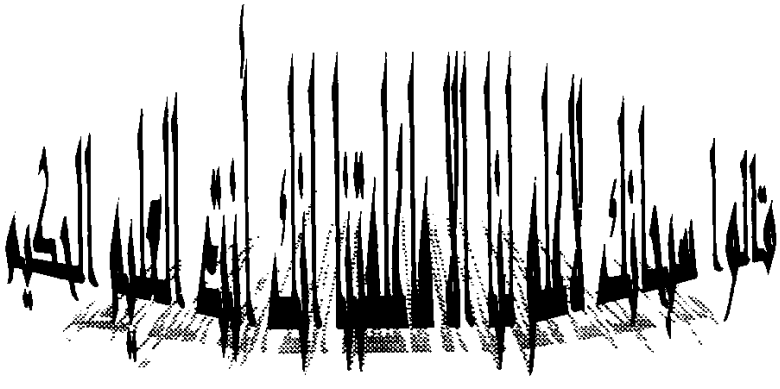

صدق الله العظيم

PELVIC FLOOR DISORDERS

Essay
submitted for partial fulfillment for
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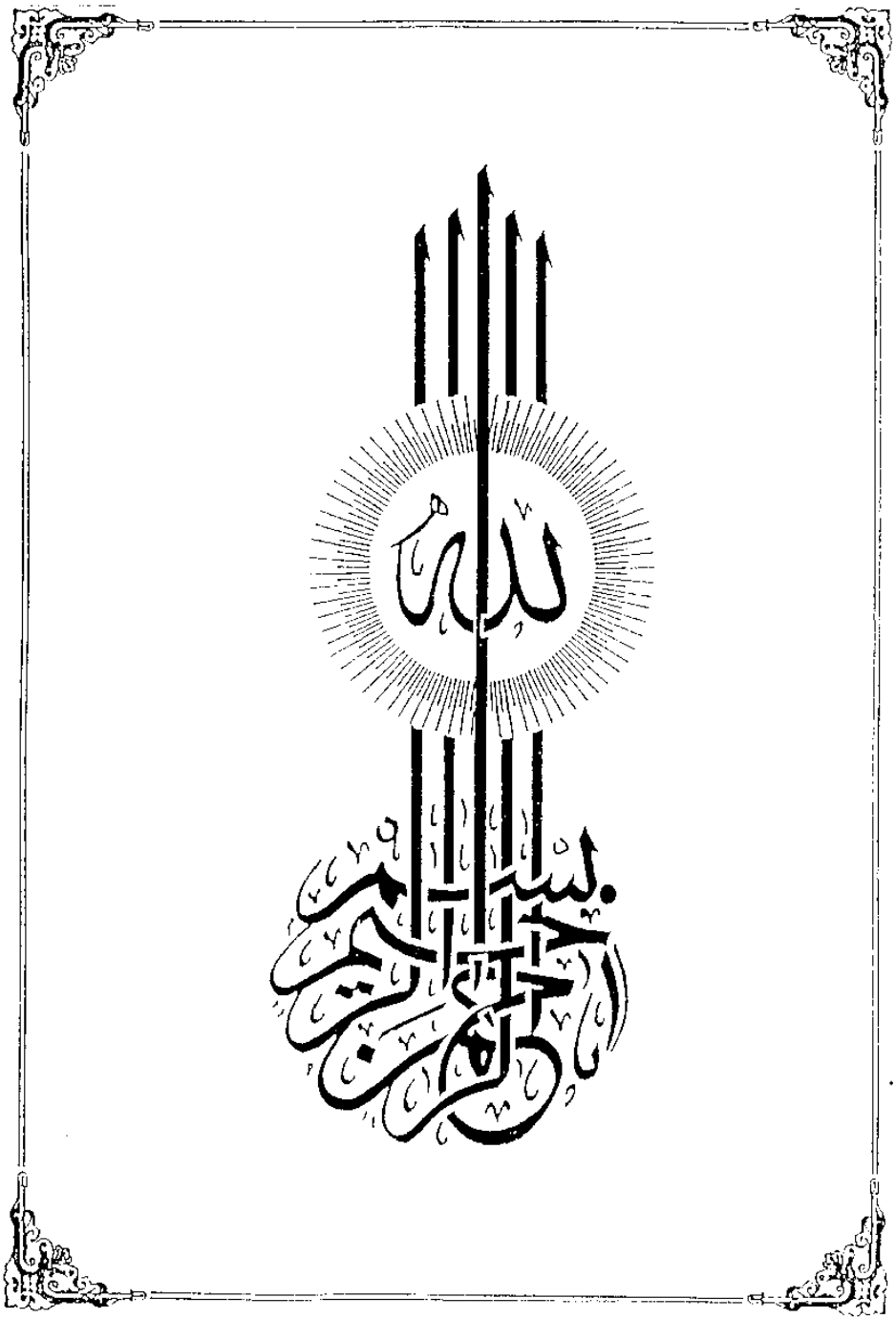

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Introduction

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Functional disorders of the pelvic floor are increasingly diagnosed in much age groups and in the last decade has seen a substanstantial renaissance in the study and management of this disorders combining the academic and scientific talents of proctologist ,physiologist and neurologists. Rectal prolapse ,is associated with incontinence in more than 50% of patients and fecal incontinence affects about 1 in 1000 people in general population.

Economically the costs of incontinence are startling . In America, more than $10 billion was devoted to the management of incontinence in 1987. This figure exceeds the annual cost of dialysis and coronary artery bypass surgery combined. The aim of this essay is to present comprehensive review of the main causes and presentations of pelvic floor disorders, different means of evaluation of the patients with disorders, and the choice of the appropriate procedure for each surgical and nonsurgical approaches of management will be scrutinized.

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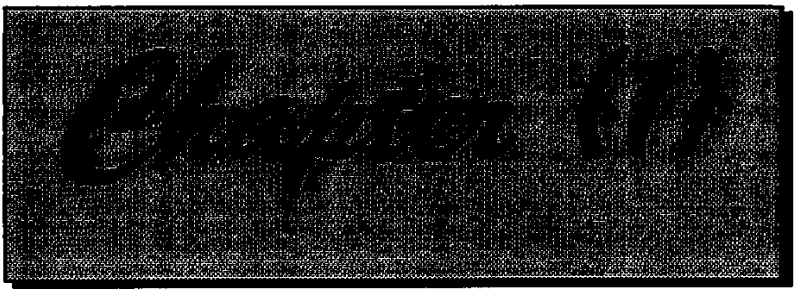

Anatomy of pelvic floor

Chap. 1 Anatomy of pelvic floor

BONY PELVIS

The bony pelvis consists of the two hip bones, the sacrum and the coccyx (Ger, 1988).

When articulated the bones enclose a cavity ; from the brim of the cavity the ala of each ilium projects up to form the iliac fossa, part of the posterior abdominal wall.The pelvic brim is formed in continuity by the pubic crest, pectineal line of the pubis, arcuate line of the ileum,and the ala and promontory of the sacrum. The plane of the brim is oblique, lying at 60% with the horizontal ; the vagina is in the same plane (Mc Minn, 1990).

The sacrum is large, triangular and formed by fusion of the five sacral vertebrae, it is situated at the upper and posterior part of the pelvic cavity, inserted like a wedge between the two innominate bones.Its narrow, blunted apex is at the inferior end of the bone and articulates with the coccyx. At the opposite end the wide base articulates with the fifth lumbar vertebra, with which forms the sacro- vertebral angle . In the erect position the bone is very oblique and is also curved longitudinally so that its dorsal surface is convex and its pelvic surface is concave.Overall, it is concave from above down and from side to side. It displays four pairs of pelvic sacral foramina, which communicate through intervertebral foramina with the sacral canal. They Transmit the ventral rami of the upper four sacral spinal nerves (Williams and warwick, 1980).

The piriformis muscle arises from the anterior surface of the middle three sacral segments whereas the large muscles of the posterior aspect of the trunk, the sacrospinalis, multifidus and,

coccyx in the midline. the pelvic outlet is not entirely rigid in its posterior half, being limited only by the ligaments and the coccyx, which is mobile on the sacrum (Williams and Warwick, 1980).

The Sacrospinous ligament is triangular ligament attached by its base to the last segment of the sacrum and the first piece of the coccyx and by its apex to the ischial spine. It is commonly regarded as a fibrous degeneration of the posterior part of the coccygeus muscle. **The sacro tuberous ligament** is large ligament lies on the posterior aspect of the pelvis and runs from the medial margin of the ischial tuberosity to the posterior iliac spines and the sides of the sacrum and coccyx below the level of the spines. The two ligaments, convert the two sciatic notches into foramina through which structures pass from the pelvis to the buttock or perineum (Ger,1988).

The coccygeus (ischiococcygeus)

The coccygeus (ischiococcygeus) is lies on the pelvic aspect of the sacrospinous ligament, and the latter is commonly regarded as a degenerate part of the muscle or, as an aponeurosis of it (Williams and Warwick ,1980)

It arises from the tip of the ischial spine, then it fans to be inserted into the side and tip of the coccyx and the lowest piece of the sacrum (McMinn, 1990).

The coccygei may pull forward and support the coccyx, after it has been pressed bakwards during defecation or parturition. With the levator ani and piriformes, they close the posterior part of the pelvic outlet (Williams and Warwick, 1980).

According to McMinn,(1990). **the levator** ani consists of two parts, the iliococcygeus and pubococcygeus.

The iliococcygeus

The iliococcygeus arises from the pelvic surface of the ischial spine and the posterior part of the white line. It then passes on the pelvic surface of the ischiococcygeus to be inserted into the side of the coccyx and the anococcygeus raphe. The raphe extends from the tip of the coccyx to the junction of the rectum and the anal canal,and is formed of an interdigitation of levalor ani of both sides. It is easily elongated, during defecation, and especially during the second stage of labor, it is passively stretched.

The pubococcygeus

The pubococcygeus arises from the anterior half of the white line and from the posterior surface of the body of the

posterior border is free and separated from the coccygeus by areolar tissue. The ***medial border*** of the two muscles Constitute the visceral outlet, an interval through which the urethra, vagina, and the anorectum pass from the pelvis.

bundles.The puboprostatic and pubovesical ligaments are examples (McMinn, 1990).

3-The pelvic viscera

The fascia is loose or dense in conformity with the distensibility of the organ.The non-distensible prostate is surrounded by a tough membrane of fascia, the highly distensible bladder and rectum have no membrane around their muscle walls, only a loose and cellular tissue invests them (McMinn, 1990).

The presacral fascia, (Waldever's fascia)

According to Ger,(1980) ; the presacral fascia is thickening from the parietal pelvic fascia which adherent strongly to the sacrum and, inferiorly it thins as it passes down to fuse with the rectal fascia at the anorectal junction. This fascia contains the superior hypogastric plexus and its branches.

The rectovesical septum

Attaches superiorly to the peritoneum of the rectovesical pouch, inferiorly to the pelvic floor, and laterally to the wall of the pelvis. Often regarded as the anterior layer of **Denonvillier's fascia**, it is easily separable from the anterior fascia of the rectum, the latter regarded as the posterior layer of Denonvillier's fascia. The space between these two layers is the route through which the bladder, vagina, and rectum can be separated this is the plane between Wind and Water developed during mobilization of the rectum (Ger, 1988).

THE RECTUM

The latin word rectus means straight, as if ruled,the rectum is misnamed, for it is curved in conformity with the hollow of the sacrum and coccyx (McMinn, 1990).

The rectum is ***continous*** with the sigmoid colon at the level of the third piece of the sacrum and there is no change of the structure at the junction (Mc Minn, 1990).

In cases with a fairly long loop of sigmoid colon which hangs down into the pelvis, the rectosegmoid junction is marked by a distinct flexure, as the terminal sigmoid, which is directed backward and upward, turns sharply downward to follow the curve of the sacrum and become the rectum; but when the sigmoid colon is short such prononced angulation may be absent (Goligher, 1984).

The length of the rectum is about 12cm(Calne et al; 1992),apprximately 5 inches(12.5cm) according to Ger,(1988), 13-15cm as stated by Goligher in, 1984.

The rectum ends, where its muscle coats are replaced by the sphincters of the anal canal. This is the ano-rectal junction,and it is slung in the U-loop of puborectalis (McMinn, 1990).

It ends at the tip of the apex of the prostate in male and the level of the lower 1/4 of the vagina in females (Ger, 1988).

It ends 1 to 1.25 inches(2.5 to 3.1cm) below the tip of the coccyx where it changes direction to become part of the anal canal (Ger, 1988).

Its upper part has the same diameter as the sigmoid colon,about 4 cm in the empty state, but its lower part is dilated to form rectal ampulla (Williams and Warwick, 1980).