

IMAGING OF PROSTATIC LESIONS

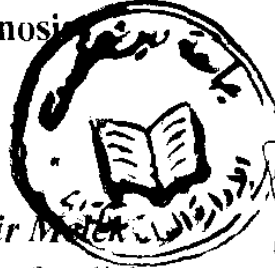
Essay

Submitted for Partial Fulfillment of Master degree in
Radiodiagnosis

By

Essam Mounir Mostafa

M.B.B.Ch., Diploma of Radiology



Handwritten signature and a rectangular stamp with Arabic text.

Supervised By

65813

Prof. Dr. Heba el-Deeb

Prof. of Radiodiagnosis Department
Faculty of Medicine, Ain Shams University

Dr. Maha Mohamad Abd el-Raof

Lecturer of radiodiagnosis
Faculty of medicine, Ain shams university

Faculty of Medicine
Ain Shams University
1999



Acknowledgement

I wish to express my deep gratitude and great indebtedness to ***Prof. Dr. Heba el-Deeb***, Professor of Radiodiagnosis Department, Faculty of Medicine, Ain Shams University, for her invaluable guidance and great help in supervising this work. No words can express my feeling and respect to her as regards her continuous encouragement and constructive criticism given to me at every stage of this work.

I would like to extend my thanks and appreciation to ***Dr. Maha Mohamad Abd el-Raof***, Lecturer of Radiodiagnosis, Faculty of Medicine, Ain Shams University, for her kind assistance, efforts and patience. It is sincere guidance her helped me strongly to finish this work.

Dr. Essam Mounir Melek

CONTENTS

Subjects	Page
* Introduction and Aim of the Work	1
* Anatomy of the Prostate	2
* Pathology of Different Prostatic Lesions	10
* Methods of Radiological Imaging Examination of the Prostate	21
* Manifestation Of Different Prostatic Lesions With Illustrative Cases	36
* Summary and Conclusion	84
* References	88
* Arabic Summary.	

List Figuers

- Fig. 1 : Trs. Section through the male pelvis.
 Fig. 2 : Coronal section though the male pelvis.
 Fig. 3 : midsagittal section of the male pelvis.
 Fig.4 : Coronal section of the pelvis anterior to the rectum Fig.5 :
 BPH.with hetrogenous echopattern.
 Fig 6 : BPH A)IVP and B) MRI.
 Fig 7 : BPH Suprapubic U/S.
 Fig.8 : BPH MRI T1 wieghtd image sagital section.
 Fig. 9 : Normal zonal anatomy of prostate A) Transrectal
 B) MRI.
 Fig.10 : status post transurthral resection.
 Fig. 11 : BPH A) trans.abd. B) MRI.
 Fig. 12 : BpH MRI.
 Fig. 13 : Prostatic carcinoma Transrectal U/S.
 Fig. 14 : Diffuse prostatic carcinoma.
 Fig. 15 : stage C1 prostatic carcinoma.
 Fig 16 : Stage C prostatic Carinoma.
 Fig . 17: C.T Prostatic Carcinoma.
 Fig. 18 : MRI prostatic carcinoma.
 Fig. 19 : Normal seminal vesicles apperance by MRI.
 Fig. 20 : Stage D1 prostatic carcinoma by MRI.
 Fig. 21 : Tumor invasion of the seminal vesicles.
 Fig 22 : Stage B prstatic carcinoma by Transrectal.
 Fig 23 : early prostatic carcinoma by trasrectal .
 Fig. 24 : prostatic carcinoma by transrectal.
 Fig 25 : whole organ map of step sectioned radicla pros.
 Fig. 26 : C.T carcinoma of Prostate .
 Fig. 27 : C.T carcinoma of prostate.
 Fig 28 : C.T stage C carcinoma of prostate.
 Fig 29 : C.T stage C carcinoma of prostate.
 Fig 30 : C.T stge C carcinoma of prostate.
 Fig 31: C.T carcinoma of prostate .
 Fig. 32 : C.T advanced carcinoma of prostate.
 Fig.33 : Transrectal U/S guided Biopsy .
 Fig 34 ; Transrectal U/S prostatic carcinoma.
 Fig. 35 : stage D1 prostatic Carcinoma.
 Fig. 36 ; stage D1 prostatic carcinoma by MRI.
 Fig. 37 : Prostatic Abscess.
 Fig 38 : Cystourthrogram show reflux into prostatic duct.
 Fig 39 : Prostatic Abscess by transrectal and C.T.
 Fig 40 : Prostatic Calcification.

INTRODUCTION AND AIM OF WORK

The prostate is an important organ in the male urogenital system. The prostate gland is the most frequently diseased organ in men. Space occupying lesions are the most common lesions in men over the age of sixty five years (*Mc Clennan, 1990*).

Although digital rectal examination has been the primary method for evaluating these lesions, its limitations in both detection and staging are well recognized (*Hernandez, 1990*).

We have reviewed the different radiological and imaging techniques in cases of different prostatic lesions. Starting by the conventional radiological methods, the imaging techniques of ultrasonography and scintigraphy, up to the recent imaging modalities of C. T. and M.R.I.

The aim of our work was to demonstrate the efficiency of each diagnostic modality in the diagnosis of different prostatic lesions.

ANATOMY

ANATOMY OF THE PROSTATE

The prostate is a fibromuscular and glandular organ surrounding the male urthra.

The prostate is some what conical in shape possesses the following landmarks; base, apex, posterior surface, anterior surface, and two lateral surfaces.

The posterior base measurs about 4 cm transversally, the gland being about 2 cm in anteroposterior and 3 cm in its vertical diameters (*Williams et al., 1989*).

Lobes of The Prostate

Former classification divided the prostatic gland into five lobes, anterior, posterior, median, and two lateral lobes (*Tanagko 1986*).

Mc Clennan divided the gland elements into 4 prostatic zones:

1. The transition zone:

It is a thin zone surrouning the periurthral gland. It accounts for approximatly 5% of the volume of the normal prostate and it is the zone in which benign prostatic hyperplasia orginates.

2. The central Zone (CZ)

It constitutes 25 % of normal sized prostate by volume. It is thick at the base and thin near the Apex.

3. The peripheral zone (Pz)

It surrounds the CZ and is correspondingly thinner at the base and most dominant at the caudal portion of the gland (apex). It constitutes 70% of normal glandular prostate and contains less densely packed stroma and more glandular acini than does the CZ. The peripheral zone is the site of most prostatic cancers.

4. The anterior fibromuscular stroma:

It forms the anterior boundary of the TZ and covers the anterior surface of the prostate (*Ramchandani and Pollack, 1992*).

Ligaments and attachments:

The prostate is well fixed in its place. Its place rests on the superior aspect of the genito-urinary diaphragm and is attached to the back of the pubic bone by the dense vascular pubo-prostatic ligament. It is firmly adherent to the base of the bladder superiorly. And confined within the prostatic sheath which is a reflection from the endopelvic fascia. It is well supported posteriorly by the obliterated peritoneal pouch forming the fascia of Denonvillier's (*Tanagho, 1986*).

Anatomical Relations

- ♦ The prostate gland is situated in the true pelvis behind the inferior border of symphysis pubis and the pubic arch lying in front of the ampulla of the rectum.