INCIDENCE OF URINARY TRACT INFECTION IN CASES OF ENURESIS IN CHILDREN

THESIS

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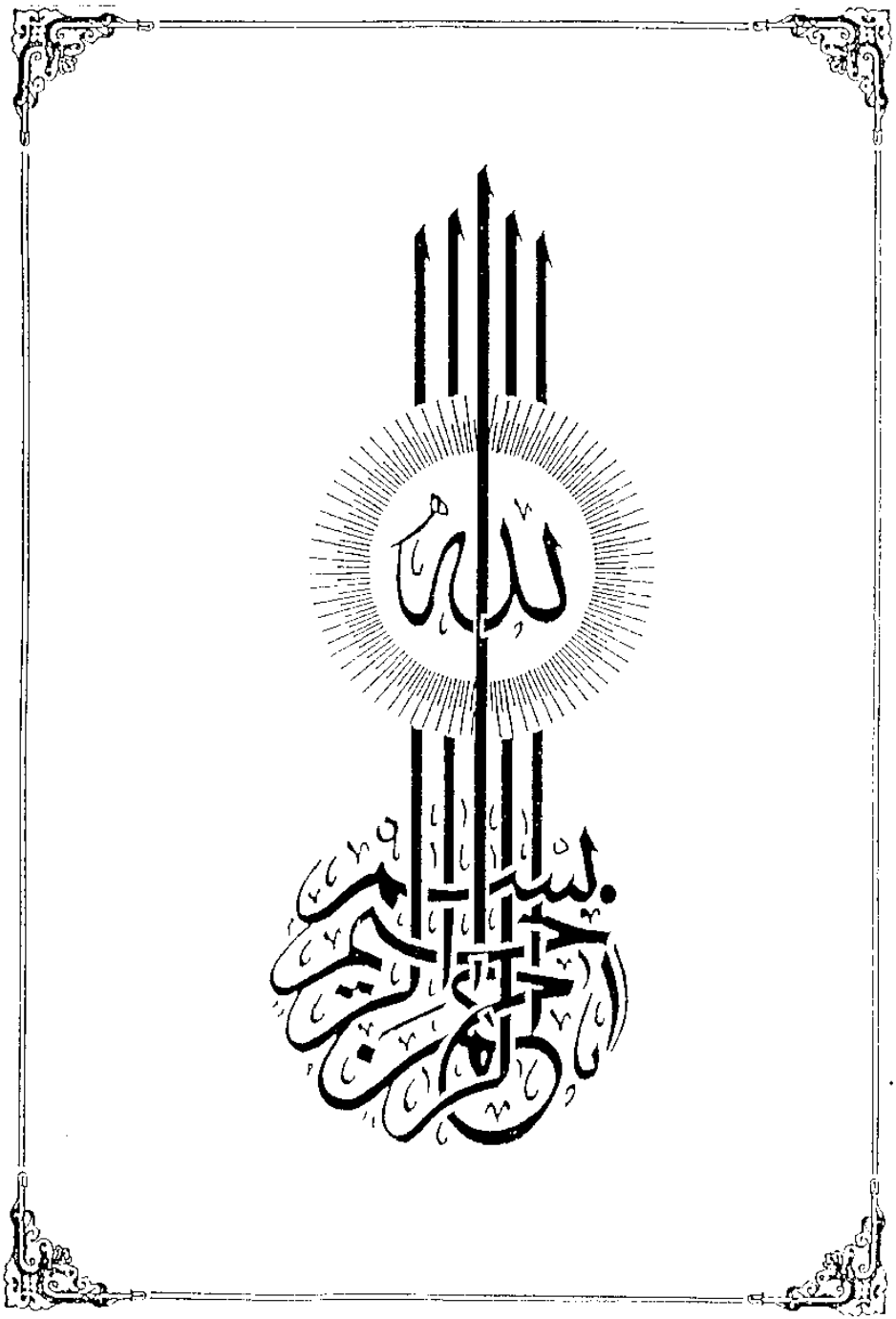
بسم الله الرحمن الرحيم



Dedicated To My MOTHER

And To The Memory of

MY FATHER.

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I N D E X

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INTRODUCTION & AIM OF THE WORK

Enuresis is one of the most common and perplexing problems facing the pediatrician. As a matter of fact, it is not only the problem of the pediatrician, but also of the urologist, the psychiatrist, as well as the general practitioner. This might reflect how important the problem is.

Enuresis is a distressing condition both for the child and his family.

It may extend from school age up to adolescence and adulthood.

The aetiology is not clear. Actually, multiple factors may operate. Organic factors are present in 1 or 2 per cent, urinary tract infection being the most common (Schmitt, 1982).

The aim of this work is to find out the incidence of urinary tract infection and to what extent it may be incriminated as a cause of enuresis.

Review

Of Literature

HISTORICAL REVIEW

Nocturnal enuresis has undoubtedly occured since man's earliest days and the first reference may be found in the Ebers papyrus of 1550 B.C. In 1472 Paulus Bagellardus of Padua published the first book on diseases of children including one chapter entitled 'On incontinence of urine and bed wetting'. In 1545 Thomas Phair edited the first British textbook on childhood disorders and enuresis was mentioned.

In a search for the cause of enuresis, theories of aetiology are extremely varied. During the nineteenth century, debility and general muscular atony was accused as the greatest cause for incompetence of the vesical sphincter. Allbut (1870), felt that exhaustion of adjacent centres in the spinal cord might be an indirect factor in weakening bladder control. Trousseau (1870), put the cause down to phimosis which resulted in reflex contraction of the bladder. His views gained considerable popularity and even during the past few decades phimosis, urethrotrigonitis and coronal adhesions have all been put forward as causative factors.

Ruddock (1878), thought that hypertrophy of the bladder musculature with increased contractility might be responsible.

The possible relationship between enuresis and epilepsy was suggested by Trousseau (1870), who reported cases where enuresis was the start of a chain of neurotic transmutations. Major and Zeim (1891), explained enuresis in mouth-breathing children as being due to carbonic acid poisoning. Acid urine, Ascaris Lumbricoides, hip disease, mucous secretion from Cowper's glands, bladder stone and uterine pathology have all been mentioned as causes of enuresis.

In 1927, Griffith and Mitchell stated that enuretic children should not be sent to school for fear of ridicule, but preferably should be sent into the country to pass as much time in outdoor exercise as possible.

The association between spina bifida occulta and enuresis had long been discounted. In fact, Stalker and Bland (1946), showed that fusion defects and spina bifida occulta were as common in children with enuresis as in those without.

Since the eighteenth century, the enuretic child had been subjected to a variety of chemical and mechanical ways of therapy. During the Victorian era the treatment of enuresis included fluid restriction, enemata, the use of an alarm clock, cold baths, warm baths, cold douches to the perineum and douches to the lower spine. A great number of drugs were used and these included the injection of ergot into the ischiorectal fossa. Jacobi (1891), mixed strychnine and sheep fat into a suppository the size of a bean, which he inserted into the rectum several times daily to strengthen a presumed weakness of the bladder. In 1880, Simmons thought that preputial adhesions would cause irritation and that removing these would promote cure. Circumcision was thus advocated as a treatment and in 1889, Baruch supported this by recording that in a New York asylum for Jewish orphans "circumcised" only 1 % out of 540 inmates wet their beds. Adenoidectomy and tonsillectomy were advocated by many authors as a line of treatment.

Various bandages were also used, and Vogel (1885), described two cases in whom the penis was cut away as a result of various ties around that

organ. Galvanic stimulation to the pelvis was widely used in the mid-victorian era. Nye (1881), described the first electrical apparatus to be used at night, and it is nothing but a stage from these early electrical devices to the bell and pad which is so widely used today (Salmon, 1975).

PHYSIOLOGY OF MICTURITION

The act of urination passes in three phases (Zinner et al., 1976):

I. Filling of the bladder and continence.

II. Transition.

III. Urination.

I. FILLING OF THE BLADDER AND CONTINENCE:

The empty bladder fills from the ureters at an average rate of about 1 ml/min. The valve like mechanism at the ureteric orifices prevents the back flow of urine.

Miller (1973), stated that "The whole urethra acts as a closure device to prevent the passage of urine during the voluntary continent state". Although there is no anatomic sphincter, there is a physiologic sphincteric mechanism throughout the entire urethra in the female, and in prostatic urethra in the male.

Tanagho (1973), stated that there are two distinct elements that contribute to this sphincteric mechanism:

i. Intrinsic urethral smooth musculature, and

ii. Well developed circularly oriented muscle fibres surrounding the urethra and maximally condensed around its mid-portion.

II. The Transition Period

Of the many written theories regarding the mechanisms of transition and urination, three are the commonly accepted ones.

A) Theory of the Base-Plate:

Hutch (1965), assumed that the concenteric circles of musculature within the base-plate compress the internal urethral orifice and sustain continence. He stated that when the base-plate lies flat and plate-like, the sphincter is closed, when anything happens to break the plate (that is to change its shape into that of a cone), voiding occurs. So, for voiding to occur, the base plate must move out of its flat position into the cone position, once this took place, contraction of the circular muscle in the base-plate, which would prevent voiding while the plate was flat, now would aid voiding by forming a progressive funnel at the bladder neck as voiding is completed.

B) Detrusor Tethering Theory:

Lapides (1958), stated that continence is maintained by a combination of:

1. inherent tension in the urethral wall.
2. length of urethra, and
3. The radius of the lumen.

In 1960, Lapides proposed that urination occurs when, during transition, longitudinal urethral smooth musculature contracts and forces the vesical neck into a funnel. In essence, the intraluminal resistance is decreased during urination because the length of the urethra is shortened and its inside calibre is enlarged by the active detrusor contraction.

C) Theory of Active Urethral Relaxation:

Denny-Brown and Robertson (1933), observed that the internal (involuntary) sphincter contracts and relaxes in reciprocal relationship with the detrusor muscle of the bladder.

El Badawi and Schenk (1968), have shown morphologic evidence for multineural nature of autonomic neural pathways to the bladder and the presence of a peripheral mechanism for mutual regulation and integration of sympathetic and parasympathetic influences