



**Evaluation of Uterus in Post Abortion Duration Using Ultrasound
Technique**

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Introduction

Abortion is the ending of pregnancy by removing a fetus or embryo before 20 weeks gestation ,if abortion occurs before 12 weeks gestation, it is called early, from 12 to 20 weeks it is called late.⁽¹⁾

The appearance of ultrasound finding in early postpartum period reflect the physiological changes occur also dopplar technology is used to study hemodynamic events occurring during the puerperium ,they detect a localized area of increased vascularity within the myometrium⁽²⁾

The criteria of retained products include variable amount of echogenic or heterogenous material within the endometrial cavity and presence of vascularity within the echogenic material supports the diagnosis but the absence of colour flow has low negative predictive value because retained products may be a vascular , calcification may be present ,also it suspected on ultrasound if endometrial thickness is more than 10 mm following dilation and curettage or spontaneous abortion⁽³⁾

On previos study showed 46 patient underwent dilation and curettage of which 67.4% was proven to have retained products of conception .31patients were followed up through expectant mangement⁽⁴⁾ another study showed 63 patients underwent surgical intervention ,and 28 of these had retained products and the remaining were followed clinically an endometrial mass was the most sensitivity(79%) and specific (89%).⁽⁵⁾

Postabortion complication develops as incomplete evacuation of uterus and uterine atony which lead to hemorrhagic complication, infection ,and injury due to instruments used during the procedure. Also in septic abortion infection usuallu begin as endometritis and involve the endometrium and any retained product of conception then spread further into myometrium and parametrium may progress into peritonitis .The patient may develop bacteremia and sepsis.

The aim of the study to evaluate the uterus and early detection f retained product to decrease the rate of complication and improve health of patient.

Justificaion

One of the factors contributing the complication in post abotiorn duration is retained product and the type of which the product expelled by it ,either sponatous or D and C or evacuation of product .

Problem Statement

Abortion is most serious case that occur for a pregnant lady in early pregnancy period . It is a potentially life-threatening condition with risk of severe maternal morbidity and mortality. Even in undiagnosed cases discovered at the time of miscarriage.

Research question

How we can evaluate the uterus in post abortion period?

Objectives**General objective:**

To Evaluate the uterus in post abortion period using ultrasound technique at Omdurman Maternity Hospital.

Specific objectives:

1. To measure the endometrial thickness of the uterus.
2. To assess the vascularity of uterus.
3. To identify the type of evacuation was used.
4. To detect any abnormality in current pregnancy
5. To correlate the endometrial thickness with gestational age.
6. To correlate between the type of operation and remaining product.

Materials**Study design:**

It will be prospective descriptive hospital-based study conducted at Omdurman Maternity Hospital tal and al saudai hospi

Study period:

The study will be conducted in a period from February 2018 to June 2018.

Study area: The study will conducted in Omdurman Maternity Teaching Hospital and alsaudi hospital

Sample size:

The sample of size is 100 patients.

Study population:

All women whom underwent abortion during study period and agreed to participate .

Inclusion criteria

Women in post abortion period until 3-4 week.

Exclusion criteria

Women beyond the period of post abortion.

Methods

Data collection:

The data will collect by a pre-designed questionnaire for the purpose of this study by using trans abdominal and transvaginal ultrasound scan associated with Doppler sonography.

Study variable:

Age, parity, Gestational age, Endometrial thickness, doppler finding

Instrument and procedure:

With direct interview questionnaire time of diagnosis and treatment modality will ascertained.

Sonographic technique:

The female pelvis is routinely evaluated with at least one of two ultrasound techniques: TA and TV (Box 42-1). The TA examination is performed from the anterior abdominal wall using a curvilinear, or sector, transducer with frequencies of up to 5 MHz. TA scans typically use the distended urinary bladder as a “sonic” window to identify the uterus and adnexa as an overview of the other pelvic structures. If the protocol is to do a TA study in conjunction with a TV study, not all institutions begin with the urinary bladder fully distended. Even when the urinary bladder is only partially distended or is empty, a TA scan may still help as an overview to the pelvic structures. The TV examination is performed with the patient’s bladder empty, using higher transducer frequencies of 7.5 MHz or more. These higher frequencies have better near-field focusing and resolution, which permit greater detail and characterization of the uterus and adnexa.

Data Analysis:

The data collected and analyzed by computer using Statistical Package for Social Sciences (SPSS) version 22, Excell 2007 for figures .

Data presentation

Data will be presented in tables and figures and cross tables, it will be storage in CD and hard copies. .

Data storage: The data will store in CD, flash, computer and hard copy.

Ethical consideration:

Permission will obtain from hospitals administration, and no interference with management protocols and verbal consent will obtain from all participant

Results

Table (1) Frequency distribution of age :

Age	Frequency	Percent	Valid Percent	Cumulative Percent
15 – 20	9	9.0	9.0	9.0
21 – 25	26	26.0	26.0	35.0
26 – 30	30	30.0	30.0	65.0
31 – 35	24	24.0	24.0	89.0
more than 35	11	11.0	11.0	100.0
Total	100	100.0	100.0	

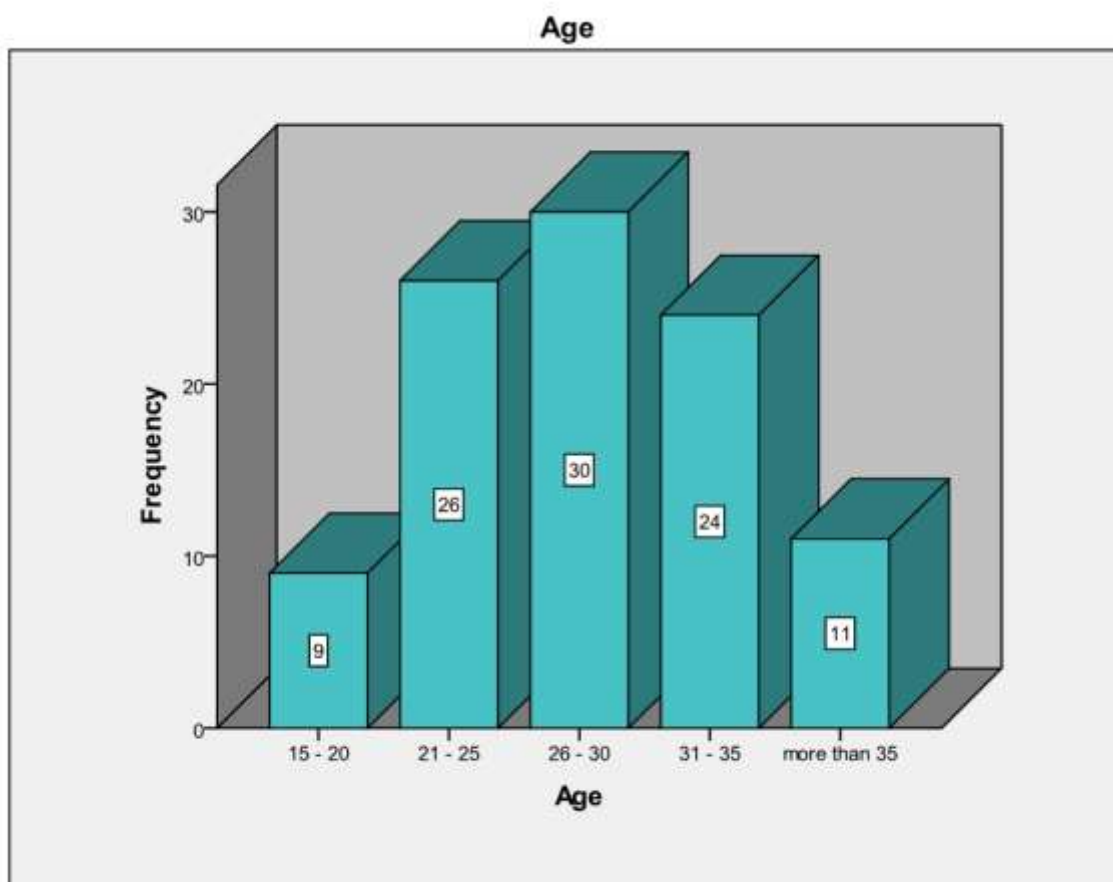


Figure (1) frequency distribution of age

Table (2) Frequency distribution of parity :

Parity	Frequency	Percent	Valid Percent	Cumulative Percent
Para 1 - 4	53	53.0	53.0	53.0
Para 5 - 7	35	35.0	35.0	88.0
more than 7	6	6.0	6.0	94.0
pregnant	6	6.0	6.0	100.0
Total	100	100.0	100.0	

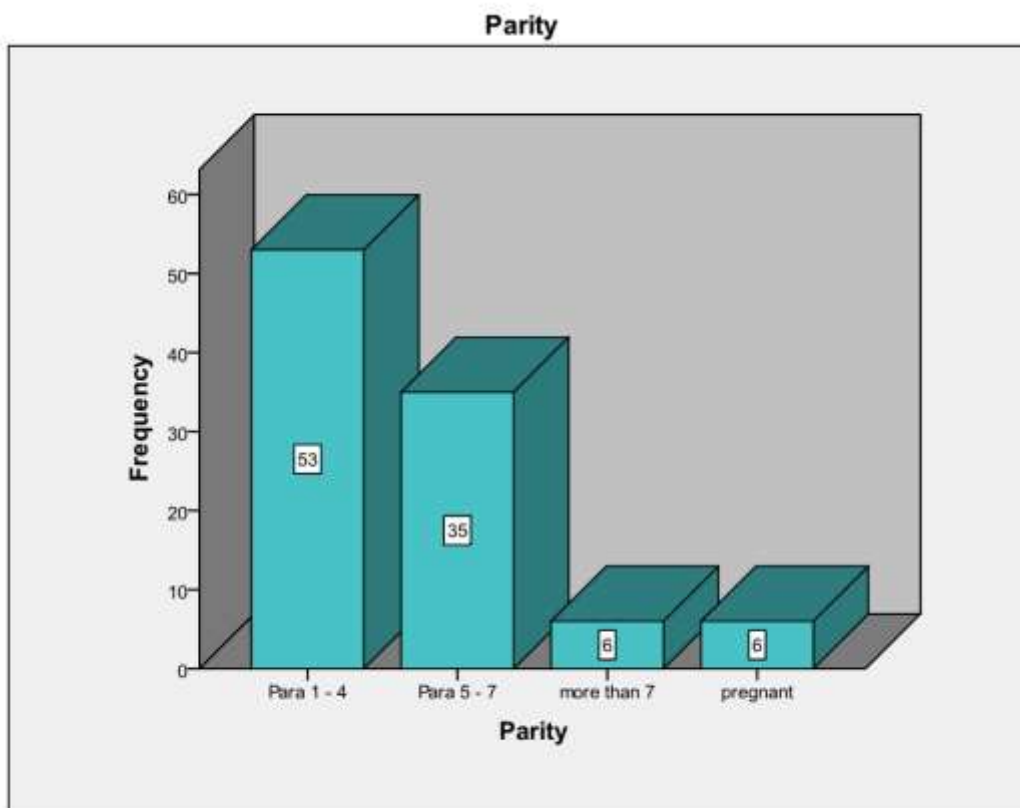


Figure (2) frequency distribution of parity

Table (3) Frequency distribution of history of miscarriage :

History of miscarriage	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	56	56.0	56.0	56.0
No	44	44.0	44.0	100.0
Total	100	100.0	100.0	



Figure (3) frequency distribution of history of miscarriage

Table (4) Frequency distribution of the product expelled:

the product expelled	Frequency	Percent	Valid Percent	Cumulative Percent
Sponatously	25	25.0	43.9	43.9
Operation	29	29.0	50.9	94.7
Medical	3	3.0	5.3	100.0
Total	57	57.0	100.0	

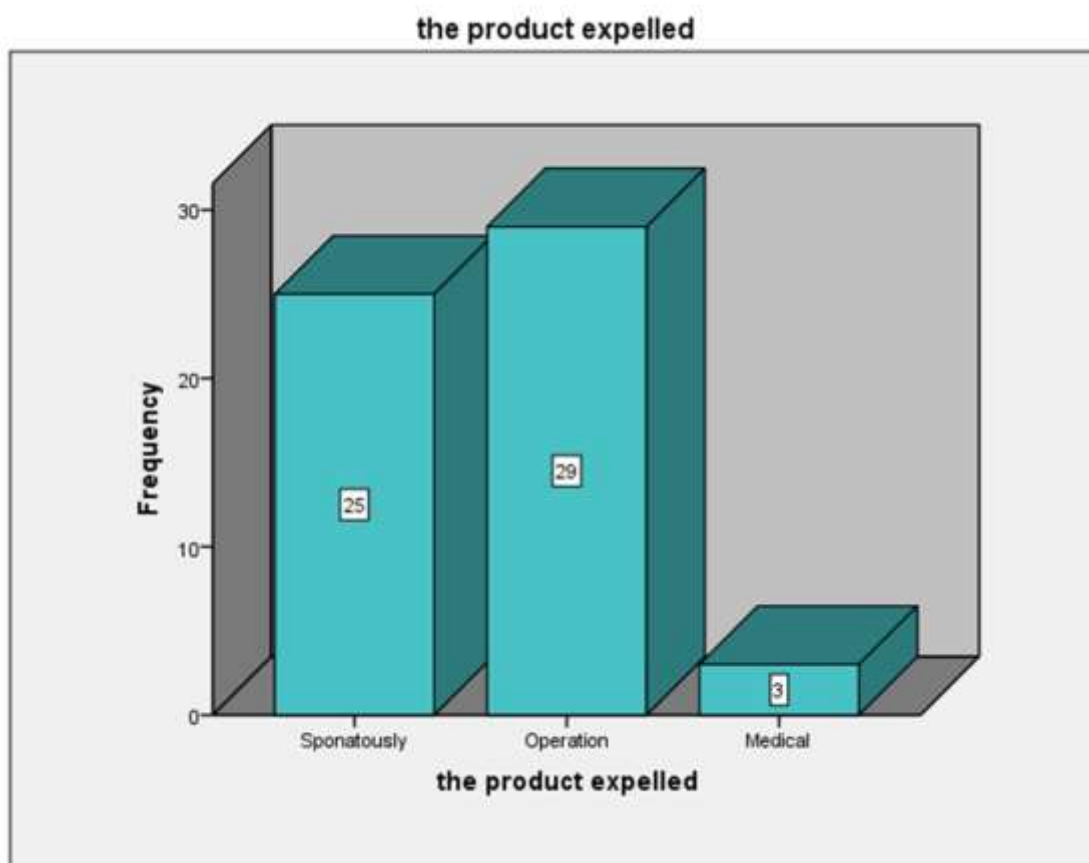


Figure (4) frequency distribution of the product expelled

Table (5) Frequency distribution of history of D & C :

History of D&C	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	12	12.0	12.0	12.0
No	88	88.0	88.0	100.0
Total	100	100.0	100.0	

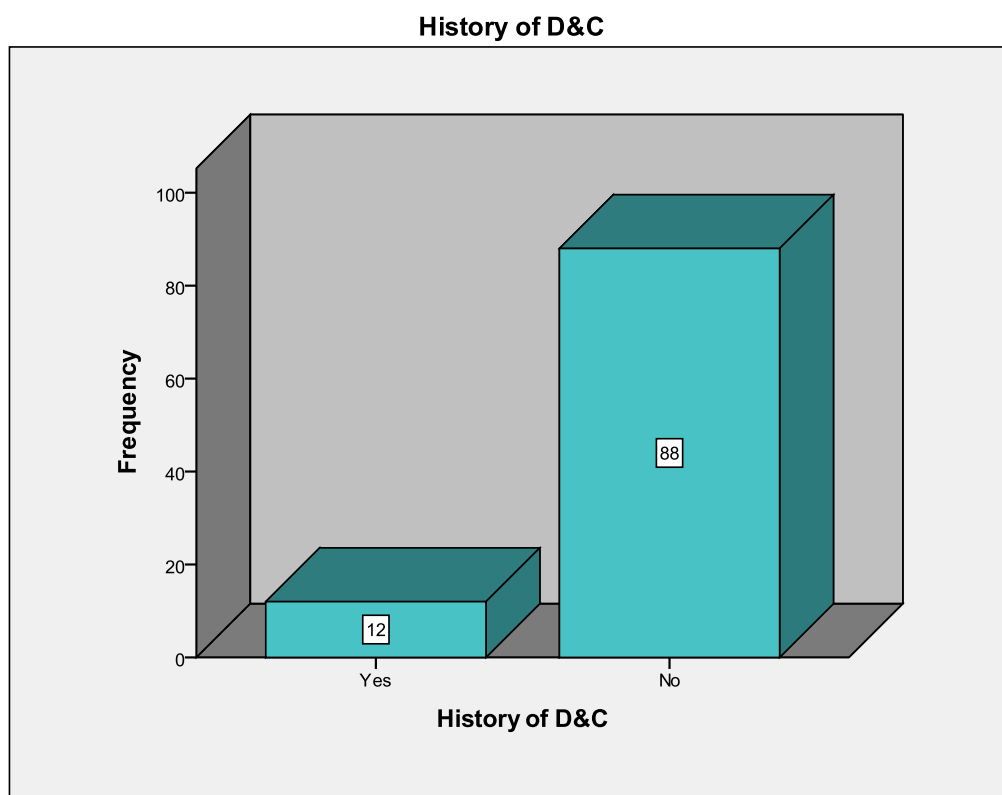


Figure (5) frequency distribution of history of D & C

Table (6) Frequency distribution of History of molar pregnancy :

History of molar pregnancy	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	8	8.0	8.0	8.0
No	92	92.0	92.0	100.0
Total	100	100.0	100.0	

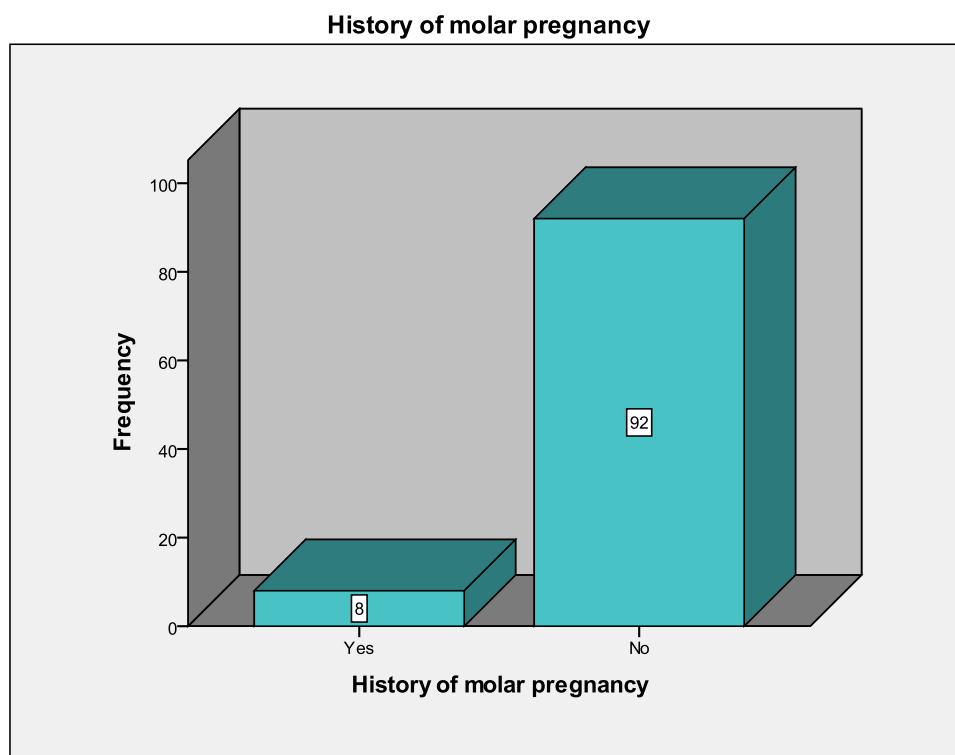


Figure (6) frequency distribution of history of molar pregnancy

Table (7) Frequency distribution of History of ceaseran section:

History of ceaseran section	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	27	27.0	27.0	27.0
No	73	73.0	73.0	100.0
Total	100	100.0	100.0	

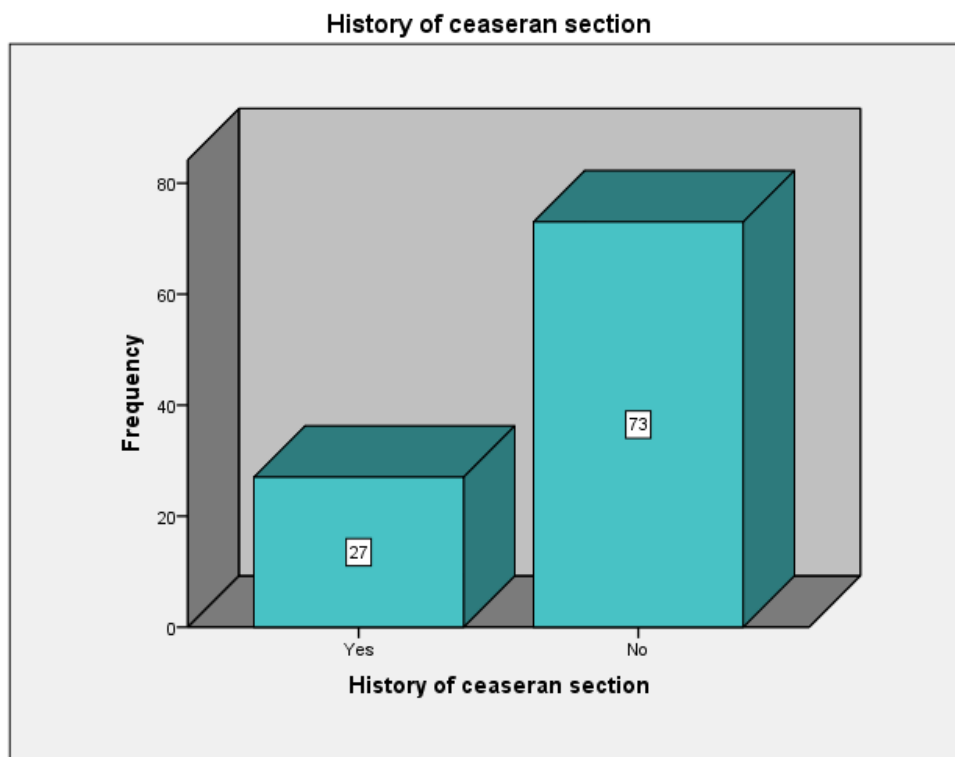


Figure (8) frequency distribution of history of ceaseran section

Table (8) Frequency distribution of endometrial thickness :

Endometrial thickness	Frequency	Percent	Valid Percent	Cumulative Percent
less than 10 mm	4	4.0	4.0	4.0
more than 10 mm	96	96.0	96.0	100.0
Total	100	100.0	100.0	

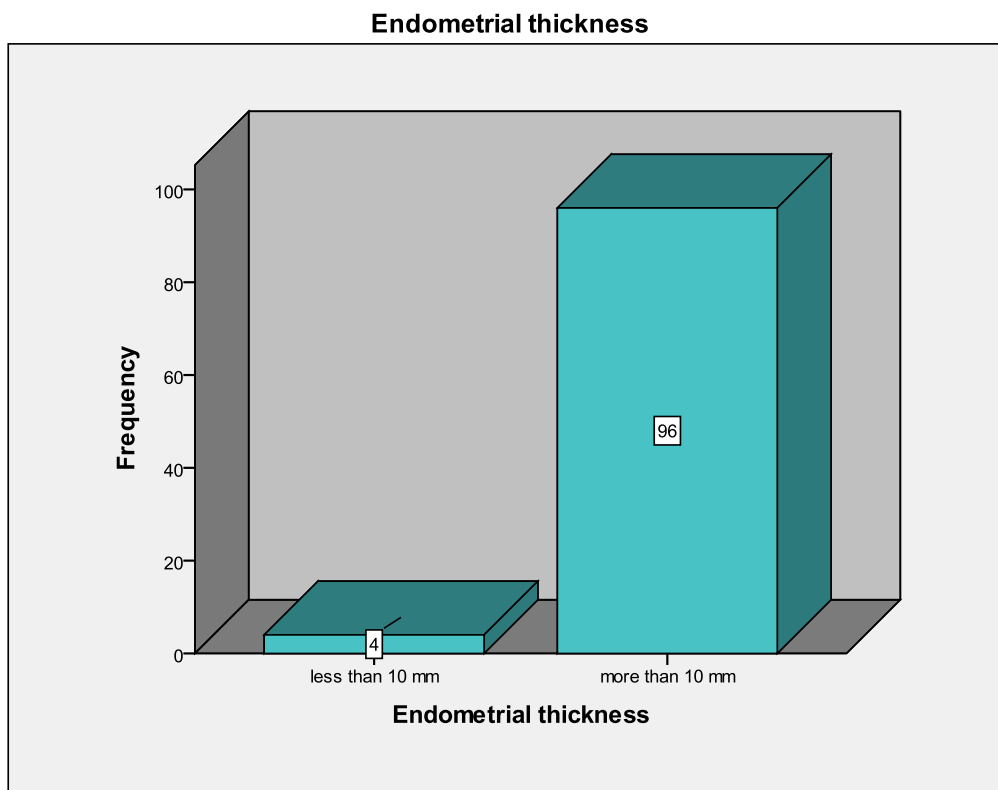


Figure (8) frequency distribution of endometrial thickness

Table (9) Frequency distribution of Doppler :

Doppler	Frequency	Percent	Valid Percent	Cumulative Percent
Normal	7	7.0	100.0	100.0
Hypervascular	93	93.0		
Total	100	100.0		

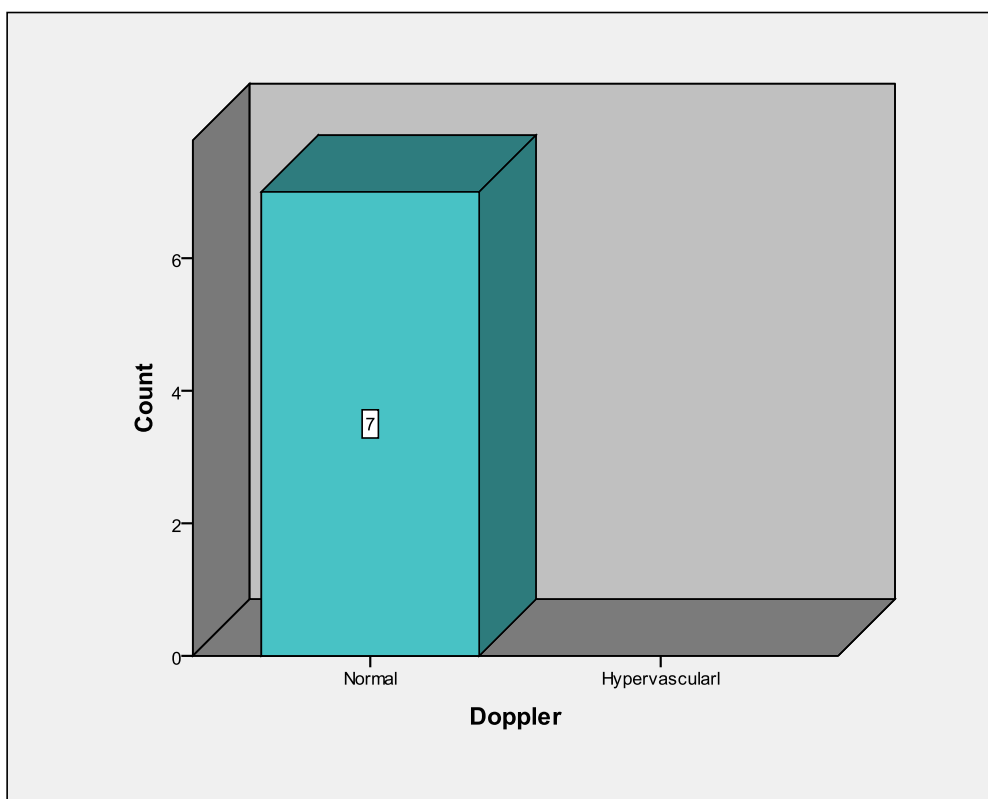


Figure (9) frequency distribution of Doppler

Table (10) Frequency distribution of type of abortion :

Type of abortion	Frequency	Percent	Valid Percent	Cumulative Percent
Spontaneous	51	51.0	51.0	51.0
Medical	36	36.0	36.0	87.0
Surgery	13	13.0	13.0	100.0
Total	100	100.0	100.0	

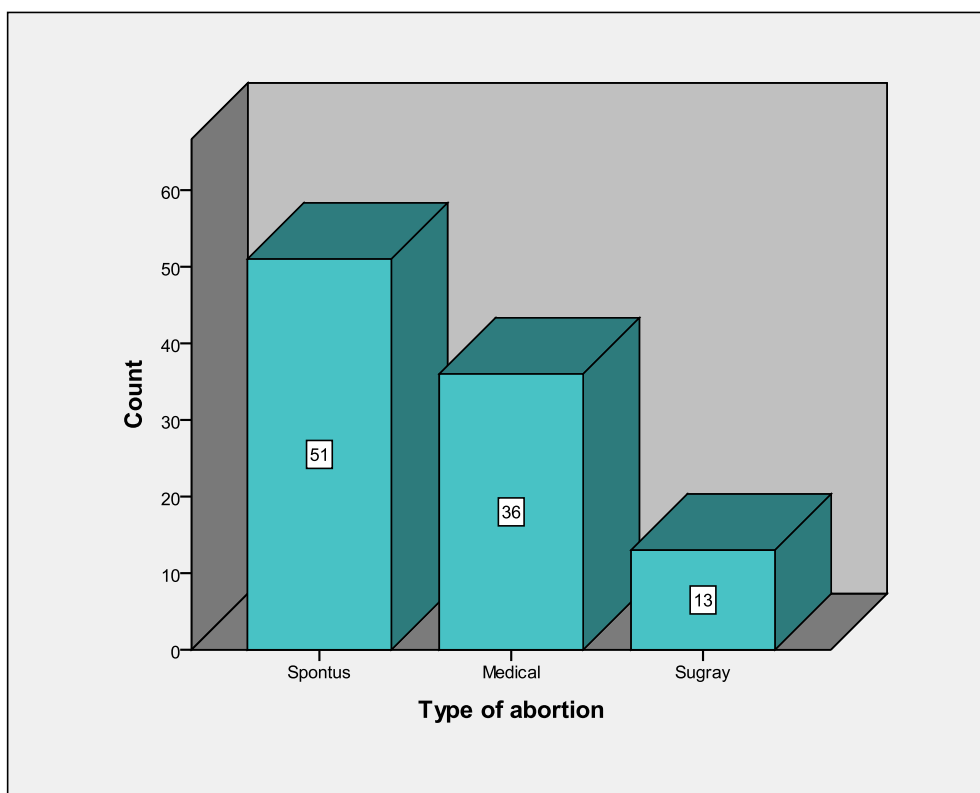


Figure (10) frequency distribution of type of abortion

Table (11) Frequency distribution of Doppler sonography of retained product:

Doppler sonography of retained product	Frequency	Percent	Valid Percent	Cumulative Percent
Absent	93	93.0	93.0	93.0
Present	7	7.0	7.0	100.0
Total	100	100.0	100.0	

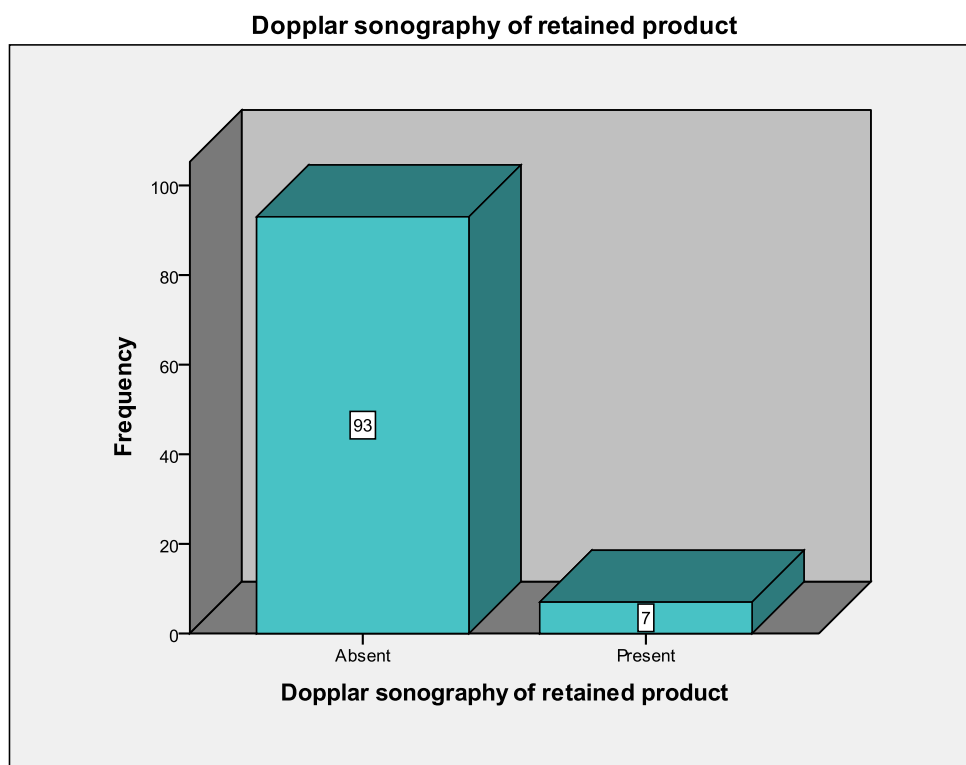


Figure (11) frequency distribution of Doppler sonography of retained product

Table (12) the relationship between endometrial thickness and gestation at abortion :

Gestation at abortion	Endometrial thickness			
	less than 10 mm		more than 10 mm	
	NO.	%	NO.	%
0 - 49 days	2	2.0	55	55.0
50 - 90 days	2	2.0	36	36.0
more than 90	0	.0	5	5.0
Total	4	4.0	96	96.0
p-value = 0.823				

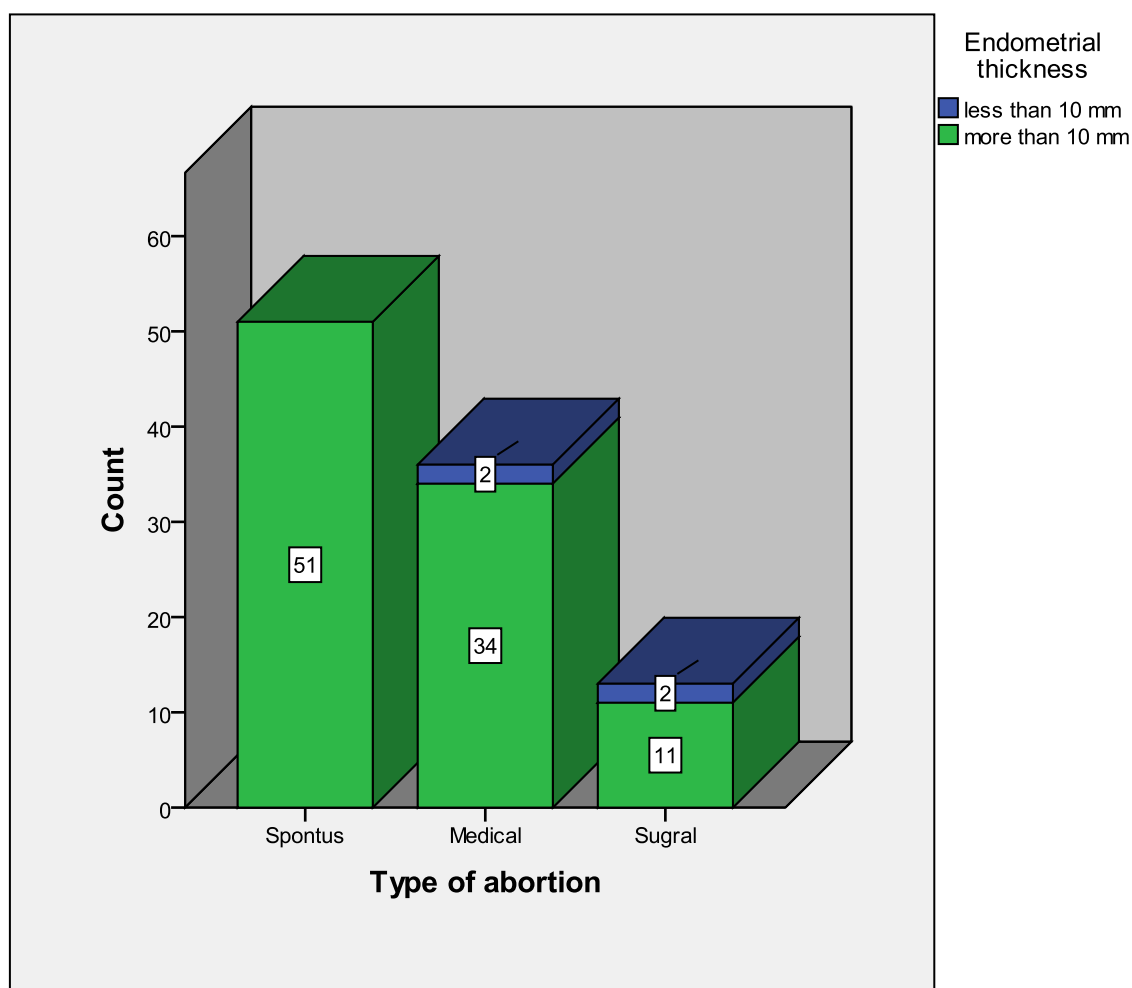


Figure (12) relationship between endometrial thickness and gestation at abortion

Table (13) the relationship between endometrial thickness and type of abortion :

Type of abortion	Endometrial thickness			
	less than 10 mm		more than 10 mm	
	NO.	%	NO.	%
Spontus	0	.0	51	51.0
Medical	2	2.0	34	34.0
Sugray	2	2.0	11	11.0
Total	4	4.0	96	96.0
p-value = 0.034				

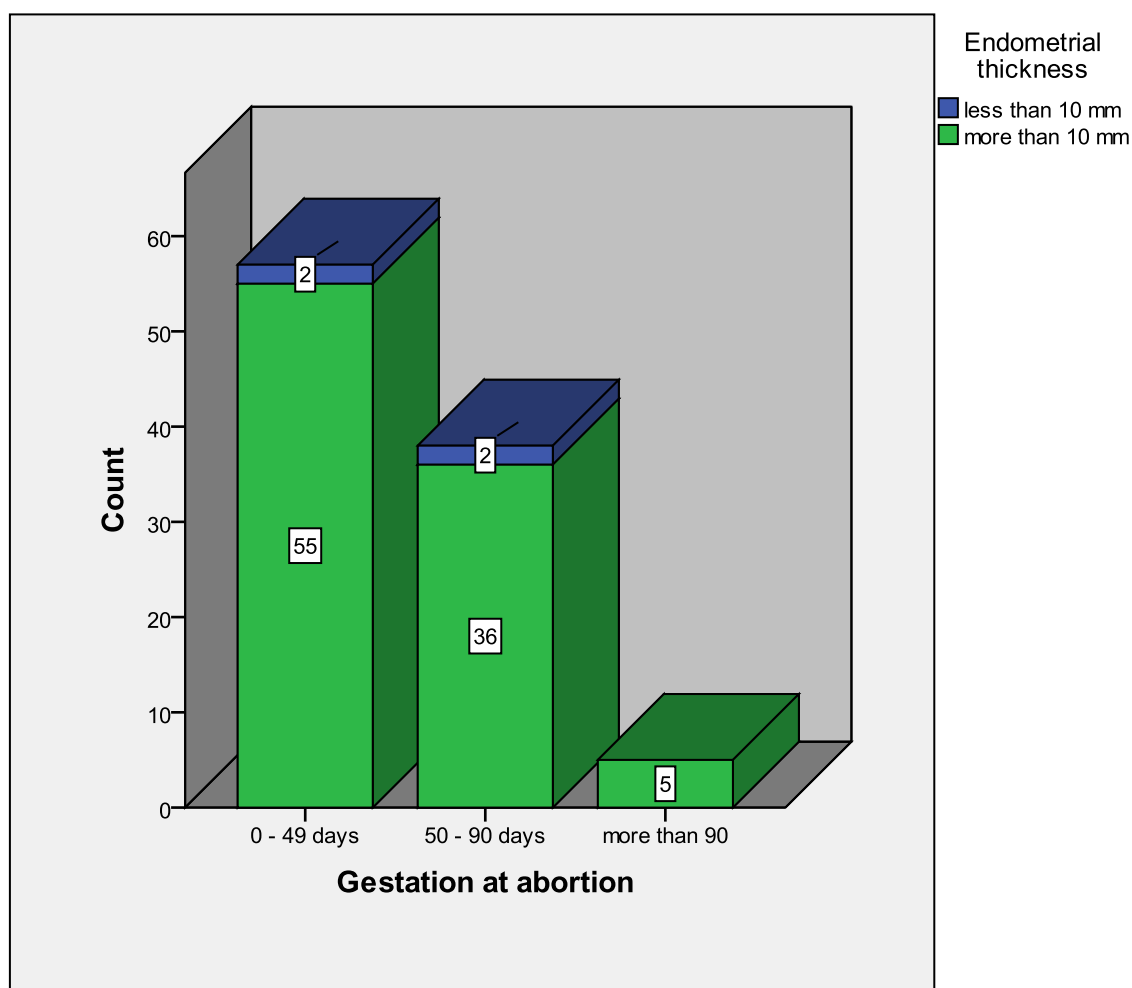


Figure (13) the relationship between endometrial thickness and type of abortion

Table (14) correlation between endometrial thickness and gestation :

		Gestation at abortion	Endometrial thickness
Gestation at abortion	Pearson Correlation	1	-.007
	Sig. (2-tailed)		.946
	N	100	100
Endometrial thickness	Pearson Correlation	-.007	1
	Sig. (2-tailed)	.946	
	N	100	100

Table (15) correlation between endometrial thickness and type of abortion :

		Endometrial thickness	Type of abortion
Endometrial thickness	Pearson Correlation	1	-.255*
	Sig. (2-tailed)		.010
	N	100	100
Type of abortion	Pearson Correlation	-.255*	1
	Sig. (2-tailed)	.010	
	N	100	100
*. Correlation is significant at the 0.05 level (2-tailed).			

Early pregnancy loss occurs in about 25% of clinically recognized pregnancies, in our study gray scale and dopplar sonography was done for 100 cases, after surgical evacuation 13% had RPOC and 51% after sponatous explusion and 36% after medical treatment ,this was done for assessment of endometrial thickness ,geastational age and vascularity if found.

Out of 100 cases, 96 case have endometrial thickness more than 10 mm or presence of focal mass detected by ultrasonography and 56% had history of previous miscarriage and expelled by dilation an curettage, and 27% of them had previous ceaseran section, and 93% are absent vascularity in dopplar sonography.

Discussion

The diagnosis of RPOC in a patients after miscarriage is an important clinical challenge, transvagina l and transabdominal sonography is helpful method for assessing RPOC and limit unnecessary surgeries ,also dopplar features provide further information .

This study was desgined to evaluate the RPOC in the uterus in postabortion period in patients suspected of having retained product of conception.

In this study it was found that abortion were more common in multigravida as compred to primgravida which is coherence with the findings of pollaxk et al (2009)(9) who found that sponatous abortion rate increase with gravid status and could be as risk factor, the maxium patients with RPOC were found with Gestational age less than 6 weeks and decreased with increasing gestational age which is consistent with the fact that frequency of abortion decreases with increase gestational age as supported by Wilcox AJ, Weinberg C.R, O'Connor JF et al{10,11}

RPOCS were more common in spontaneous management was more suitable management option for smaller sized RPOCs in terms of success rate, complication and patient satisfaction whereas with increasing size of RPOCS, surgical management was better when criteria is considered.

Recommendation

The findings of this study revealed grey scale and dopplar both are best method to detect patients with suspected RPOC and the method may also helpful for selecting patients for conservative management ,More prospective studies with larger sample sizes are needed to further investigate the use of color dopplar ultrasound in the diagnosis of RPOC.

References

1. <http://en.m.wikipedia.org> assessed on 26/2/2018 at 2:00 pm
2. Van schoubroeck D, van den Bosch T, Scharpe K, et al. Prospective evaluation of blood flow in the myometrium and uterine arteries in the puerperium. *Ultrasound obstet Gyb*; 2004(4):378-81 april, 23(4).
3. Hajieh Esmaeillou and Abas Kokab. Accurate detection of retained products of conception after first and second trimester abortion by color dopplar sonography p34-38.2015 journal of medical ultrasound v23,issue1..
4. Durfee SM. The sonographic and color Doppler features of retained product of conception. *ultrasound med*: 2005.
5. www.radiopaedia.com assessed on 28/2/2018 at 5:00
6. Sally Collins,sabaratanam arulkumaran,keivn hayes et al.bleeding in early pregnancy,oxford of obstetrical and gynaecology,p530-532 2013
7. <http://pubs.rsna.org> assesd on 1/3/2018 at 6:00 pm..
- 8.. Carol M. Romack, Stephanie R, Willson and Deborah Levine, *Diagnostic ultrasound*, 4ed. Philadelphia; Elseviwr Mosby ; 2011
- 9.Durfee SM, Frates MC,Lunong A,et al.the sonographic and color dopplar features of retained products of conception .*JUM*.2005,24(9)
- 10.shell Faen wong ,Man HO lam, et al,Transvaginal sonography in the detection of retained products of conception after first trimester sponatous abortion
- 11.Elsays KM,Trout AT,Friedin et al. Imaging of placenta multi modality pictoral review .*Radiographics*,2009 ;29:1371-1392..



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