

ROLE OF DUPLEX ULTRASOUND IN ASSESSMENT OF DYSFUNCTIONAL UTERINE BLEEDING

ESSAY

Submitted for Partial Fulfillment
of Master Degree in **Radiodiagnosis**

By

Susan El Sayed Mahmoud El Tahlawy

M.B., B.Ch.

Supervisors

Prof. Dr. Nawal Zakaria Mohamed

Prof. of Radiodiagnosis

Faculty of Medicine

Ain Shams University

Dr. Hana Hamdy Nassef

Lecturer of Radiodiagnosis

Faculty of Medicine

Ain Shams University



**Faculty of Medicine
Ain Shams University**

1994

616.075
S.S

51848

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

﴿وَقُلْ رَبِّ زِدْنِي عِلْمًا﴾

«صَدَقَ اللَّهُ الْعَظِيمُ»

(سورة طه آية رقم ١٤)



CONTENTS

	Page
Introduction and Aim of Work	1
Anatomical considerations of female genital system	3
- Normal anatomy	3
- Sonographic anatomy	16
Physiology of the menstrual cycle	25
Pathological considerations	35
Duplex sonography and it's application in dysfunctional uterine bleeding	41
Illustrative cases	57
Discussion	69
Summary and Conclusion	74
References	76
Arabic Summary	--

LIST OF FIGURES

Fig. No.	Title	Page
1	Coronal section of uterus and broad ligament	3
2	Supra vaginal cervix	3
3	Median sagittal section through pelvis	6
4	Blood supply of the uterus	7
5	Drawing of uterus and Fallopian tube in section	13
6	Normal sonographic anatomy of the uterus	16
7	Normal sonographic anatomy of the ovary	21
8	Diagram to show events in the menstrual cycle	25
9	Diagrammatic representation of the ovary	30
10	Laminar flow	43
11	Continuous versus pulsed wave Doppler	46
12	Aliased signal	48
13	Normal ovarian blood flow with RI=0.81	52
Case 1		57
2		58
3		59
4		60
5		61
6		62
7		63
8		64
9		65
10		66
11		67
12		68



To...

My Family

ACKNOWLEDGMENT

I would like to express my greatest gratitude to Prof. Dr. Nawal Zakaria Mohamed, Professor of Radiodiagnosis, Faculty of Medicine, Ain Shams University, for her unlimited support, patience, guidance and spirit of cooperation which provide me with great help and assistance to continue this work.

My deep appreciation and gratitude for Dr. Hana Hamdy Nassef, Lecturer of Radiodiagnosis, Faculty of Medicine, Ain Shams University.

Finally no words can express the warmth of my feelings to my Father and Mother for their continuous encouragement, my Husband for his help, cooperation and unlimited encouragement.

INTRODUCTION AND AIM OF WORK

INTRODUCTION AND AIM OF WORK

Dysfunctional uterine bleeding is abnormal bleeding from the uterus not associated with genital tract disorders as pelvic infection or tumours not due to complications of pregnancy, it occurs at any age between menarche and menopause (*Dewhurst 1986*).

The most common dysfunction is some disorder of endocrine or vascular mechanisms which result in the menstruation, and the dysfunction may arise in the endometrium, ovary, Pituitary, hypothalamus or higher centers (*Davey, 1986*).

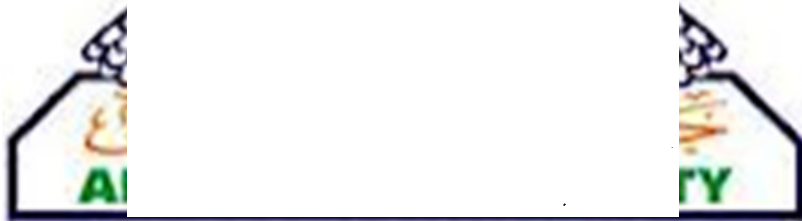
So Doppler ultrasound can be used to study the disorder of the vascular mechanisms and changes in blood flow in cases of dysfunctional uterine bleeding Doppler ultrasound is a non-invasive technique for investigating blood flow which has an established clinical role in the assessment of vascular disease (*Atkinson & Woodcock, 1982*) Doppler ultrasound can be applied to the non-pregnant uterus and the data presented may be used

as a base line for the study of the uterine pathology. (*Fleisher, 1991*)

The aim of this work is to investigate the uterine blood flow pattern in women suffering from dysfunctional uterine bleeding by a recent, non-invasive technique to detect the vascular disorders in these cases so help in early management.

Also to prove that, the dysfunctional uterine bleeding has a vascular disorders beside the hormonal disorders and this will explain why patients with dysfunctional uterine bleeding do not respond to hormonal treatment alone.

ANATOMICAL CONSIDERATIONS



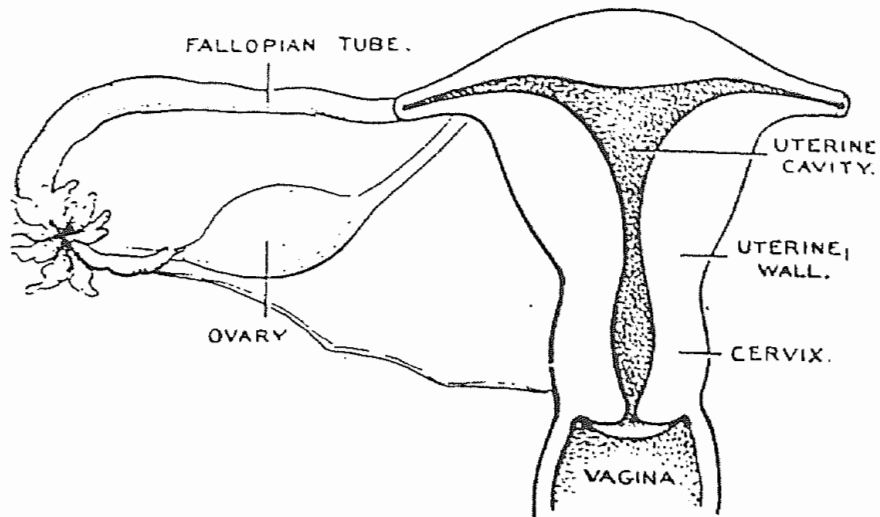


Fig. (1): Coronal section of uterus and broad ligament. (*Quoted from Peel, 1985*).

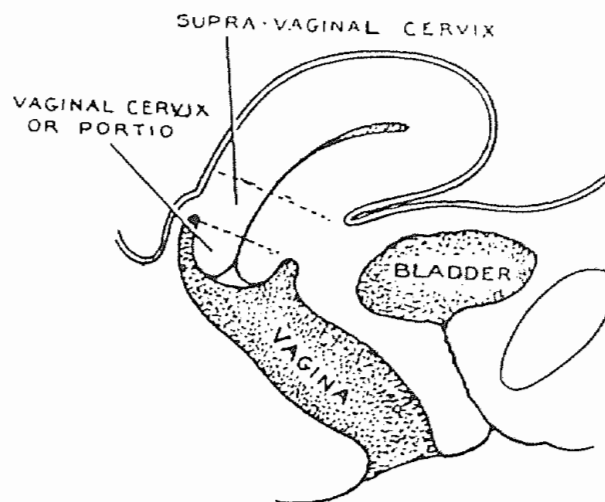


Fig. (2): Supra-vaginal cervix. (*Quoted from Peel, 1985*).

ANATOMY OF THE FEMALE GENITAL SYSTEM

The Uterus

The uterus is a hollow, Pear-shaped organ with thick muscular walls. the upper, larger portion is divided into two parts: (Fig. 1) The fundus and the body. The lower part is called the cervix The normal uterus is 3 inches in length, 2 inches in breadth, 1 inch thick and the cavity measures 2 1/2 inches from the external os to the upper limit of the cavity. The uterus is maintained in it's normal position by the ligamentous support and the pelvic floor .

Cervix uteri:

The cervix begins above, at the isthmus, and ends below in a conical portion which projects into the vagina. It is divided into two parts by the attachment of the vagina; above the attachment is the supravaginal cervix, and below the portio or vaginal cervix,(Peel J.H., 1985). (Fig. 2).

Anteriorly the supra-vaginal portion is separated from the bladder by loose connective tissue. Posteriorly it is covered with peritoneum, and forms the anterior wall of the pouch of Douglas. Laterally it is in relation with the tissue forming the

base of the broad ligament - parametrium. The ureters pass downwards and forwards on either side to reach the bladder and are only half an inch away from this part of the cervix; the uterine artery turns up wards in front of it.

The portio or vaginal cervix Forms a projecting cone with a small circular opening, the external os.

The cervical canal is one inch in length, Spindle- shaped in appearance and reaches from the internal os at the isthmus to the external os on the vaginal cervix. (Fig. 1).

Corpus uteri

the uterus lies just below the pelvic brim in the axis of the inlet and is freely movable in all directions.

The corpus uteri is flattened from before back wards, with the wider end above and is covered with peritoneum except for a narrow part laterally, where the broad ligament is attached. The fallopian tubes open into the body on either side near the upper end. Just below and in front of the insertion of the Fallopian tubes the round ligaments are attached, and at the same level posteriorly the ovarian ligaments.