



Sudan University of science and Technology

Collage of Graduate studies

Measurement of Uterine Size Multiparous Women

Using Ultrasonography

قياس حجم رحم النساء متعددات الولادة باستخدام

الموجات فوق الصوتية

A thesis submitted for partial fulfillment for requirement of
M.S.C degree in Medical Diagnostic Ultrasound

By:

Ahlam Nasir Alfadul Mohammed

Supervisor:

Dr. Asmaa Ibrahim Ahmed Elamin

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الآية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قال تعالى:

﴿هُوَ الَّذِي يُصَوِّرُكُمْ فِي الْأَرْحَامِ كَيْفَ
يَشَاءُ لَّا إِلَهَ إِلَّا هُوَ الْعَزِيزُ الْحَكِيمُ﴾

﴿صدق الله العظيم﴾

سورة آل عمران الآية (6)



Dedication

To:

My Father

My Mother

My Sister

My Husband ,,

My Friends ,,

Acknowledgements

I pay my thanks for help, support and encouragement to go firstly who bless in each step my life.

To my father and mother who did not keep effort in pushing me toward successful.

And special and great thank for my favorite teacher **Dr. Asmaa Ibrahim** who kept on pushing guiding, advising and supervising till the end of my research.

To all my teachers in collage of Radiologic Science – department of ultrasound.

To all sonologistS in hospitals WHO help me in collecting my data and to everyone who help me in presenting my research in its last picture.

Abstract

This is a descriptive cross sectional study which was carried out during. The September 2016 in ALsodi hospital In Omdurman Sudan. The aim of the study Is to estimate measturenen to of uterine size multiocrus women. A total of 50 Female healthy arranged from 25 to 45 years any patient was excluded from this study Au female were examined by ultrasound Scanning using ToshiPa Scanners with 3-5-5 MHz probe transabdominal scanning were performed to evaluate uterine size. Data was Collected using master data Couection Sheet where it was analyzed using cross tabulation, correlation, the results of this study shows that the mean. uterus length was 8.2 cm the mean width was 4.2 cm, mean thickness was 3.1 cm in addition that the study concluded that there reference value in mutiparus Sudanese women.

الخلاصة

هذه دراسة وصفية عرضية أجريت خلال شهر سبتمبر 2016م في المستشفى السعودي بأمدردمان والهدف من هذه الدراسة هو قياس رحم النساء متعددة الولادات الأصحاء وقد تم إختيار ما مجموعة (50) من النساء بشكل عشوائي أعمارهن ما بين 25 - 45 سنة ثم إستبعد إى مريضة تعاني من أمراض في الرحم. تم فحص جميع النساء الإصحاء عن طريق الموجات الصوتية بإستخدام المساحات الضوئية 5 - 3.5 ميقاهيرتز ثم إجراء المسح الضوئي لمنطقة الحوض لتقييم قياس الرحم. وقد تم جمع البيانات بإستخدام ورقة جمع البيانات الرئيسية حيث تم تحليلها بإستخدام الجداول المتقاطعة والإرتباط. نتائج هذه الدراسة تظهر أن متوسط عدد الولادات 5.3 ومتوسط طول الرحم 8.2 ومتوسط عرض الرحم 4.2 ومتوسط سمك 3.1 وأصت هذه الدراسة بأن هذه القيمة قيمة مرجعية لقياس الرحم متعددة الولادات بالسودان.

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CHAPTER ONE

INTRODUCTION

Chapter One

1-1 Introduction:

The Uterus appears shaped organ located in the female pelvis between the urinary bladder anteriorly and the rectum posteriorly its divided into 3 main parts, the funds , body and cervix of the uterus is fibromuscular organ that can be divided into upper muscular uterine corpus and the lower Fibrous cervix. Which extends into the vagina. (Elsevier-2007)

The average dimensions are approximately (7.6 cm) long, (4.5 cm) width and (3.0 cm) thick with an average volume 60 grams, Sonographically the uterus must be smooth outer contour. Homogenous texture mild hyperechoic endometrium (Mihuc,M2011).

Blood provided to the uterus by the ovarian and uterine arteries – which arise from the anterior divisions of the internal iliac artery. (BeilbyJow, 1970).

The uterus is a dynamic female reproductive organ that is responsible for several reproductive functions including mensesimplantation, gestation, labour and delivery. It is responsive to the hormonal milieu within the body which allows adaptation to the different stages of the women's reproductive life.

1.2 Problem of the study:

To the knowledge of the researcher there is no reference value for uterus measurement in Sudanese population. To show the position size and anatomic relations vary considerably with age and the physiologic changes of menstruation ,pregnancy and menopause.

1.3 objectives:

1.3.1 General objectives:

The general objective of this study to identify measurement Uterine Size Multiparous Women using ultrasonography.

1.3.2 Specific objectives:

To establish the standard uterus measurements in multiparous Sudanese using ultrasound.

To measure uterus dimension.

To correlate these measurements with high and weight of the body.

To identify the relation between uterus and age.

1.4 Over view of the study:

This concerned with the measurement of uterus in multiparous Sudanese individuals. It divided into five chapters, chapter one which was an introduction deals with theoretical framework of the study. It represents the statement of the study problems, objectives of study. It also provides over view of the study, chapter two gives a comprehensive literature review (previous studies), chapter three deals with materials and methods used in this study, chapter four deal with (results) data presentation, chapter five discusses the data (discussion), recommendation and References

Chapter TWO
LITERATURE REVIEW

Chapter Two

2.1 Anatomy of the uterus:

The uterus is a hollow, pearshaped organ with thick muscular walls. In the young adult, it measures. (7.6 cm) long. (4.5 cm) width, and (3.0 cm) thick. It is divided into the fundus, body, and cervix .The fundus is the part of the uterus that lies above the entrance of the uterine tubes. The body is the part of the uterus that lies below the entrance of the uterine tubes. The cervix is the narrow part of the uterus. It pierces the anterior wall of the vagina and is divided into the supravaginal and vaginal parts of the cervix. The cavity of the uterine body is triangular in coronal section, but it is merely a cleft in the sagittal plane. The cavity of the cervix, the cervical canal, communicates with the cavity of the body through the internal os and with that of the vagina through the external os. Before the birth of the first child, the external os is circular. In a parous woman, the vaginal part of the cervix is larger, and the external os becomes a transverse slit so that it possesses an anterior lip and a posterior lip (Richard s .Snell.et al, 2012).

2-1-1 Relations of the uterus:

Anteriorly: The body of the uterus is related anteriorly to the uterovesical pouch and the superior surface of the bladder. The supravaginal cervix is related to the superior surface of the bladder. The vaginal cervix is related to the anterior fornix of the vagina.

Posteriorly: The body of the uterus is related posteriorly to the rectouterine pouch (pouch of Douglas) with coils of ileum or sigmoid colon within it.

Laterally: The body of the uterus is related laterally to the broad ligament and the uterine artery and vein. The supravaginal cervix is related to the ureter as it passes forward to enter the bladder. The vaginal cervix is

related to the lateral fornix of the vagina. The uterine tubes enter the superolateral angles of the uterus, and the round ligaments of the ovary and of the uterus are attached to the uterine wall just below this level (Richard s .Snell.et al, 2012).

2-1-2 Positions of the Uterus:

In most women, the long axis of the uterus is bent forward on the long axis of the vagina. This position is referred to as anteversion of the uterus. Furthermore, the long axis of the body of the uterus is bent forward at the level of the internal os with the long axis of the cervix. This position is termed anteflexion of the uterus. Thus, in the erect position and with the bladder empty, the uterus lies in an almost horizontal plane. In some women, the fundus and body of the uterus are bent backward on the vagina so that they lie in the rectouterine pouch (pouch of Douglas). In this situation, the uterus is said to be retroverted. If the body of the uterus is, in addition, bent backward on the cervix, it is said to be retroflexed (Richard s .Snell.et al, 2012).

2-1-3 : Blood Supply of the uterus:

Arteries:The arterial supply to the uterus is mainly from the uterine artery, a branch of the internal iliac artery. It reaches the uterus by running medially in the base of the broad ligament. It crosses above the ureter at right angles and reaches the cervix at the level of the internal os. The artery then ascends along the lateral margin of the uterus within the broad ligament and ends by anastomosing with the ovarian artery, which also assists in supplying the uterus. The uterine artery gives off a small descending branch that supplies the cervix and the vagina.**Veins:**The uterine vein follows the artery and drains into the internal iliac vein.**Lymph Drainage:**The lymph vessels from the fundus of the uterus accompany the ovarian artery and drain into the para-aortic nodes at the level of the first lumbar vertebra. The vessels from the body and cervix

drain into the internal and external iliac lymph nodes. A few lymph vessels follow the round ligament of the uterus through the inguinal canal and drain into the superficial inguinal lymph nodes (Richard s .Snell.et al, 2012).

2-1-4 Nerve Supply of the uterus:

Sympathetic and parasympathetic nerves from branches of the inferior hypogastric plexuses (Richard s .Snell.et al, 2012).

2-1-5 Supports of the Uterus:

The uterus is supported mainly by the tone of the levatoresani muscles and the condensations of pelvic fascia, which form three important ligaments: The Transverse Cervical, Pubocervical, and Sacrocervical Ligaments (Richard s .Snell.et al, 2012).

The uterus is mobile and moves posteriorly under the pressure of a full bladder or anteriorly under the pressure of a full rectum it moves up words increased intra abdominal pressure pushes it down words.

It is primarily supported by the pelvic diaphragm. Perineal – body and the urogenital diaphragm – secondarily, it is supported by ligaments and the peritoneum (broad ligament of uterus).

The tone of the pelvic floor provides the primary support for the uterus. Some ligaments provide further support, securing the uterus in place.

They are:

- **Broad Ligament:** This is a double layer of peritoneum attaching the sides of the uterus to the pelvis. It acts as a mesentery for the uterus and contributes to maintaining it in position.
- **Round Ligament:** A remnant of the gubernaculum extending from the uterine horns to the labia majora via the inguinal canal. It functions to maintain the anteverted position of the uterus.

- Ovarian Ligament: Joins the ovaries to the uterus.
- Cardinal Ligament: Located at the base of the broad ligament, the cardinal ligament extends from the cervix to the lateral pelvic walls. It contains the uterine artery and vein in addition to providing support to the uterus.
- Uterosacral Ligament: Extends from the cervix to the sacrum. It provides support to the uterus.

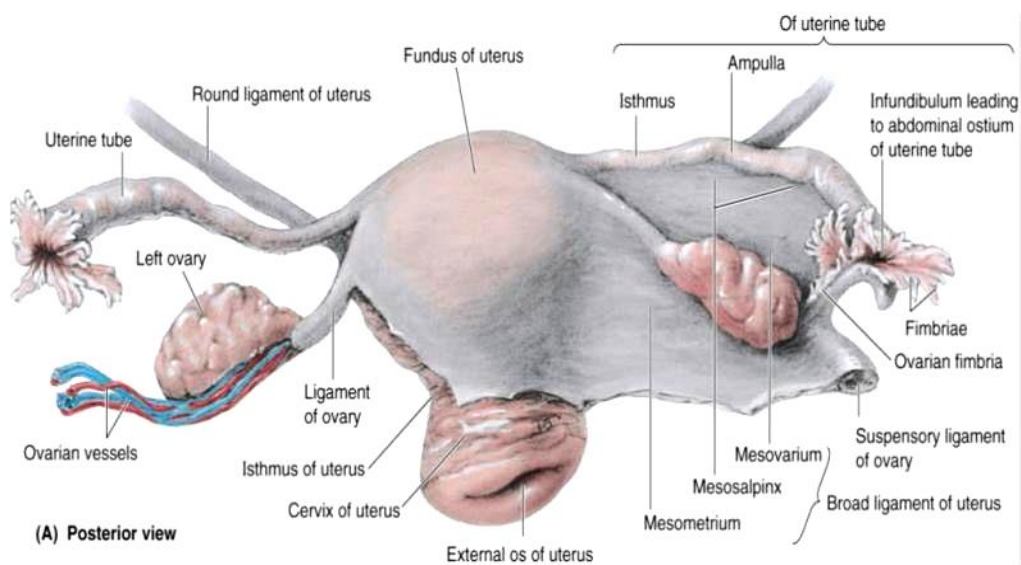


Figure (2.3) Major ligaments (Romack 2010)

Major ligaments:

Name	From	To
Utero scaral ligament	Posterior cervix	Anterior face of sarcum
cardinal ligament	Side of the cervix	Ischial spines
pub ovcervial ligament	Side of the cervix	Public symphysis

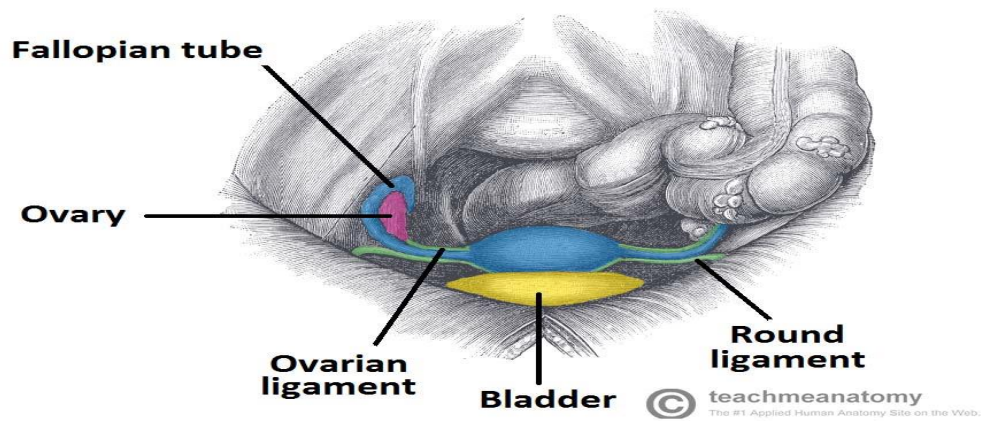


Figure (2.4) ligaments (Gray's Anatomy)

Anatomical types of uteri:

2.1 Duplex uteri:

Completely separate uterine horns each with their own cervical canal. Duplex uteri are seen in rabbits and marsupials.

As well as having 2 uterine horns and cervical canals marsupials also have two vaginas.

2.1.2 Bicornuate uteri:

Bicornuate uteri have a relatively small uterine body and two uterine horns of varying development.

2.1.3 Simplex uteri:

Complete fusion of the paramesonephric ducts forming a single uterine body with no uterine horns.

2.2 Physiology of the uterus:

Provides a suitable environment for embryo development and attachment. The secretion product by the endometrial glands are important for maintaining the pre implantation embryo.

In response to increasing amounts of oxytocin production by the corpus luteum during the luteal phase the endometrium produces luteolytic $PGF_{2\alpha}$ to cause degeneration of the corpus luteum if the female is not pregnant.

The uterus contributes varying amounts of maternal tissues toward the placenta.

The myometrium involved with sperm transport through the uterus towards the oviduct.

Contractions of the myometrium during parturition is important for fetus and placenta expulsion. (Hafner - 1956).

2.3 Pathology of uterus

2.3.1 Inflammation

2.3.1.1 Endometritis

Acute usually caused by bacterial infection with a variety of organisms including strep, staph, E.Coli or pseudomonas. It most commonly follows an abortion or delivery especially when fragments of placenta or membranes are retained in the uterus.

Chronic may be specific or non-specific. It is defined as the presence of plasma cells in chronically inflamed endometrial tissue. It may follow abortion, delivery, instrumentation of the endometrial cavity, or may be associated with an intrauterine contraceptive device.

Transverse vaginal sonographic image of the uterus. The endometrial stripe is thick and hyperechoic and difficult to delineate with respect to the surrounding myometrium. Several cones of shadow from the endometrium obscure the posterior uterine wall. This appearance is suggestive of the presence of endometritis associated with gas formation (arrow) within the endometrial cavity.

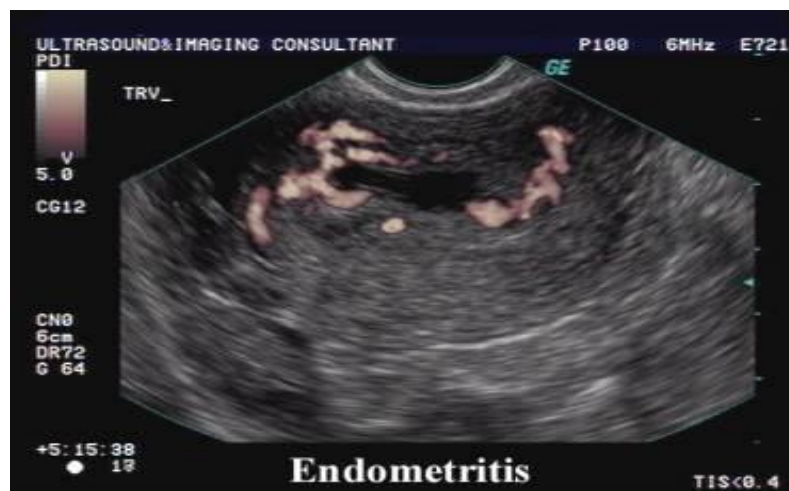


Figure (2.5) Endometritis

(Benign and malignant diseases of the endometritis)

2.4.2 Endometriosis

Is an often painful disorder in which tissue that normally lines the inside of your uterus the endometrial grows outside your uterus. Endometriosis most commonly involves your ovaries, fallopian tubes and the tissue lining your pelvis. Rarely, endometrial tissue may spread beyond pelvic organs.



Figure (2.6) Endometriosis (Allas of anatomic pathology)

Ultrasound is poor at detecting peritoneal implants (~11%) 21, and although it is unable to detect adhesions, it is able to dynamically assess mobility and fixation.

Ultra Sonogrephically appears as:

homogenous, focal lesions with low level echos, reminiscent of the testicle

they are typically unilocular, but may be multilocular, containing thin or thick septations

may be multiple

may contain mural nodules (a finding also found in ovarian neoplasms)if these mural nodules are hyperechoic, these have a high predictive value for endometrioma over non-endometrial lesions 22

colour Doppler: no internal vascularity

as opposed to many other ovarian cysts, endometriomas do not resolve

2.3.3 Polyps

These are polypoid, non-neoplastic lesions that arise from the endometrium and protrude into the endometrial cavity, and that may cause abnormal uterine bleeding. They form as a result of focal overgrowth of the endometrium.



Figure (2.7) bolyp(Histopathology specimens)

They are relatively common, tend to occur in peri and post-menopausal women, are composed of a variable admixture of endometrial glands (sometimes cystic) and stroma, and are readily removed by curettage.

Ultra Sonogrephically appears as:

Focal thickening of the endometrium.

Diffuse thickening of the endomtrium.

2.3.4 Hyperplasia

Endometrial hyperplasia a common cause of abnor mal vaginal bleeding not only in the postmenopusal female but also in the reproductive years.

Endometrial hyperplasia results from the endometrial . Secondary to contain a small cystic area and appear diffusely echogenic on sonography. and Thickened echogenic endometrial

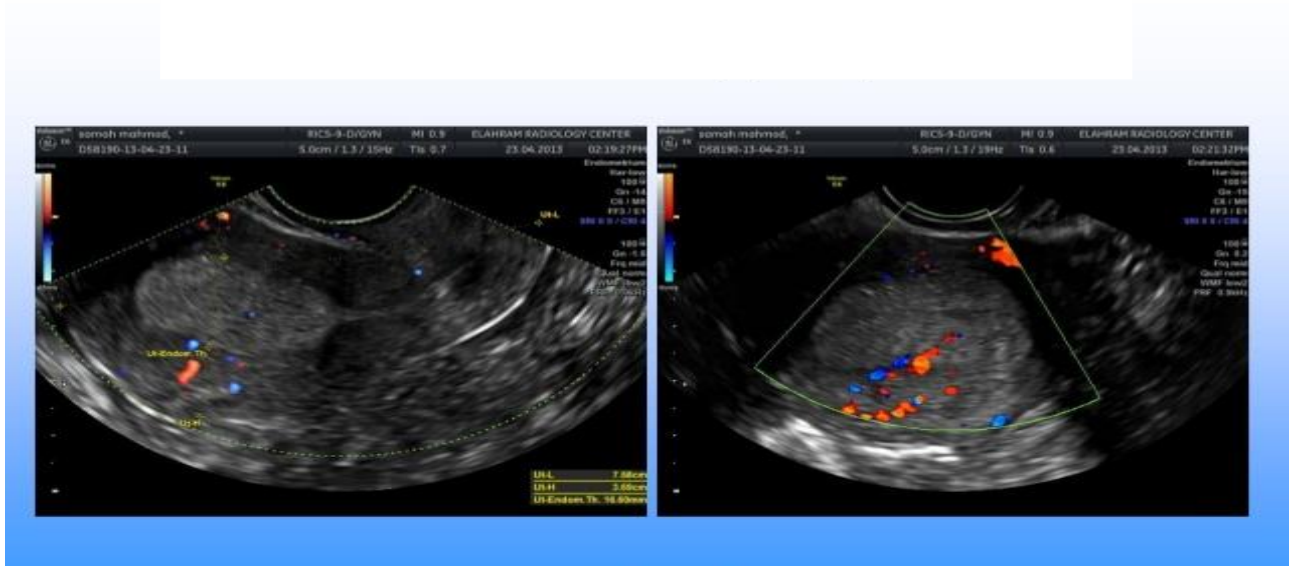


Figure (2.8) Endometrial hyperplasia (Clinical Gynecologic)

2.3.5 Benightumour of the uterus

Myoma (fibroid)

Uterine fibroids, also known as leiomyomas or myomas, are benign smooth muscle tumors that arise in the myometrium of the uterus. These masses can grow within the endometrial cavity of the uterus (submucosal), in the myometrial layer (intramural), or in the outer wall of the uterus (subserosal), or they may extend off the outer layer of the uterus (pedunculated).

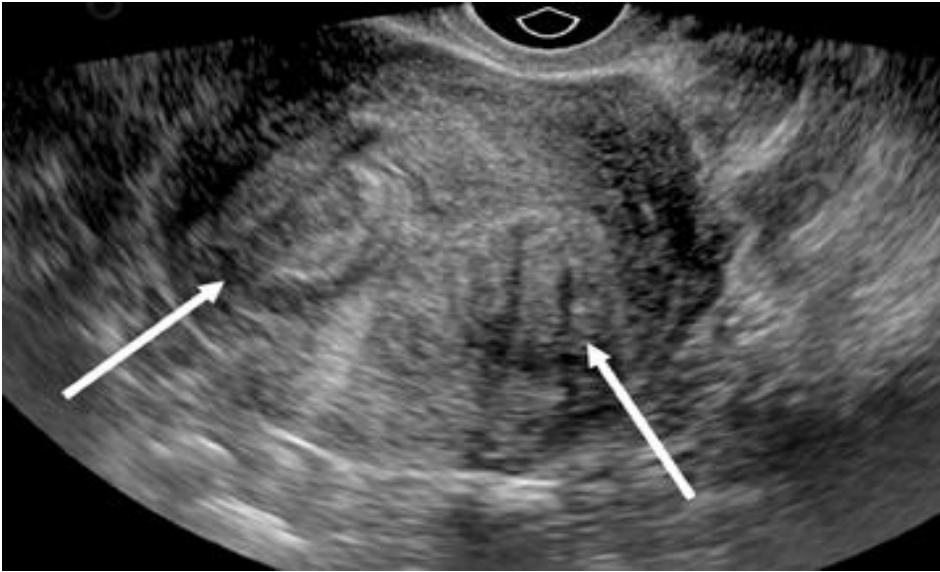


Figure (2.9) Fibroid (Clinical gynecologic, 1999)



Figure (2.10) Uterine Fibroid (Clinical gynecologic, 1999)

Typically, fibroids appear as well-defined, solid masses with a whorled appearance. These are usually of similar echogenicity to the myometrium, but sometimes may be hypoechoic. They cause the uterus to appear bulky or may cause an alteration of the normal uterine contour. Even noncalcified fibroids often show a degree of posterior acoustic shadowing, though this is of course more marked in calcified fibroids. Degenerate

fibroids may have a complex appearance, with areas of cystic change. Doppler USG typically shows circumferential vascularity; however, fibroids which are necrotic or have undergone torsion will show absence of flow. (Clinical gynecologic, 1999)

2.3.6 Uterine sarcomas

which start in the muscle layer (myometrium) or supporting connective tissue of the uterus. These include uterine leiomyosarcomas and endometrial stromal sarcomas. These cancers are not covered here, but are discussed in detail in Uterine Sarcomas

Endometrial carcinomas, which start in the cells of the inner lining of the uterus endometrium. Nearly all cancers of the uterus are this type. These cancers are the focus of the remainder of this information. Sonographicoy appear as thickened endometium heterogenous uterus enlarged and lobular contour.



Figure (2.11) Endometrial Carcinoma (Clinical gynecologic, 1999)

2.4 Previous studies

J. Verguts, Timmerman (2013) study was to establish of uterine size to multiparous. Measurements of 5466 non-pregnant uteri were retrieved for analysis. The mean length was found to increase to 72 mm at the age of 40 and decrease to 42 mm at the age of 80 years. Gravidity was associated with greater uterine length, width and AP diameter.

Mean length/width ratio was found to be 1.857 at birth, decreasing to 1.452 at the age of 91 years. At the age of 21 years, the mean ratio was found to be 1.618, i.e. equal to the golden ratio. Increasing gravidity was associated with lower mean length/width ratio.

Seffah, J.D.; Adanu, R.M.K. 2004.

The mean length of the uterus was 7.1 ± 1.1 cm the mean width was 4.6 ± 0.9 cm and the mean transverse diameter was 2.9 ± 0.5 cm

Sirisena U.A.I.1 Jwanbot D.I.2 , 2015 study included

A cross-sectional study of normal uterine size of 70 women aged 20-40 years was conducted by ultrasonographic measurements. Mean uterine size was found to be 8.24cm x 4.75cm x 3.77cm (Length x width x AP diameter) for overall total, 7.46cm x 4.22cm x 3.30cm for Nulliparous women, 8.49cm x 4.87cm x 3.81cm for Primiparous women and 9.10cm x 5.36cm x 4.36cm for Multiparous women. Mean age was 27.99 ± 5.43 years. Uterine size was significantly correlated with parity and age. Linear multiple regression lines to predict uterine size (length, width and AP diameter) using parity and age were also modelled. Keywords: Ultrasonography, Uterine size, Nulliparous, Primiparous, Multiparous.

Hum Reprod. 2013 Nov;28(11):3000-6. doi: 10.1093/humrep/det344. Epub 2013 Sep 5. Was study the Women at extremes of uterine length (<7.0 or >9.0 cm) were less likely to achieve live birth and women with

uterine lengths <6.0 cm were also more likely to experience spontaneous abortion.

Esmaelzadeh. Haji Ahmadi 2004:

Northern Islamic Republic (Iran) Is usyem meam uters size 8.6m × 4.9cm × 4 mm Mean age. 31 – 40 y Multiparus (9 cm × 5 cm × 4mm)

CHAPTER THREE
MATERIALS AND METHODS

Chapter Three

Material and Method

3.1 Material

3.1.1 Subject

Fifty multiparous were enrolled in the study; healthy volunteer women who referred to ultrasound department for pelvic ultrasound were included. Any multiparous with suspected with abnormal uterus measurement by ultrasound examination were excluded.

3.1.2 Machine used:

The Data were collected by using medison diagnostic ultrasound machine model Accuvix XG. Toshiba by using curvilinear transducer 3 – 5 Mhz.

3.2 Method

3.2.1 Technique used:

For ultrasound examination each patient will be scanned in an interntional scanning guidelines and protocols by sinologist ultrasound technique will perform with patient lying in supine position the probe in suprabubic region transverse and longitudinal put on adequate of ultrasonic coupling gel in the subrabubic region both of longitudinal and transverse view of patient will apply

3.2.2 Data collection

Data collection sheet

3.2.3 Data analysis

The data were analyzed by using SPSS and Excel and Windows.

3.3 Sample type and procedure

Study sample is selected simple randomly from volunteer and daily patient come to ultrasound department.

3.4 Data collection

Data collection sheet including personal data and ultrasound measurement uterus (length, width, thickness).

Different type of ultrasound machines available at the area of study with facility of printing reporting system were used.

- Meter
- Internet service
- Reference books

3.5 Technique

Each subject from sample will be full bladder and then ultrasound scan for uterus measurement (length, width, thickness, of determine weight, also body weight and height must be measured).

Start with longitudinal Scams. First in the midline between the umbilicus and the pubic symphysis, then. Repeat more Laterally. First on the Lelt side and then on the right Angle the transducer from side to side and Longitudally to identify the uterus.

Next Scom from transversely. Start just above the pubic symphysis and move upwords to the umbilicus transverse scans are Important over the Lower pelvis but are Less effective above the Level of the uterus.

3.12 Data analysis

Data was analyzed using SPSS

3.6 Ethical issue

- 1) Permission from ultrasound department was obtained.
- 2) No patient identification data or detail published.
- 3) Safe uses of ultrasound

CHAPTER FOUR

RESULTS

Chapter four

4. Result

Table (4.1) Frequency distribution of age group

Age group	Frequency	Percent	Valid Percent	Cumulative Percent
20- 30 years	16	32.0	32.0	32.0
31-40 years	31	62.0	62.0	94.0
41-50 years	3	6.0	6.0	100.0
Total	50	100.0	100.0	

Minimum = 25, maximum = 45 , means = 32.8, std= 5.2218

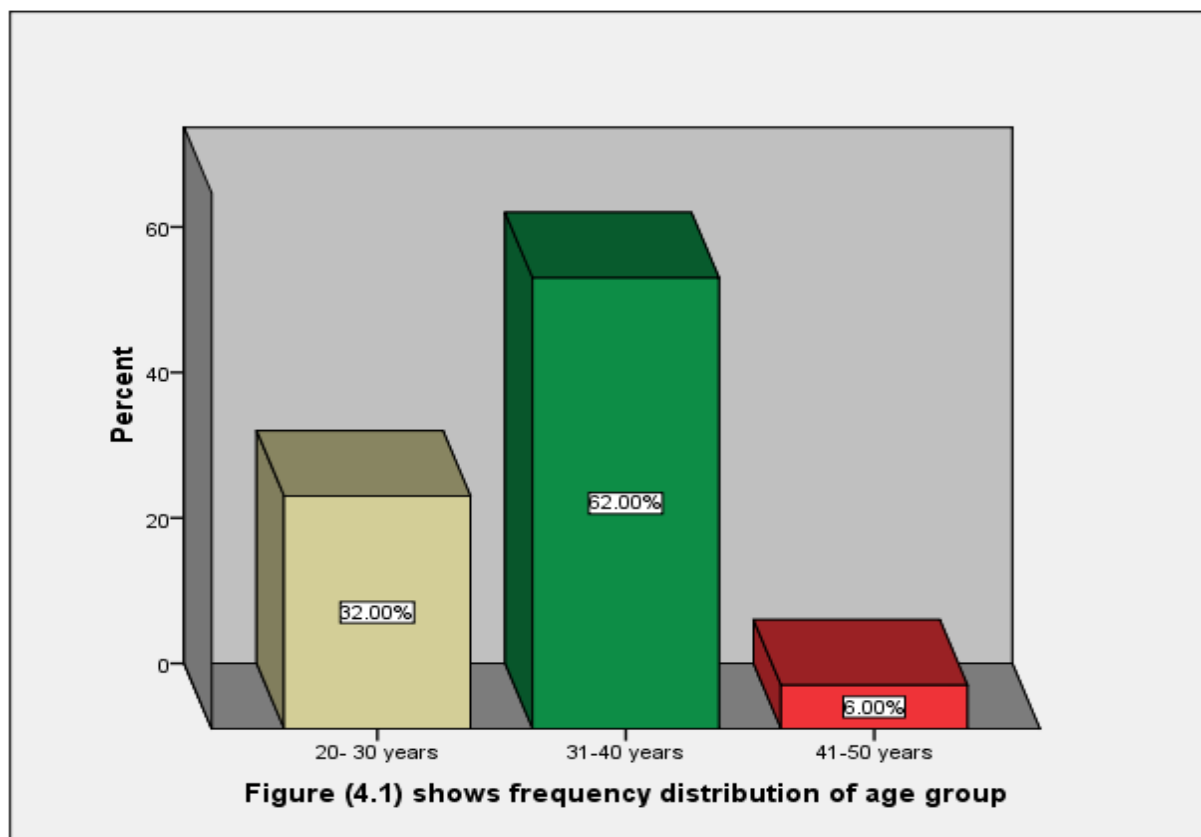


Table (4.2) Frequency distribution of parity

Parity	Frequency	Percent	Valid Percent	Cumulative Percent
2	7	14.0	14.0	14.0
3	8	16.0	16.0	30.0
4	7	14.0	14.0	44.0
5	7	14.0	14.0	58.0
6	6	12.0	12.0	70.0
7	3	6.0	6.0	76.0
8	5	10.0	10.0	86.0
9	3	6.0	6.0	92.0
10	4	8.0	8.0	100.0
Total	50	100.0	100.0	

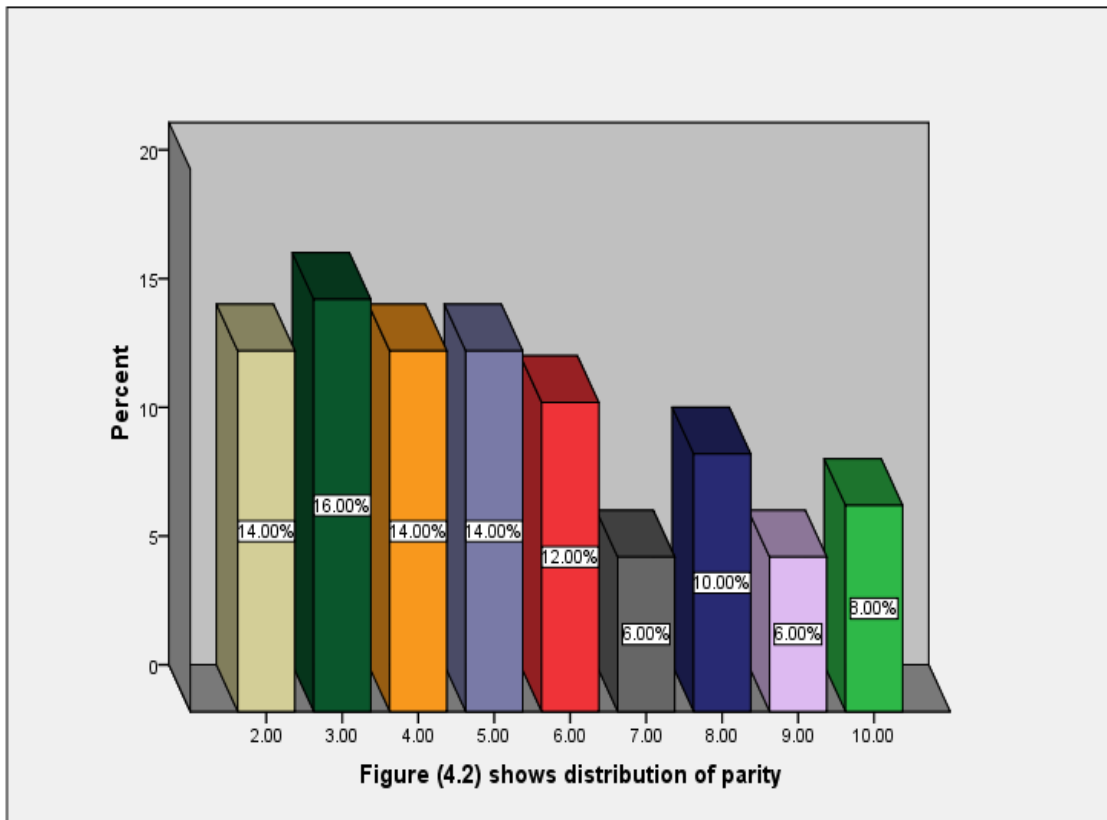


Table (4.3) Descriptive statistic shows minimum, maximum, means and STD for parity, length, width and thickness of the uterus

Variable	N	Minimum	Maximum	Mean	Std. Deviation
parity	50	2.00	10.00	5.3000	2.50917
length	50	6.00	9.50	8.2936	.68197
width	50	3.00	5.00	4.2492	.53868
thickness	50	2.00	4.90	3.1480	.48916
Valid N (listwise)	50				

Table (4.4) correlation between Lengths. Width and thickness with age

Correlations					
		age	length	width	thickness
Age	Pearson Correlation	1	.480**	.298*	.117
	Sig. (2-tailed)		.000	.036	.417
	N	50	50	50	50
Length	Pearson Correlation	.480**	1	.699**	.517**
	Sig. (2-tailed)	.000		.000	.000
	N	50	50	50	50
Width	Pearson Correlation	.298*	.699**	1	.594**
	Sig. (2-tailed)	.036	.000		.000
	N	50	50	50	50
thickness	Pearson Correlation	.117	.517**	.594**	1
	Sig. (2-tailed)	.417	.000	.000	
	N	50	50	50	50
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Table (4.5) shows correlation crosstabulation, chi square test and correlation between age and parity

a. Cross tabulation between age group and parity

Age group	parity									Total
	2	3	4	5	6	7	8	9	10	
20- 30 years	5	4	2	3	1	1	0	0	0	16
31-40 years	1	4	4	4	5	2	4	3	4	31
41-50 years	1	0	1	0	0	0	1	0	0	3
	7	8	7	7	6	3	5	3	4	50

b. Chi square between age and parity

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.024 ^a	16	.267
Likelihood Ratio	23.572	16	.099
Linear-by-Linear Association	6.305	1	.012
N of Valid Cases	50		

a. 27 cells (100.0%) have expected count less than 5. The minimum expected count is .18.

c. Correlation between age and parity

		age	parity
Age	Pearson Correlation	1	.469 ^{**}
	Sig. (2-tailed)		.001
	N	50	50
Parity	Pearson Correlation	.469 ^{**}	1
	Sig. (2-tailed)	.001	
	N	50	50

****.** Correlation is significant at the 0.01 level (2-tailed).

Figure (4.3) scatter plot between uterine length and parity

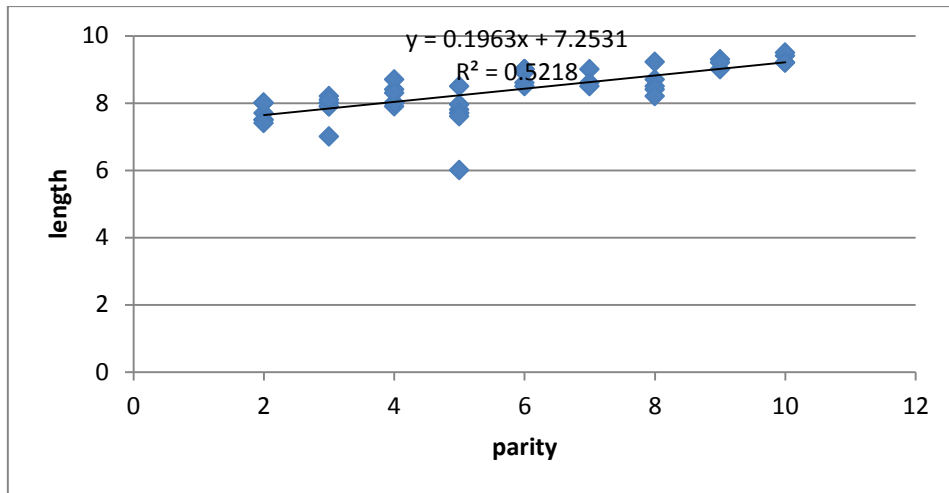


Figure (4.4) scatter plot between uterine width and parity

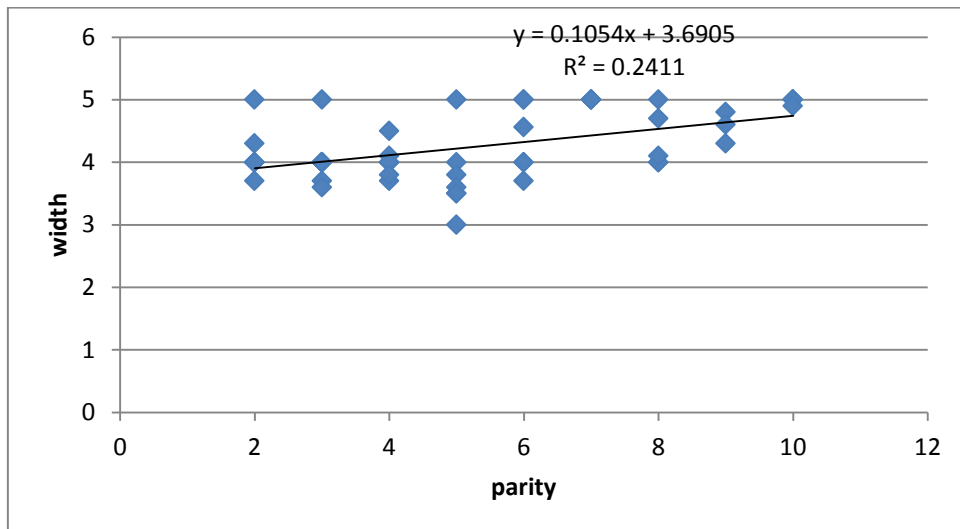


Figure (4.5) scatter plot between uterine thickness and parity

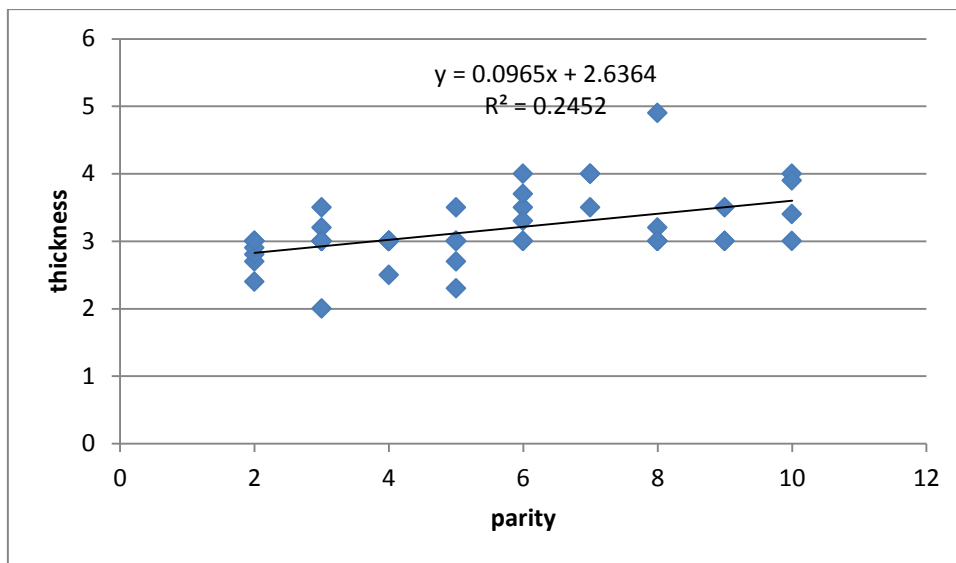


Figure (4.5) scatter plot between age and uterine length

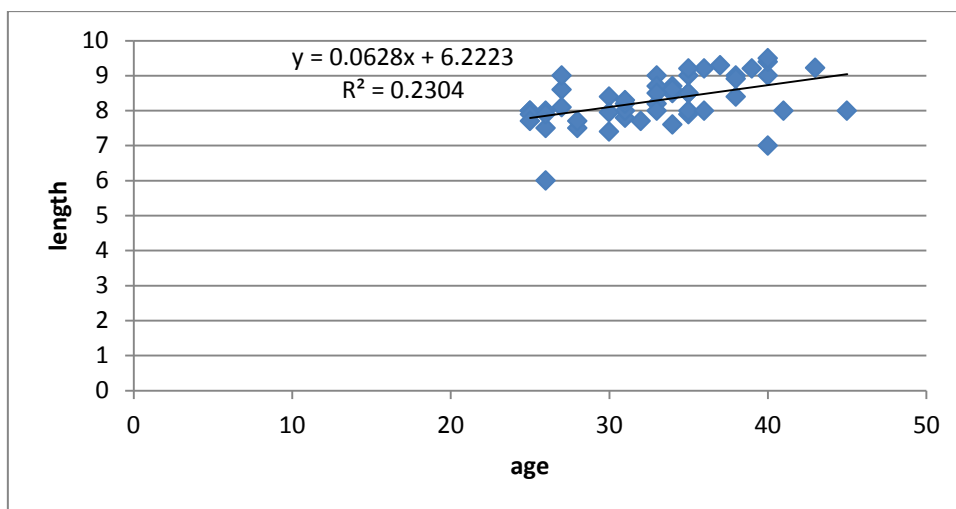


Figure (4.6) scatter plot between age and uterine width

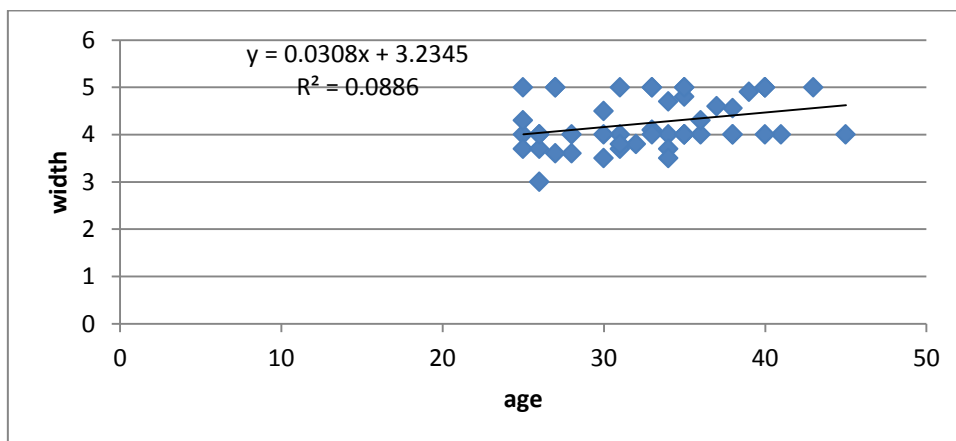


Figure (4.7) scatter plot between age and uterine thickness

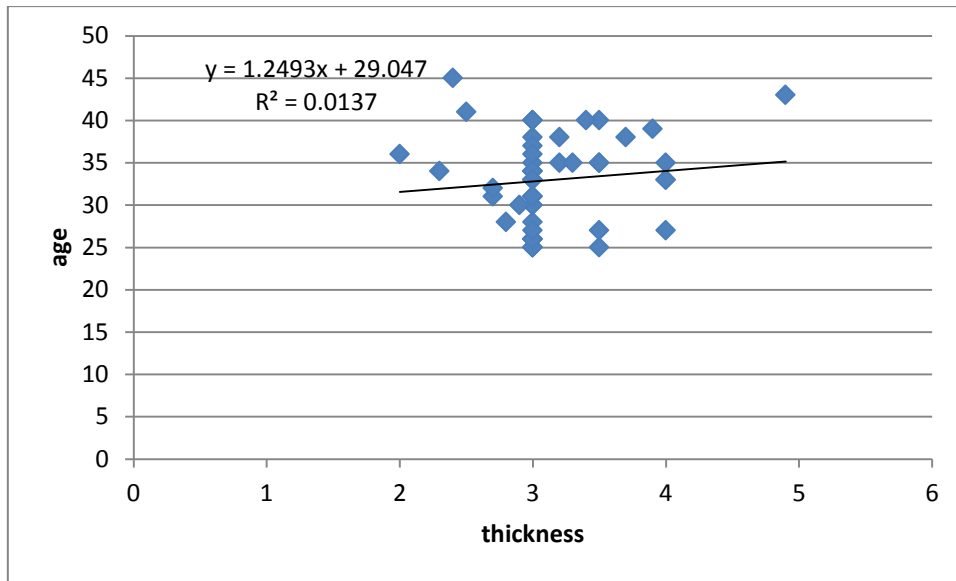
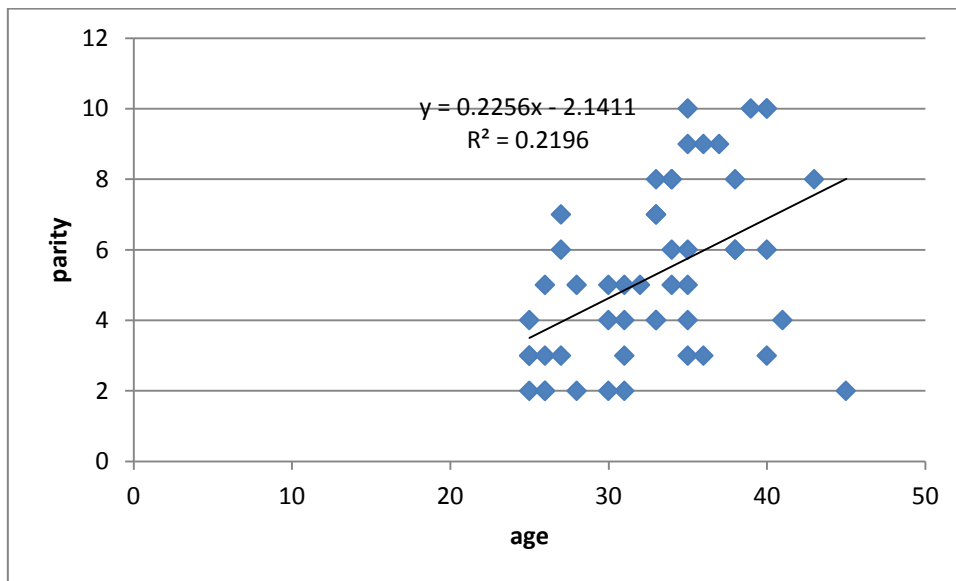


Figure (4.7) scatter plot between age and parity



CHAPTER FIVE
DISCUSSION, CONCLUSION, RECOMMENDATION

Chapter five

5.1 Discussion

The is experimental study designed to determinc the application of ultrasound for estimation of uterus length, width Thickness of multiparus Sudanese. In this study the age and paraity compared with the length. Width. thickness of the uterus. Which described the cross tabulation be tween age group and parity. The minimum of parily was 2 the mimimum uterus length was (6 cm) mimimum uterus width was (3 cm). and mimimum uterus thickness was (2 cm). the maximum of parity was 10. the maximum uterus length was (9.5 cm). maximum uterus width was (5 cm). and maximum uterus thicknes was (4.9 cm). the mean of parity was (5.3). the mean of uterus length was (8.2 cm). the mean of uterus width was (4.2 cm). and the mean of uterus thickness was (3.1 cm).

5.2 Conclusion:

The study concluded that the measurement uterine size multiparus wamen according to Findings of this study was for uterus length (8.2 cm). uterus width was (4.2 cm). uterus thickness was (3.1 cm). and poor correlation was noted between age and width, thickness of the uterus and minimum correlation between age and uterus length and minimum correlation between uterus length and uterus thickness when we compere this is study with the other ones we find no much differences.

5.3 Recommendation:

ultrasound examination is very important to identify measurement of the uterine size and the researcher should update their knowledge about technique. Used and any infmation regarding ultrasound for measuring uterus the sonologistis should be of good knowledge about the ideal

methods for measuring of the uterus. the uterus must be measured in three dimensions. Length. Thickness longitudinal, secondary width in transvers view. All these measurements must idone with full bladder in tranabdominal ultasound.

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Appendixes

Sudan University of Science & Technology

Collage of Graduate Studies

Appendixes No (1) U/S Finding

No	Age	Number of Parity	Uterus Length	Uterus Width	Uterus Thickness
1.	43	8	9.22	5	4.9
2.	33	7	9	5	4
3.	35	5	8.5	5	3.5
4.	26	2	7.5	4	3
5.	25	3	8	4	3.5
6.	40	6	9	5	3.5
7.	27	7	8.6	5	3.5
8.	35	3	7.9	4	3.2
9.	27	6	9	5	4
10.	35	4	8	4	3
11.	41	4	8	4	2.5
12.	31	5	7.8	4	3
13.	36	3	8	4	2
14.	38	6	9	4	3
15.	40	3	7	4	3
16.	31	2	8	5	2.7
17.	45	2	8	4	2.4
18.	25	3	8	5	3
19.	30	4	8.4	4.5	3
20.	34	8	8.7	4.7	3
21.	30	5	7.95	3.5	3
22.	38	6	8.91	4.56	3.7
23.	26	5	6	3	3
24.	40	10	9.4	5	3
25.	40	10	9.5	5	3.4
26.	25	4	7.9	3.7	3
27.	35	9	9	4.8	3.5

No	Age	Number of Parity	Uterus Length	Uterus Width	Uterus Thickness
28.	25y	2	7.7	4.3	3
29.	34	8	8.5	4	3
30.	37	9	9.3	4.6	3
31.	28	2	7.5	4	2.8
32.	36	9	9.2	4.3	3
33.	34	6	8.6	3.7	3
34.	32	5	7.7	3.8	2.7
35.	35	10	9.2	5	4
36.	30	2	7.4	4	2.9
37.	39	10	9.2	4.9	3.9
38.	33	4	8.7	4.1	3
39.	38	8	8.4	4	3.2
40.	31	3	8.2	3.7	3
41.	26	2	8	3.7	3
42.	28	5	7.7	3.6	3
43.	33	8	8.2	4.1	3
44.	33	4	8	4	3
45.	26	3	7.9	4	3
46.	34	5	7.6	3.5	2.3
47.	35	6	8.5	4	3.3
48.	27	3	8.1	3.6	3
49.	31	4	8.3	3.8	3
50.	33	7	8.5	5	4

Appendxes

Appendix No. (2)

Image with full description



**U/S image (1) uterus measurement (7.4 × 4.7 × 4.5 cm) in multipaurs
32 years**



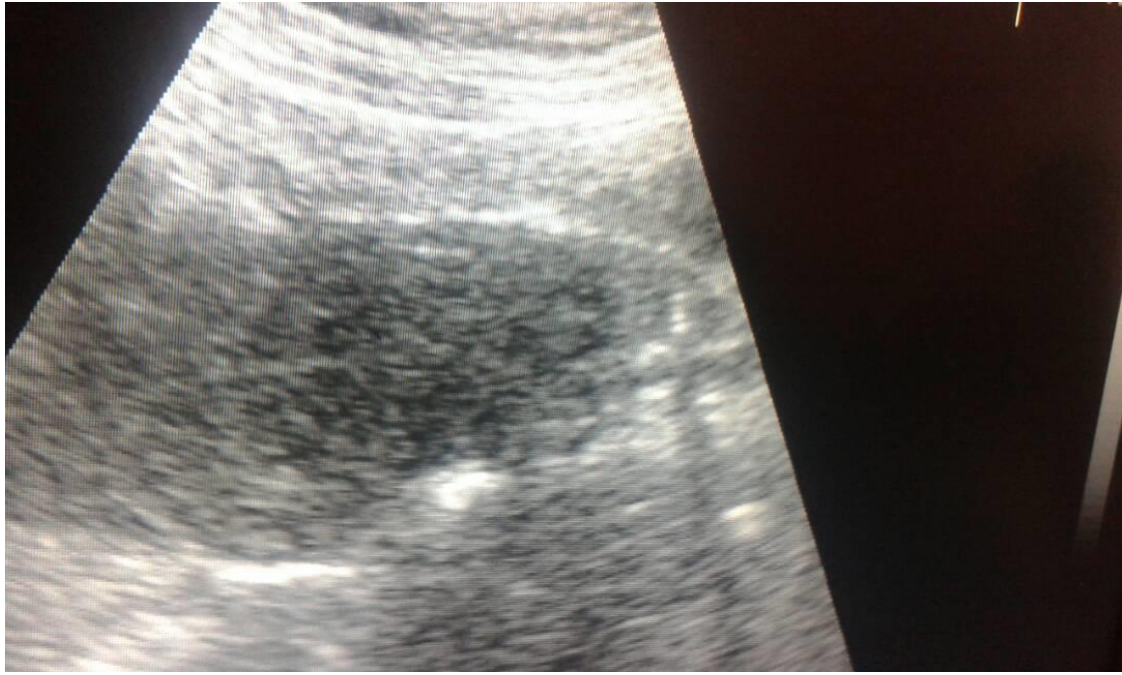
**U/S image (2) uterus measurement (7.4 × 4.5 cm) in multipaurs
29 years**



U/S image (3) uterus measurement ($8 \times 9.22 \times 4.9$ cm) in multiparus 43 years



U/S image (4) uterus measurement ($7.9 \times 3.5 \times 3$ cm) in multiparus 30 years



U/S image (5) uterus measurement ($9.3 \times 4.6 \times 3$ cm) in multiparus 37 years

