ROLE OF DIFFERENT IMAGING MODALITIES IN DIAGNOSING URINARY BLADDER CARCINOMA

ESSAY

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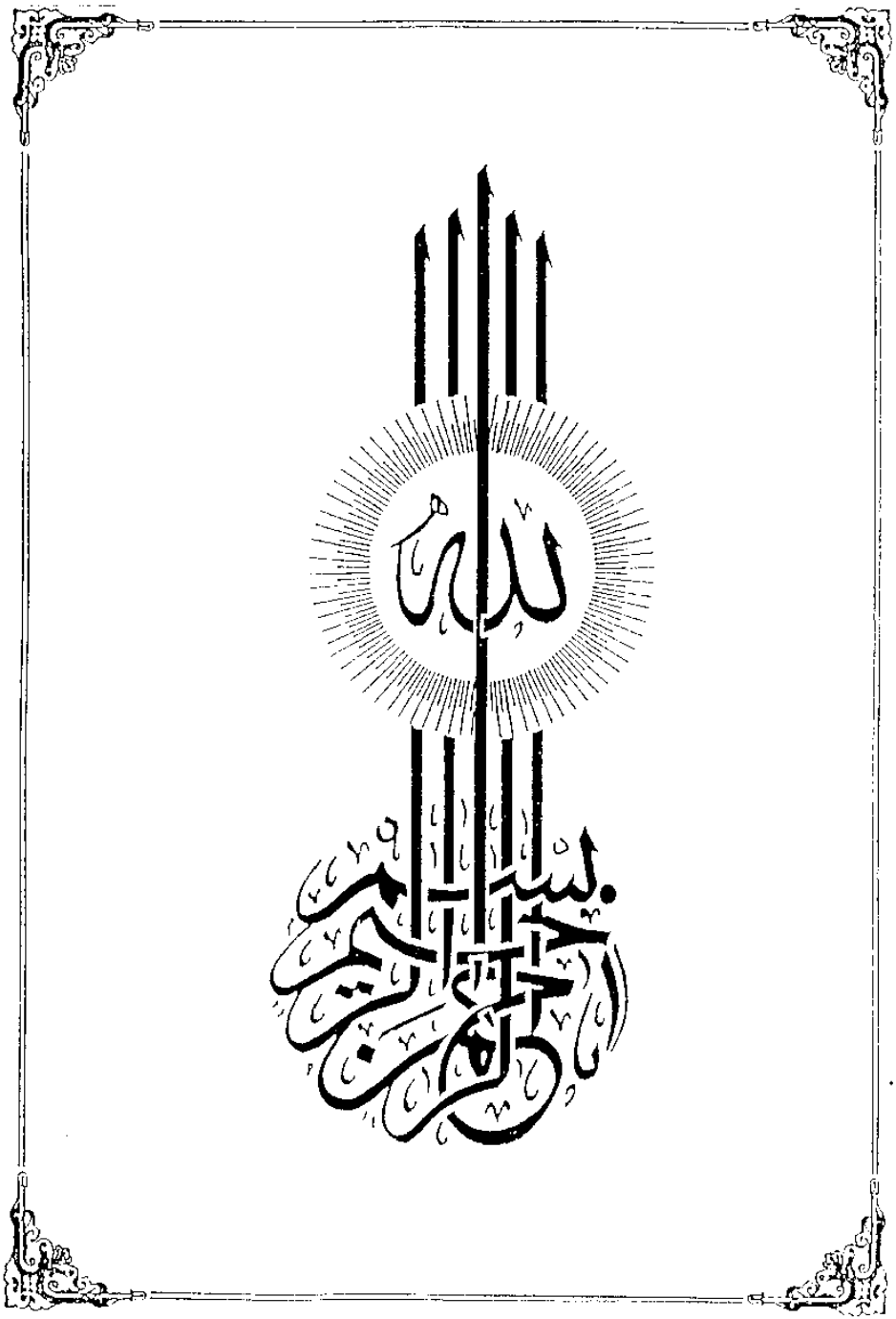
Mohamed Nabawi Ahmed



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INTRODUCTION

Clinical staging of bladder cancer is in accurate in as many as 50% of cases when only resectional biopsy and bimanual examination are used. The higher the tumor stage the lower the clinical accuracy. While the diagnosis can be made on an intravenous urogram or cystogram, a small tumors, specially on the infeltrative type, can remain undetected.

Ultrasound has proved valuable in identifying bladder tumors and in assessing extention into the perivesical space and adjacent organs.

Using the transabdominal approach adetection rate greater than 95% has been reported.

CT appearance of the bladder tumors is nor specific masses that can semulate cancer include invasion of the bladder by carcinoma of the prostate or rectum and metastases.

The major role of CT in carcinoma of the bladder is to stage rather than to detect the primary neoplasm.

CT however is not accurate for early stages and its reliability increases with more advanced disease.

MRI is a valuable method in diagnosis and staginal bladder cancer but its accuracy is not more than that of CT.

AIM OF THE WORK

The aim of this work is to evaluate the old and new techniques in Radiology in detecting and staging cancer bladder and also to choice the best and most valuable methods and to discuss the advantage and disadvantage of each.

ANATOMY OF THE URINARY BLADDER

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Gross anatomy:

The bladder is a reservior for urine varies in shape, size, postion with the amount of urine it contains. Severally, the bladder consists of triangular base (posterior surface and fundus), tow inferolateral surfaces and supperior surface. The 2 inferolateral surfaces meet infront in a rounded anterior "border" and the junction of this border with the anterior aspect of the superior surface is called the apex of the bladder (Hamilton 1985).

The a pex is connected to the umblicus by the median umblical ligament (which is the fibrous remains of the uracus of the embergo). That part of the bladder where the base and inferiolateral surfaces meet and become contenous with the urethera is known as the neck. Thus the neck lies at the inferior angle of the triangular base, to the posterolateral angles of which the ureters are connected.

As the bladder is gradually filled it bulgs outwards and upwards and becomes rounded or globular (Hamilton 1985).

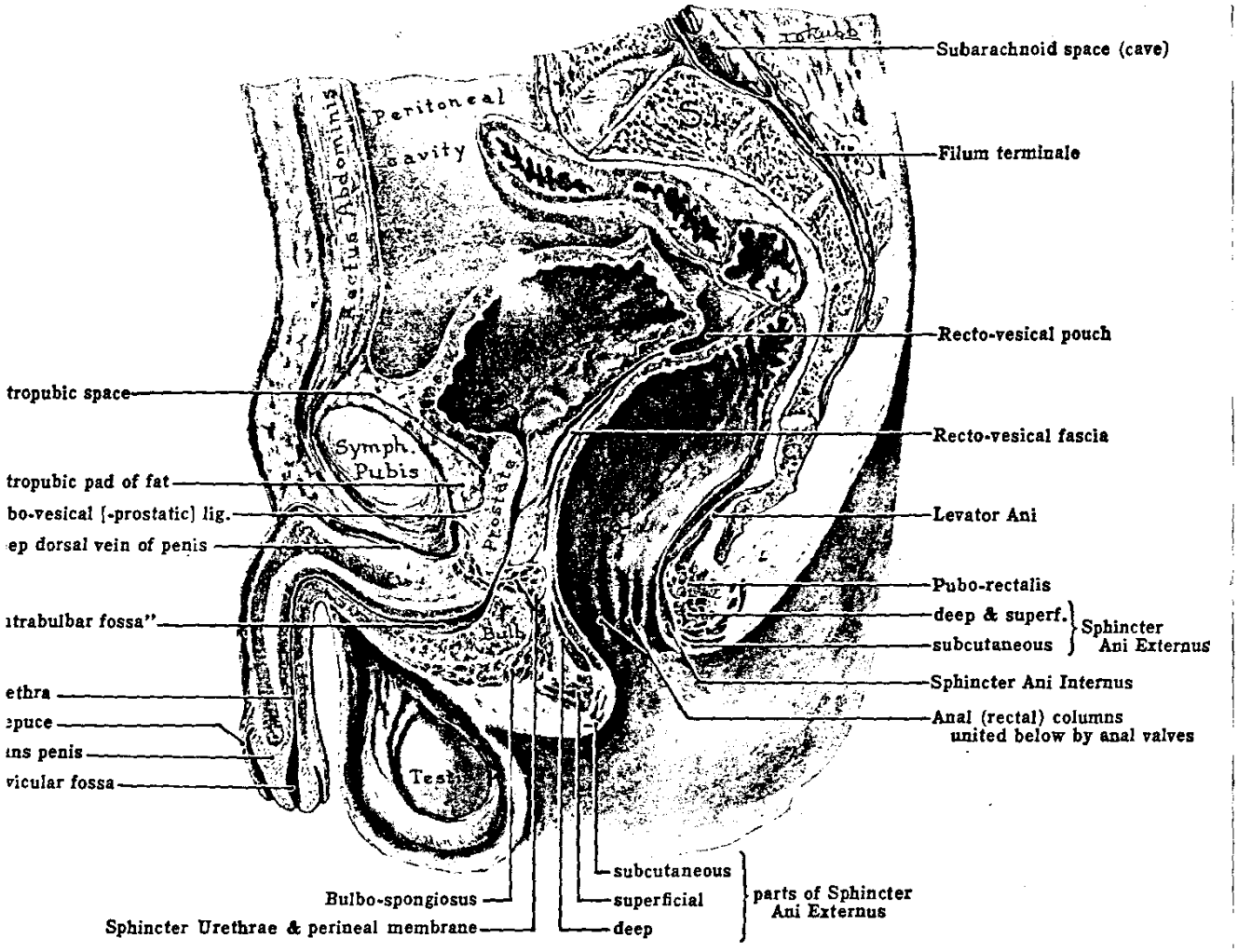

Fig.1: Sagittal section through male pelvis, demonestrating the site of the urinary bladder and its relations (Hamilton 1985).

Relation in males:

The superior surface is covered by peritoneum which reflected forewards onto the posterior aspect of anterior abd. wall and laterally onto the side wall of the pelvis. As the bladder fills it displaces the peritoneium to be indirect contact with the facia of the rectus muscle (ant.abd.wall).

The peritoneum is carried backwards beyond the posterior limit of the upper surface of the bladder to cover the upper part of the seminal vessicls, the vasa defirentia and the ureters. It then turn downwards before being reflected onto the front of the rectum.

The parts of the bladder covered by peritoneum are in contact with the coils of intestine.

Between the bladder and pupis, extending down to the pelvic floor is the regropupic pad of fat and in the region of the neck of the bladder and prostate, a rich plexus of vains (Hamilton 1985).

Relation in the females:

In the females, the anterior relation are the same in the males, the posterior relations are different owing to the presence of the uterus and the vagina.

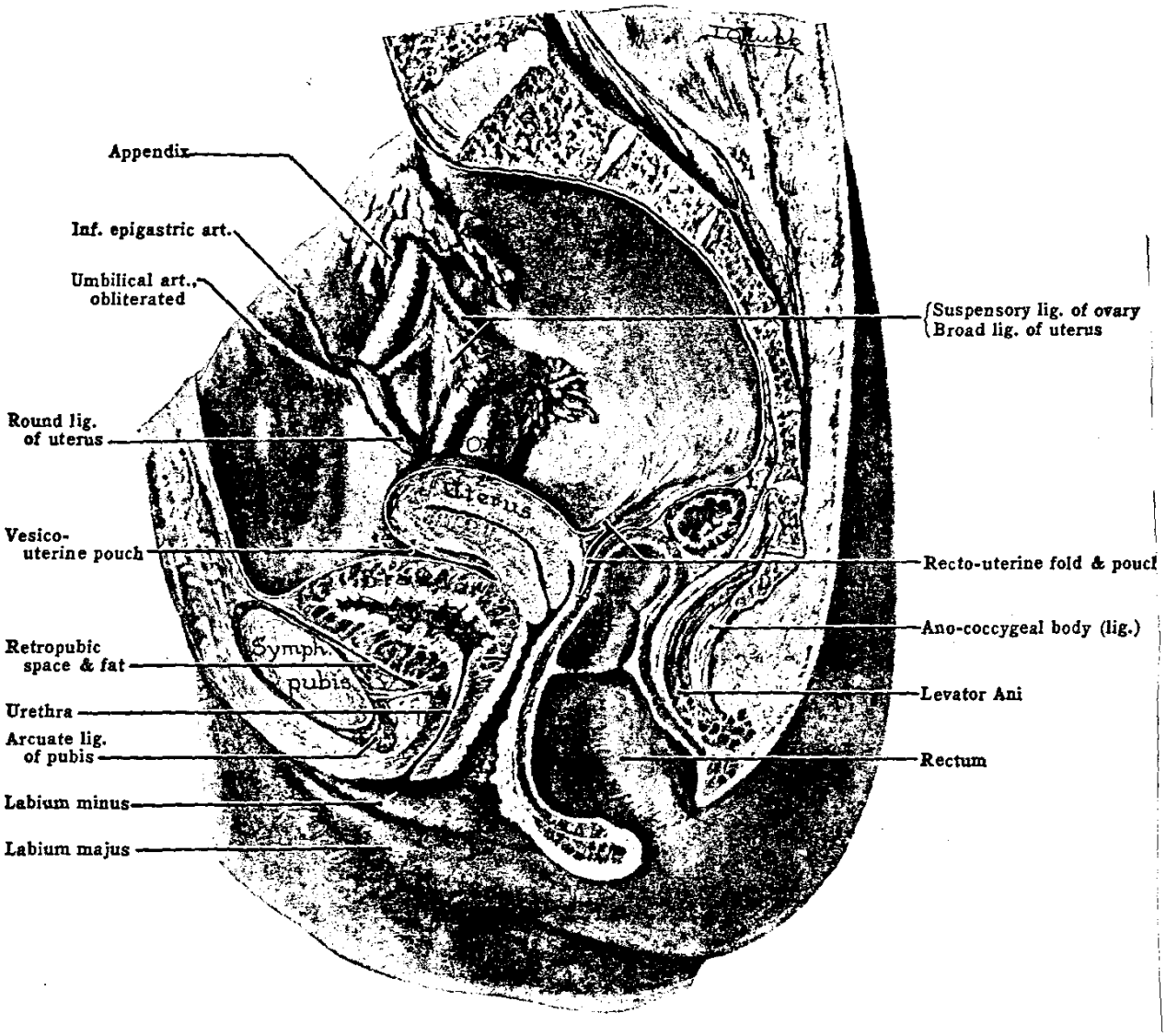

Fig.2: Sagittal section through female pelvis, demonestrating the site of the urinary bladder and its relations (Hamilton 1985).

The peritoneum is reflected from the superior aspect of the bladder on the ant. surface of the uterus at the level of the isthmus of the uterus. The main part of the uterus thus lies above the empty bladder, over with it is normally inclined.

Between the two is a slight recess, the utero vesical pouch which sometimes contains coils of intestine.

The base of the bladder is separated from the vagina and cervix of the uterus by loose areolar tissue (Hamilton 1985)..

Capacity of the bladder:

The physiological capacity of the bladder varies within wide limits, in both sexes it can hold 500ml of urine without over distention.

The amount which the bladder may contain before it may simulate the desire to micturate depends upon the rate of filling.

The desire to micturate usually develops when it contain from 200-350c.c. and well before the bladder rises above the brim of the pelvis.

In the living subjects the bladder almost always contains some urine (Hamilton 1985).

Termination of the ureters:

The reters turn medially through the areolar tissue of the pelvic floor, in the male they pass behind the vasa defrentia (which meet each other in the mid line behind the bladder between the seminal vesicles). Then they make contact with the bladder. The ureters are 1-2 inches apart, the distance varying according to the state of distention of the organ.

Each ureter takes an oblique course of about 3/4 inch through the bladder wall before opening into the lumen of the organ.

In its passage through the bladder wall the ureter retains its integrity and its muscle fibres are quite distinct from those of the bladder.

As a result of this arrangement, the distal end of the ureter assumes the function of a valve.

Since no real valve is present, there may however, be a reflux of urine up the ureter when the bladder is distended-inspite of the sphinctevic action of the circular fibers of the ureter (Hamilton 1985)..