# HISTOPATHOLOGICAL STUDY OF PROSTATIC INTRAEPITHELIAL NEOPLASIA IN VARIOUS PROSTATIC CONDITIONS



Thesis

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By

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بسم الله الرحمن الرحيم

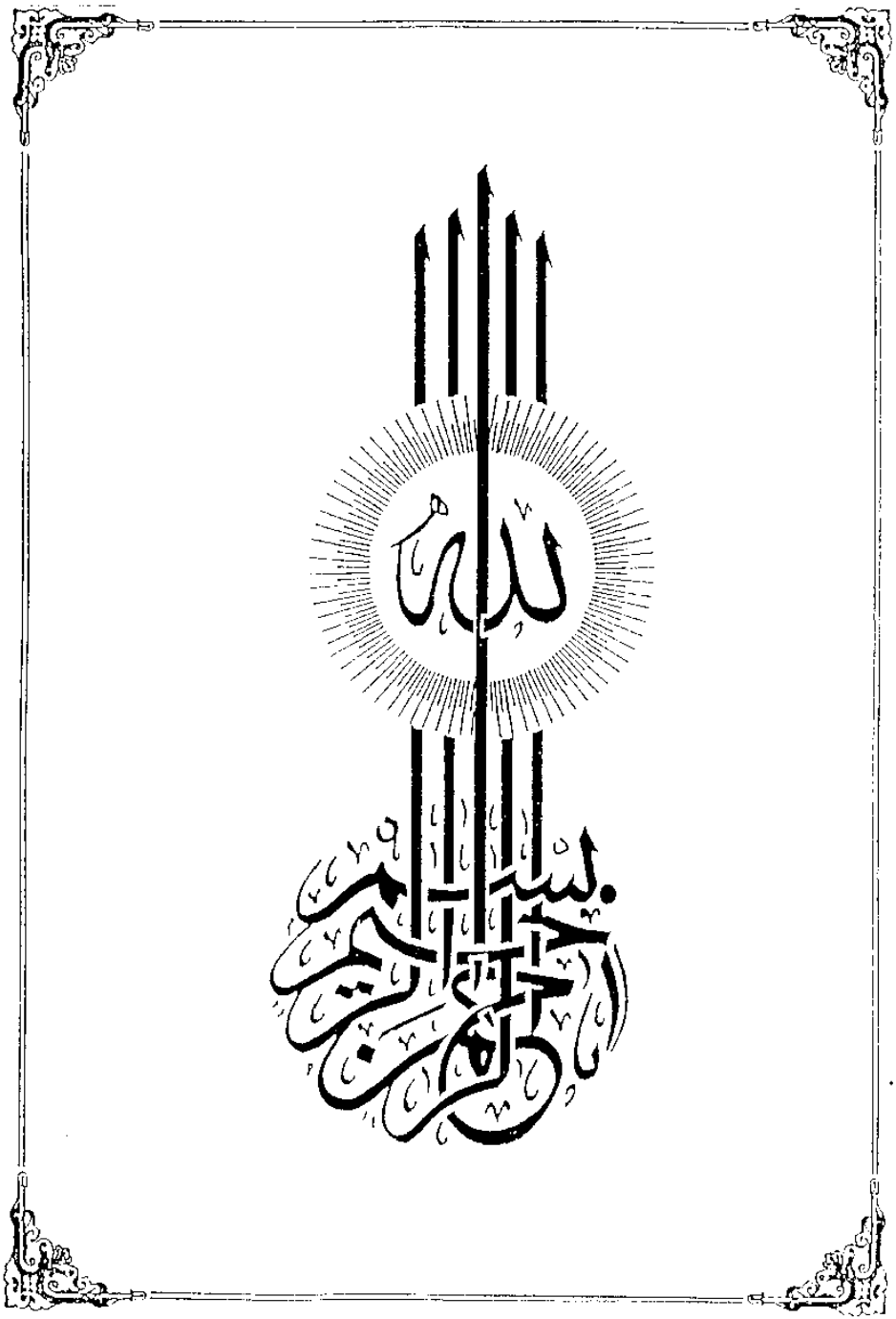
اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ

خَلَقَ الْإِنسَانَ مِنْ عَلَقٍ

اقْرَأْ وَرَبُّكَ الْأَكْرَمُ الَّذِي عَلَّمَ بِالْقَلَمِ

عَلَّمَ الْإِنسَانَ مَا لَمْ يَعْلَمْ

العلق ١-٥



*TO MY FAMILY*

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# INTRODUCTION

The subject of premalignant lesions of the prostate has never been pertinent than nowadays. As the population ages, the incidence of prostate cancer is expected to increase significantly creating a great need for better methods of detection and treatment. Because of inability to prevent prostate cancer, early detection using the tests that are available today may widen the opportunity so that treatment indeed becomes possible. Also, it offers the most practical method of reducing morbidity and mortality (Bostwick, 1988 and Scardino et al., 1992).

New as well as standard techniques for the detection and diagnosis of early prostate cancer have been described. These include the use of digital rectal examination, prostatic specific antigen, transrectal ultrasound, prostatic acid phosphatase, the biopsy gun, and cell ploidy as well as the diagnosis of premalignant lesions of the prostate. All of these innovations may enhance our ability to diagnose and follow patients with early prostate cancer (Drago, 1989).

The existence of a premalignant phase in the development of adenocarcinoma of the prostate has not been widely recognized. Premalignant lesions have generally been

most precisely defined for hollow organs such as the colon, bladder, and cervix, where the possibility of sequential biopsies under direct vision has made it easy to prove the malignant potential of an individual lesion by following its evolution into invasive cancer. For solid organs such as the prostate, there was not appear to be any way to target the sites of sequential biopsies precisely enough to trace the evolution of a single focus. Furthermore, because undetected lesions in the tissue immediately adjacent to the biopsy could gradually encroach on the biopsy target area and be misintepreted as evolution of the original focus (McNeal, 1989).

Non-invasive epithelial lesions have been described in the prostate which share some of the cytologic and architectural features of adenocarcinoma (Bostwick and Brawer, 1987). These lesions had been the subject of much controversy as regards their terminology, strict histologic criteria, frequency, severity and their biologic significance in relation to prostatic carcinoma. It is important to establish the existence and specific features of such lesions, both to better understand the natural history of prostate cancer and develop criteria that distinguish premalignancy from frank carcinoma.

Wide range of synonyms were used to describe prostatic premalignant conditions. Partly because of this confusion, a consensus conference was held in 1989 and the term "Prostatic intraepithelial neoplasia" [PIN] was considered to be the most appropriate nomenclature for the most common premalignant prostatic change (Drago et al., 1989).

## AIM OF THE WORK

This work aims at studying PIN as regards the grade, frequency and extent in the prostate with and without carcinoma to evaluate its importance in early detection of prostatic malignancy. Also, it investigates the reproducibility of all modern diagnostic criteria of PIN and their differential diagnosis.

# REVIEW OF LITERATURE

# ANATOMY OF THE PROSTATE

The prostate is a retroperitoneal male sex organ weighing 20 gm in the normal adult *(Cotran et al., 1989)*.

The prostate is a firm, partly glandular, partly fibromuscular body surrounding the beginning of the male urethra. It lies behind the inferior border of the symphysis pubis and pubic arch, and anterior to the rectal ampulla, through which it may be palpated. The gland is conical in shape presenting above by a base or vesical aspect and below by an apex. Besides, it has also a posterior, anterior, and two inferolateral surfaces.

The base is largely contiguous with the neck of the bladder above it. The urethra enters nearer to its anterior border.

The posterior surface is transversely flat and vertically convex and is separated from the rectum by the prostatic sheath and loose connective tissue external to the sheath. Near its superior (Juxtavesical) border there is a depression where the two ejaculatory ducts penetrate the gland, dividing this surface into a superior and an inferior, larger part. The superior part is variable in size and usually regarded as the external aspect of the median

lobe, while the inferior part shows a shallow, median sulcus, usually considered to make a partial separation into right and left lateral lobes, forming the main prostatic mass and continuous behind the urethra. A band of fibromuscular tissue, ventral to the urethra, joins these lobes together and is often referred to as the anterior lobe; it contains less glandular tissue than the rest of the gland. This simplified view of prostatic lobation, based mainly on the classic work of *Lowsely (1912)*. A recognizable lobar structure was confirmed after dissection of more than one hundred human prostatic glands. Two lateral lobes were recognized but were considered not to appear on the dorsal (rectal) aspect, which was occupied by paired dorsal lobes extending laterally to form the apex. A median lobe was recognized around the urethra (except at the apex deep to the dorsal and lateral lobes).

The anterior surface is transversely narrow and convex, extends from the apex to the base, about 2 cm behind the symphysis pubis from which it is separated by a venous plexus and loose adipose tissue. Near its superior limit it is connected to the pubic bones by the puboprostatic ligaments. The urethra emerges from this surface anterosuperior to the apex.

The inferolateral surfaces are related to the anterior parts of the levatores ani, which are separated from them by a plexus of veins embedded in the fibrous prostatic sheath.

The prostatic base measures about 4 cm transversely, 2 cm in anteroposterior and 3 cm in its vertical diameter. It has a fibrovascular sheath on each side, formed of fibrous tissue containing the prostatic venous plexus. Anteriorly it blends with the puboprostatic ligaments and inferiorly with the fascia on the deep surfaces of the sphincter urethrae.

The prostate is traversed by the urethra and ejaculatory ducts and contains the prostatic utricle.

The urethra usually passes between its anterior and middle thirds. The ejaculatory ducts pass antero-inferiorly through its posterior region to open into the prostatic urethra *(Williams et al., 1989)*.