IMAGING OF UTERINE TUMOURS

Essay

submitted in partial fulfillment for
Master Degree in Radiodiagnosis

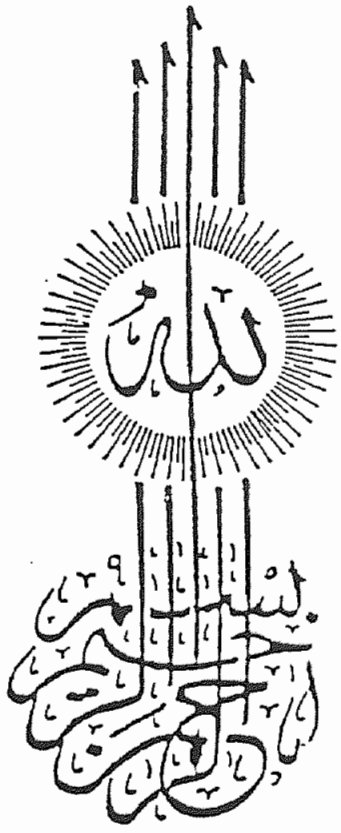
By

Hala Mohamed El-Husseiny
M.B., B.Ch. (1988)

Supervisor

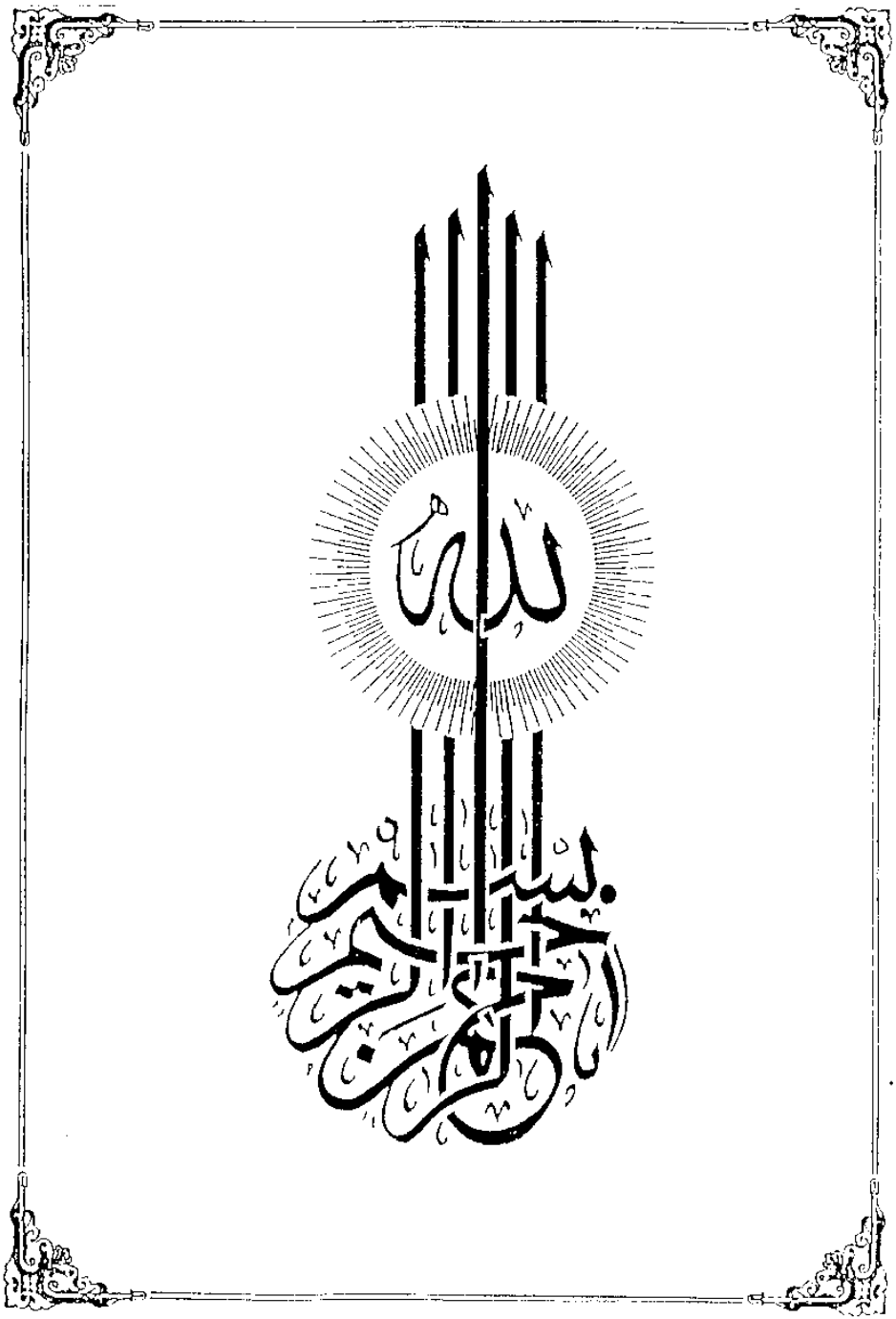
Prof. Dr. Heba Mohamed Khalil El-Deeb
Prof. of Radiodiagnosis
Faculty of Medicine
Ain Shams University

FACULTY OF MEDICINE
AIN SHAMS UNIVERSITY
1993



قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ.

صَدَقَ اللهُ الْعَظِيمُ
البقرة - ٣٢



ACKNOWLEDGMENT

I wish to express my deepest gratitude and thanks to Prof. Dr. HEBA MOHAMED KHALIL EL-DEEB, Professor of Radiodiagnosis, Faculty of Medicine, Ain Shams University, for her great help and continuous valuable supervision throughout the study. In spite of her over-crowded time, she offered me a great help and furnished me with references and support throughout the study. Her extreme patience and untiring efforts are more than I can express.

TO...

MY PARENTS
AND
MY YOUNG FAMILY

CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

&

AIM OF THE WORK

INTRODUCTION AND AIM OF THE WORK

Uterine neoplasms comprise a significant proportion of all tumours among women. The incidence of gynecologic cancer rises with advancing of age as endometrial carcinoma which is a disease of menopausal or post-menopausal women with a peak incidence of age 55 to 65. Although infertility is commonly found among patients with endometrial carcinoma, cervical cancer is associated with increased parity and sexual activity at early age with an incidence about half that of endometrial carcinoma.

As regards uterine leiomyomas, it is the most common uterine masses, occuring in 20% to 30% of women after the age of 30 years.

Metastatic tumours to the cervix uteri are very rare, but corpus uteri may be involved by distant metastases either from local extension from female genital tract or from other pelvic or extra-pelvic organ.

The Aim Of The Work:

The aim of the present work is to demonstrate the role of different radiological imaging in evaluation and diagnosis of uterine tumours.

BASIC ANATOMY

OF

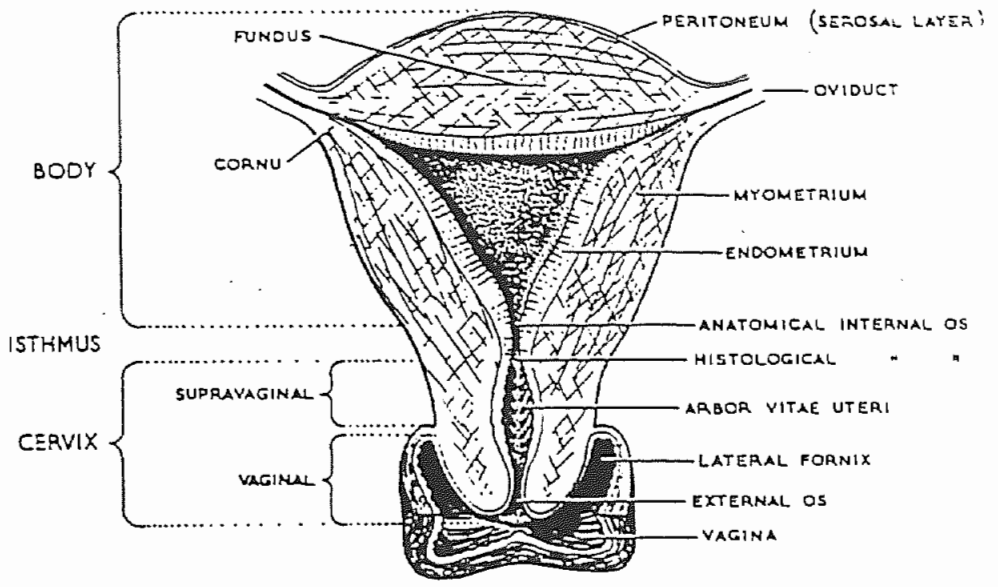
THE UTERUS

BASIC ANATOMY OF THE UTERUS

The uterus is a thick walled hollow muscular organ located in the middle of the true pelvis lying between the bladder and the rectum. Viewed from the front, the cavity has a triangular shape. It communicates with the peritoneal cavity via the fallopian tubes and with the exterior via the vaginal tube below.

The uterus varies in size, being largest during the reproductive years. The average uterus of a nulliparous women measures 9 cm in length, 6 cm in width at its widest part and 4 cm from before backwards. The wall is 1 to 2 cm thick, all these dimensions are increased by about 1.5 cm in multiparous [Jones, 1982].

The uterus is made up of a body or corpus, an isthmus and a cervix. The body is further divided into the fundus and the curnu. The isthmus is a constricted annular area, 0.5 cm wide which lies between the corpus and cervix. The constriction at the upper end of the isthmus is called the anatomical internal os, and the line at the lower end of the isthmus where the endometrium changes into columnar cervical epithelium is termed the histological internal os [Jones, 1982].



Corneal section of the uterus
Quoted from Williams et al. [1989]

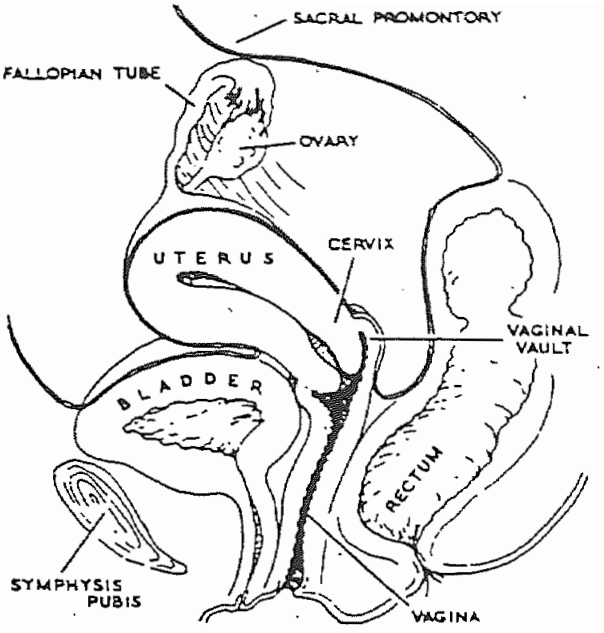
The cervix uteri, about 2.5 cm in length is the narrower cylindrical segment of the uterus. It is continuous above with the inferior end of the corpus at the constricted isthmus, below its tapering extremity projects into the upper end of the vagina. The cervix is thus divided by its relation to the surrounding vaginal wall into two segments; an upper supra-vaginal portion above the ring of attachment, and a lower free segment or vaginal portion which projects into the vault of the vagina [Joseph, 1986].

The cervix is covered on its posterior surface by peritoneum, however, on the anterior and lateral surfaces, it is in contact with extra peritoneal connective tissue. These surfaces are related respectively to the bladder and the broad ligaments [Mc Vay, 1984].

The endocervical canal establishes continuity of the uterine cavity with the vagina and measures about 3 cm. It is spindle shaped, flattened antro-posteriorly with its maximum diameter of 7 mm, being at its mid point. There is a longitudinal ridge on both the anterior and posterior walls from which small oblique columns, the palmate folds arise giving a branched tree like appearance the arbor vitae. These folds are not opposed, but fit between each other to enhance the closure of the canal [Joseph, 1986].

Position Of The Uterus:

The fundus of the uterus is directed forward, as a consequence, the surface which might be regarded as anterior is actually brought downward to rest upon the bladder, a position described as one of anteversion, moreover, the organ is bent forward as one of anteversion more over the organ is bent forward upon itself being concave on its vesical or anterior surface into a position of anteflexion. The uterus is anteverted in about 80% of women. It is in mid-position, retrodisplaced or retroflexed in the other 20% [Mc Vay, 1984].



The uterus from the side.
Quoted from Mc Vay (1984)

Nerve Supply Of The Uterus:

The autonomic supply is directly from the ovarian and hypogastric plexuses, sympathetic preganglionic fibers proceed from the twelfth thoracic and first lumbar spinal segments. While parasympathetic preganglionic axons issue in the second to fourth ventral sacral spinal roots. Cholinergic and adrenergic fibers have been identified in cervical muscular and submucous strata, the former predominating [Williams et al., 1989].

Sensory pathways are better understood. Pain from the cervix is carried by the pelvic splanchics (parasympathetic