Urodynamic Studies Of Bladder in Different Paralytic Neurological Lesions.

Thesis,

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M . D

In Urosurgery

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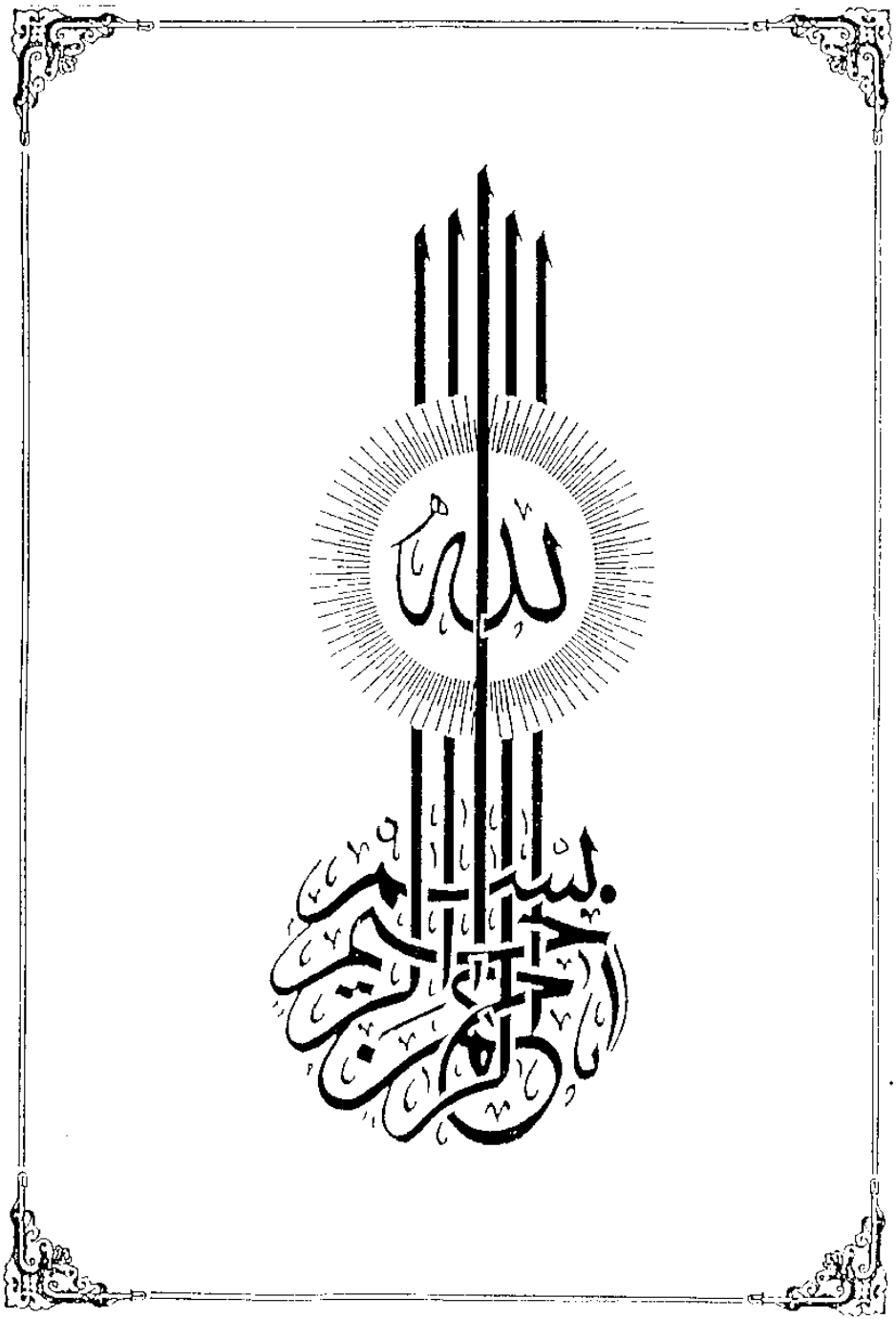

Dedicated

To

My Mother.

Spirit, Of My Father.

My Wife, And My Son.

Contents.

INTRODUCTION

In other neglected patients a neurogenic bladder can be a direct cause of death of the patient.

The investigation of a patient suffering from neurogenic bladder requires a full clinical assessment of the C.N.S. as well as a complete survey of the renal functions and the condition of the urinary organs.

But the investigation of a case of neurogenic dysfunction of the bladder can not be complete unless full urodynamic studies of the bladder are performed.

Aim of Work :- The aim and object of this work is to study the urodynamics of the bladders in certain paralytic lesions occurring in the brain, e.g; brain tumour or vascular lesions, spinal cord, e.e., compression or trauma, cauda equina lesion e.g tumour or dise prolapse, or peripheral nerves, e.g., diabetis and dessiminated lesion as D.S.

REVIEW OF LITERATURE

Anatomy Of The Ladder.

It is the major reservoir of the urinary tract, its Position varies from infancy to a dulthood, in infancy it is Primarily an abdominal structeure ,in adult it requires Pelvic Position.

The bladder is supported by the reflections of the Pelvic fascia, true ligaments (puba-vesical and umblical ligament) and by (ureters, obliterated hypo-gastric vessels, and the peritoneal reflection encircling it.

The upper surface of the bladder and the small portion of the base is covered by peritoneum, the anterior aspect and the antero-lateral surfaces are not covred by peritoneum.

Structure of the bladder

Woodburne (196C) has already shown that the muscu-lature of the bladder is a muscular meshwork in which the muscular l yers seemingly course at right angle to one another.

The longitudinal fibres perticularly may deucussate as many as five times and run deeper (submucosally) in

the vesical wall, only minor accumulation of muscle bundles occur at the vecical neck and the presence of an internal vesical sphincter was denied , the accumulation of muscles at the vesical neck do not represent separate muscles but are composed of muscle bundles that are past the vesical orifice and continue into the urethra

The trigonal muscle is superimposed upon normal bladder muscle and together they form the thickest and least distensible portion of the bladder, the base of the trigone is known as the interureteric ridge while the sides of the trigone are known as Bells' muscles.

The interior of the bladder is covered by loosely attached non gelndular mucosa of the transitional type of epithelium.

Blood supply

The bladder is supplied by the superior and inferior vesical artery the superior vesical artery supplies the upper part of the bladder, urachus,and vasdeferens, the inferior vesicel artery supplies the lower part, seminal vesicles, the prostate and vas deferens.

Venous Drainage

It drains into the plexus of Santorini and into the lateral vesical plexus on each side, to empty into the hypogastric vein.

The lymphatics originate in the mucosa and pass through the musculature to drain into the external iliac, hypogastric and sacral lymph nodes.

The trigone.

The trigone is mesodermal but receives limited contribution from the endodermal urogenital sinus, while it is a direct continuation of the ureter, it is at the same time intimately connected to the detrusor and vesical neck musculature, it has an imperant role in the physiological control of both the ureterovesical junction and the bladder neck.

The trigone is composed of two layers both being direct continuation of the lower ureter with its Waldyer's sheath.

Superficial trigone.

As the ureter approaches the vesical wall, its circular (spiral) muscle fibres became oriented more longitudinal in the intravesical segment, the intravesical ureter is entirely surrounded by detrusor muscle while the rest of it (a segment about 0.7 cm long in the adult subject) lies super ficial in the vesical base covered only by mucosa.

At the ureteral orifice, the roof fibres diverge to the side wall, to meet the floor fibes, immediately distal

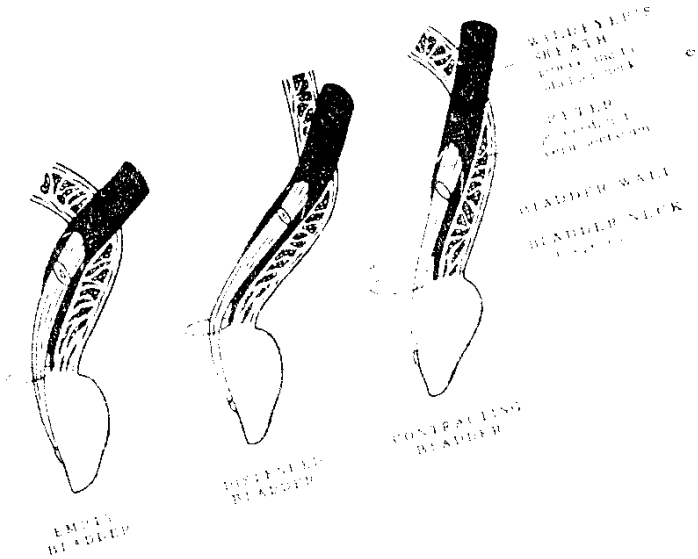

FIG (1). Arrangement of various muscle layers during various phases of bladder activity. Trigone is stretched with filling and actively contracted during voiding (Courte of British J. of Urology)

to the ureteral orifice there is an elevation caused by the accumulation of longitudinal musclefibres of the intra vesical ureter, before they fan out moving medially and down words to meet their corresponding fibres from the other side, these fibres will become the super fiscial trigone, in the male it continue into the posterior wall of prostatic urthra down to veromontanum, in the female subject the fibres end by inserting into the collagenous ring that forms the distal $\frac{1}{5}$ of the urethra

Deep trigone.

All of the fibres forming Waldeyer's sheath continue down words into the base of the bladder forming the deep trigone, the deep trigone ends at the interalmeatus as a dense musculo fibrocellagenous structure.

Neuro-anatomy.

cerebro-cortical innervation of the detrusor muscle and urethra. The nuclei in the cerebral hemispheres sti - ted by afferent impulses from the urinary bladder include discrete portions of the frontal lobe, specific nuclei