THE PROSTATITIS SYNDROME

THESIS

Submitted for Partial Fulfilment
of MASTER DEGREE in
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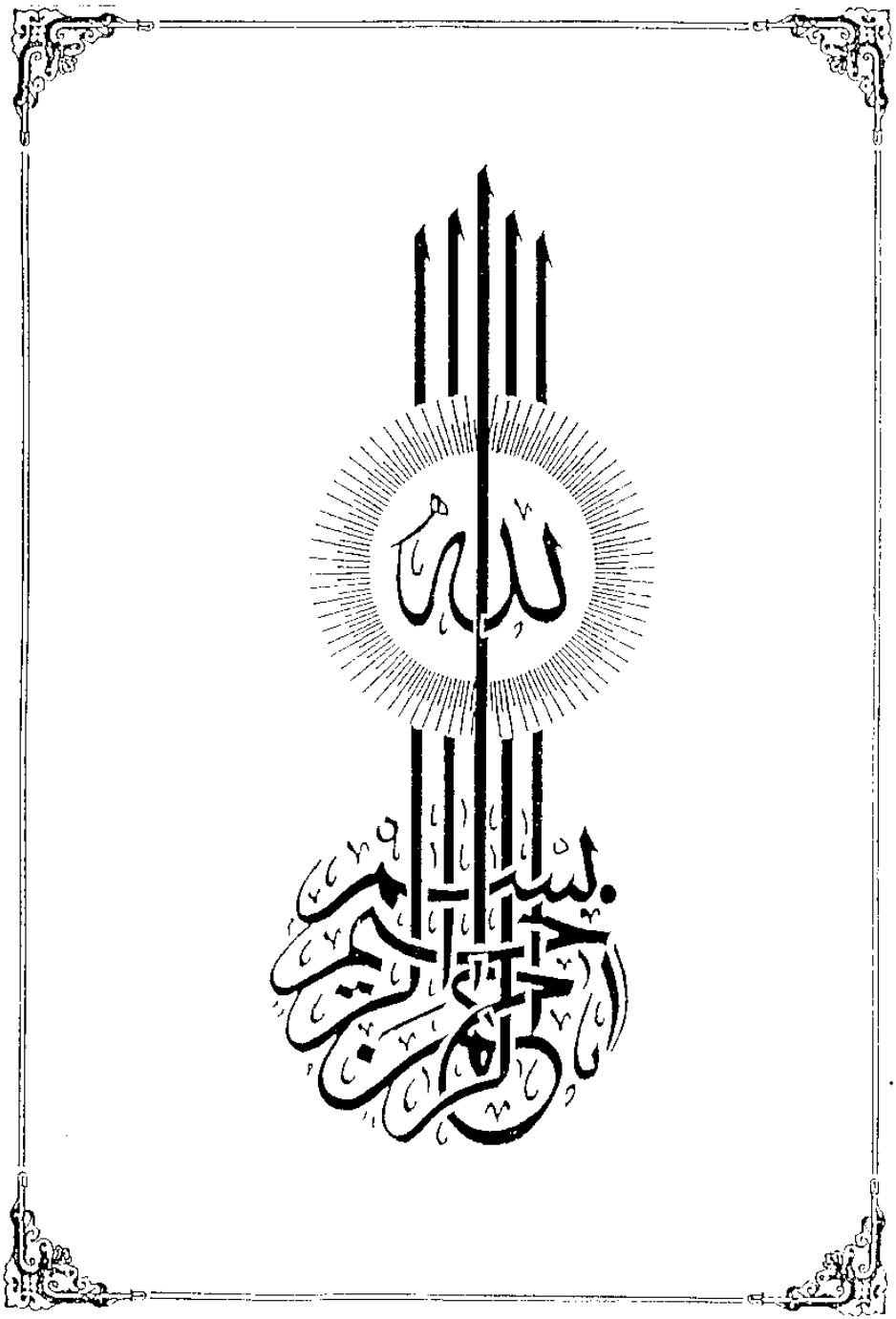
TO MY FATHER AND MY MOTHER



A C K N O W L E D G E M E N T

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C O N T E N T S

ANATOMY AND HISTOLOGY OF THE PROSTATE GLAND

The prostate gland is shaped like an inverted cone, measuring 4 cm by 4 cm and lying at the base of the bladder. It surrounds the proximal urethra and rests on the triangular ligament posteriorly it is in contact with the anterior rectal wall. It consists of a middle and two lateral lobes and is enclosed by a fibromuscular capsule. The glandular tissue is of the branched tubular type and is lined with columnar epithelium.

The ducts open into the prostatic urethra. The common ejaculatory ducts also pass through the prostatic tissue to open on the floor of the prostatic urethra. The so-called middle lobe of the prostate is the upper and posterior part of the gland which is bounded by the urethra in front and ejaculatory ducts on either side.

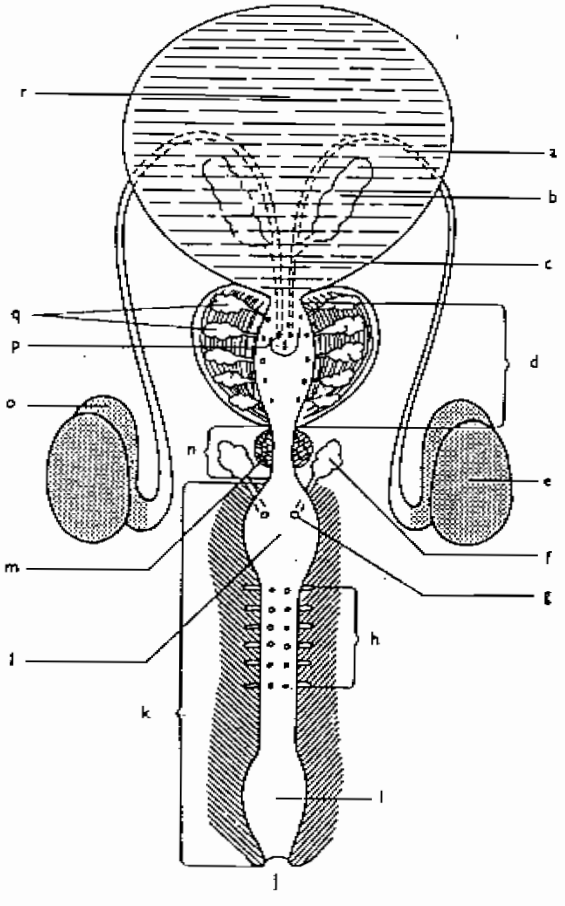
The seminal vesicles are convoluted structures, each approximately 5 cm in length, which store the seminal fluid. They lie between the base of the bladder and the rectum. They are lateral to the terminal parts of the vasa deferentia which they join at the base of the prostate to form the common ejaculatory ducts.

The vasa deferentia extend from the lower poles of the epididymes to the base of the prostate. They are thick-

walled tubes 40 cm in length. The testicular portion ascends along the back of the epididymis, then it becomes the main part of the spermatic cord running up to the external inguinal ring and passing through the inguinal canal. At the internal inguinal ring it leaves the associated vessels of the spermatic cord and enters the pelvis. It passes downwards and backwards over the lateral aspect of the bladder to its posterior surface and anterior to the rectum. It becomes wider and sacculated and passes inwards to the base of the prostate, where it dilates to form the ampulla before narrowing to join the duct of the seminal vesicle and form the common ejaculatory duct.

The prostatic fluid:-

The fresh secretion of the normal prostate is a thin, white , semi-translucent fluid. Microscopically it is seen to consist of structureless material containing small refractile granules, termed lecithin bodies. Laminated bodies, the so-called corpora amylacea may also be seen. Normally the secretion contains few polymorphnuclear leukocytes or other white cells.



Floor of the Male Urethra

(Redrawn from Burke's adaptation of Pelouze)

a. Vas deferens
b. Vesicula seminalis
c. Ejaculatory duct
d. Prostatic urethra
e. Testis
f. Cowper's gland
g. Orifice of duct of Cowper's gland
h. Littré's glands
i. Fossa navicularis
j. Urinary meatus
k. Anterior urethra
l. Bulb
m. Compressor urethrae muscle
n. Membranous urethra
o. Epididymis
p. Verumontanum
q. Prostatic acini
r. Bladder

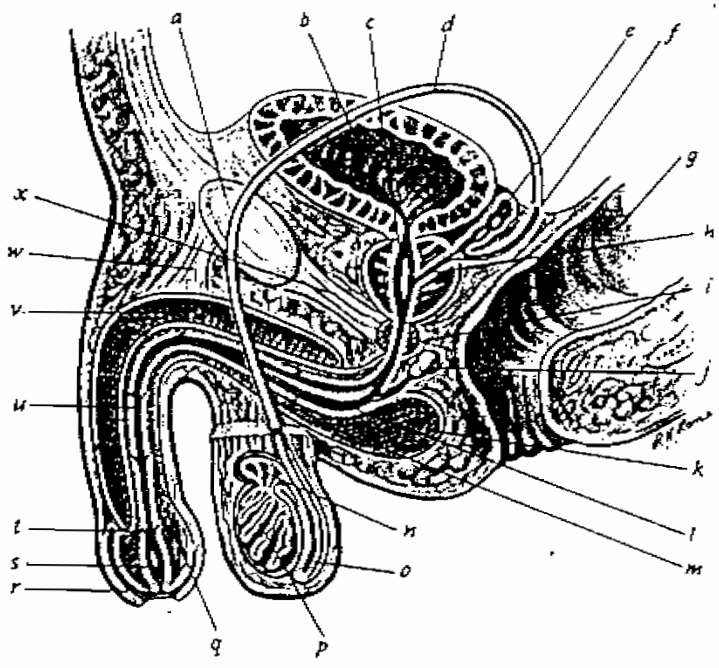


Fig. 101. Sagittal section of male genito-urinary tract.
(After Burke's adaptation of Pelouze.)

a. Symphysis pubis
b. Bladder
c. Prostatic urethra
d. Vas deferens
e. Ampulla of vas
f. Seminal vesicle
g. Rectum
h. Ejaculatory duct
i. Compressor urethrae and membranous urethra
j. Cowper's gland
k. Bulb
l. Bulbous urethra
m. Corpus spongiosum
n. Globus major } of epididymis
o. Globus minor }
p. Testis
q. Tyson's gland
r. Urinary meatus
s. Fossa navicularis
t. Lacuna magna
u. Penile urethra
v. Corpus cavernosum
w. Suspensory ligament
x. Triangular ligament

THE PROSTATITIS SYNDROMES

Introduction :

Prostatitis is the fundamental lesion in bacterial infection of the male urinary tract and is the likely reservoir when complications occur and infection is recurrent. Although it is a common condition, it is insufficiently recognized as the cause of symptoms typical of lower urinary tract infection in males. The disease has been classified by Drach and his colleagues (1978) into categories which are dependant on the findings in the expressed prostatic secretion. These are:

(1) Acute bacterial prostatitis.

(2) Chronic bacterial prostatitis.

(3) Non bacterial prostatitis.

(4) Prostatodynia.

In the above classification, both acute and chronic bacterial prostatitis are always characterized by recurrent bacteriuria, definite evidence of inflammation in the expressed prostatic secretion (EPS) and, if segmented urine and prostatic secretion cultures are obtained as described by Meares and Stamey (1968) , the prostate can be proven to be the site of bacterial persistence in between episodes of bacteriuria.

Non bacterial prostatitis and prostatodynia, by contrast, are never associated with acute or recurrent urinary tract infection, the aetiological cause of both syndromes is unknown, and the only feature distinguishing prostatodynia from non bacterial prostatitis is the absence of an inflammatory reaction in the expressed prostatic secretion of patients with prostatodynia. So the prostatic syndrome is not necessarily accompanied by the presence of bacteria within the prostate gland.

Because prostatitis remains a complex , often puzzling disease,many studies have been made towards a better understanding of the etiology, methods of diagnosis, pathophysiology and therapy of this common malady.

Prostatitis may occur in any male after puberty, and chronic bacterial prostatitis is probably the most common cause of relapsing urinary tract infection in male. (Anderson and Fair, 1976).

A wide variety of antimicrobial agents have been studied in bacterial prostatitis, but the results have not been striking. The infecting pathogen, although sensitive to the antimicrobial agent in vitro, frequently persists

in the prostate for months and even years, leading to relapse when the drug is withdrawn.(Meares, 1973).

The treatment of chronic prostatitis is continually changing and a definite cure of these patients has not been reported so far.

So, as the search for the bacteriological causes of chronic prostatitis has not been successful, and as the results of antibiotic therapy for this syndrome are far from convincing, patients with the prostatitis syndrome are usually subjected to psychic and sexual disturbances leading to prolongation of the symptoms(Bagge 1970).

Classification and description of patient categories:

Not only prostatitis is a common and frustrating problem, but also it is a difficult subject because the term prostatitis includes any patient with unexplained pelvic , genito-urinary or ejaculatory symptoms with or without a tenderness of prostate on rectal examination.

There is no generally accepted definition or clearly established criteria for making the diagnosis and no definite patho-physiology.

The clinical findings used to diagnose prostatitis are so non-specific that refutation of studies is easy ; for example it can often be shown that selected patients are in most ways no different from some healthy adult men among the general population.

Because of these difficulties with definition, Darch et al., 1978 , proposed a clinical classification of prostatitis. Table (1) .

Both acute and chronic bacterial prostatitis are always characterized by recurrent bacteriuria , definite evidence of inflammation in the prostatic discharge and if segmented urine and prostatic cultures are obtained as described by Mears and Stamey(1968), the prostate can be proven to be the site of bacterial persistence in between episodes of bacteriuria. Non bacterial prostatitis and prostatodynia, by contrast are never associated with acute or recurrent urinary tract infection, the aetiological cause of both syndromes is unknown , and the only feature distinguishing prostatodynia from non bacterial prostatitis is the absence of an inflammatory reaction in the E.P.S. of patients with prostatodynia.

Table(1): Clinical classification of prostatitis.

	Evidence of inflammation ESP	Culture +ve ESP	Culture +ve Bladder	Rectal examination
Acute bacterial prostatitis.	+	+	+	Abnormal
Chronic bacterial prostatitis.	+	+	+	Normal
Non bacterial prostatitis	+	O	O	Normal
Prostatodynia	O	O	O	Normal

Acute and chronic bacterial prostatitis :

In acute bacterial prostatitis, the infection often begins with malaise, myalgias, sometimes fever , several days before local prostatitic inflammation produces symptoms of urinary frequency , urgency,dysuria and ultimately obstructive voiding. On rectal examination the prostate is often, but not always,hard irregular and may even be suggestive of the cause . The rectal findings gradually return to normal with subsidence of the inflammation.

In chronic bacterial prostatitis , by contrast , symptoms are limited to those associated with bacteriuria, the prostate feels normal on rectal palpation.

Both acute and chronic bacterial prostatitis can be associated with reinfections of the prostate when patients are followed for several years after obtaining bacteriological cure. Failure to cure chronic bacterial prostatitis, which occurs in the majority of patients is followed by bacteriuric recurrences with the same organism at time intervals of 48 hours to six months after stopping antimicrobial therapy (Stamey 1980). While the infecting bacteria are most commonly E.coli and other members of the