

# Evaluation of Retained Products of Conception (RPOC) By Ultrasonography in Early Pregnancy Abortion (5weeks 10 Weeks)



Gitanjali Satpathy, Rudra Narayan Dash

**Abstract :-** This is a retrospective study which was conducted from January 2016 to January 2018. The aim of this study is to evaluate the Retained products of conception findings by Ultrasonography in early pregnancy ( 5 weeks to 10 weeks) abortion. Different Biomarkers of many authors & research papers were taken in guidance of our study. Out of total 120 cases 55 % was utero-vaginal bleeding with pain who presented clinically at our centre. After USG evaluation it was found that 48.3% was having intracavitary mass with vascularity and 30 % was having only intracavitary mass. 53.3 % was in the gestational age of 9 weeks to 10 weeks of duration of pregnancy. So it is concluded that after evaluation by USG if there is both intracavitary mass & vascularity within the endometrium, then the possibility of RPOC detection accuracy is more.

**Key words-** RPOC, Early pregnancy, intracavitary mass, intracavitary mass with vascularity, USG.

## I. INTRODUCTION:-

Retained product of conception (RPOC) refers to the persistence of placental or foetal tissue in the uterine cavity following miscarriage. RPOC no doubt is a major threat to life. This is because of the prolonged utero-vaginal bleeding, pain abdomen, infection & adhesion. It is also observed some times that without proper diagnosis and confirmation of RPOC. Most of the clinicians do the procedure of dilatation & curettage (D & C) which makes complication like uterine perforation, bowel damage, infection (septicine) intrauterine adhesions. To avoid these complications & to save a life diagnosis of RPOC is more important. Early pregnancy abortions are mainly caused by therapeutic, dilatation & curettage. Some are also by spontaneous. Out of these therapeutic abortions are common scenario in our country by MTP pills. It is a choice by majority of women for abortion in early pregnancy.

Ultrasonography now a days is playing an important role to diagnose "RPOC". It is also the first line of modality for using in the diagnosis of RPOC and also it is economical which can be affordable by common people. It is accepted very well in the society.

## II. MATERIAL & METHOD:-

Our study was a retrospective study done at J. J. Diagnostic centre, Bhubaneswar from January 2016 to January 2018. Numbers of cases were 120.

### Inclusion Criteria's for the Study were:-

- I) Married women between age group of 20 to 35 years having history of utero-vaginal bleeding /passing of products, pain & /or fever.
- II) Married women having history of amenorrhea of 5 to 10 weeks.
- III) The pregnancy was confirmed (+ve) by urine Beta HCG test (with valid pathological report).
- IV) History of abortion 5 to 10 weeks of pregnancy.
- V) All the cases were Referred by physicians.

### Exclusion Criteria:-

- I) Unmarried women.
- II) Having history of ammenhhroa of 11 weeks & above.
- III) No history of uterine bleeding.
- IV) Having ectopic pregnancy

For our study GE logiqe P5 ultrasound machine was used with 4mHz convex probe and Transvaginal 8mHz.

Many published research papers were referred for our study. Many of the suitable criteria's & Biomarkers were selected for our guidance of the study.

Out many research papers refered the following research papers of following authors were preferred for the selection of Biomarkers:-

Shen etal-2003, Pather etal=2005  
Kamaya etal-2009, Matijevic etal.2009  
Sell mega etal-2003, Vanden Bosch etal 2002  
Steinkeler etal-2012, Urner etal =2014.  
Jamal A. etal-2008 & 2015.

### Biomarkers for RPOC diagnosis we took as guidance are the following:-

- I) Endometrial thickness > 10 & no uniform endometrium.
- II) Intra cavitory endometrial mass (ICEM)/ Endometrial echogenic complex (EEC).

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- III) Vascularity associated with the mass by Doppler study.
- IV) Empty gestational sac without embryonic pole / foetal pole.

### III. IMAGING TECHNIQUE:-

All the patients selected for our study were imaged with the sonographic machine GB logique P5 with a probe of 4mHz and also by Transvaginal 8mHz. The images were viewed by two radiologists & interpreted by them (principal author & corresponding author). Those images were assessed as per the criteria's of Biomarkers mentioned above.

Normal endometrium is defined as a thin regular endometrial lining over the entire length of the uterus without any collection or echogenic complex / mass. The endometrial thickness measurement is < 10 mm in normal endometrium in proliferative phase.

As endometrial mass was defined as a intrauterine mass distinct from the rest of the endometrium. The echogenicity of the mass & location were recorded.

The vascularity of the mass was assessed as mild, moderate & marked. The group who have researched on the use of color Doppler in the diagnosis of RPOC are van den Bosch et.al 2002, matijevec etal 2009, Kamaya etal 2009, Lutvical etal 2009, Steinkelar etal 2012, sellmyer etal 2013, Urner etal 2014.

Minimal vascularity was defined as some detectable color flow in the mass but less than the color flow in the normal myometrium.

Moderate vascularity was defined as detectable color flow in the mass equal to or near equal to the color flow in normal myometrium.

Marked vascularity was defined as marked detectable vascularity of the mass greater than that of the color flow in the normal myometrium.

(May authors have described undetectable color flow in mass as type 0, mild color flow in mass as type-1, moderate color flow in mass as type-2, marked vascularity as type-III).

### IV. RESULTS:-

Out of 120 patients we observed that highest numbers of cases were in the gestational age of 7 to 10 weeks which was about 81.6 % ,means more likely to have RPOC during this period. Similarly more numbers of patients presented at the time of USG were having prolonged uterine bleeding which was about 66 %.

In our study taking Biomarkers criteria's as our guidance we have found that numbers of cases with > 10 mm thickness of ET is 15 %, Intracavitary echogenic mass is 30 %, vascularity within the mass is 48.3 %. From this it is found that in case of RPOC vascularity plays main role which is also a diagnostic one.

**Table-1 Duration of pregnancy at the time of USG findings of RPOC.**

Sl.No	Weeks of gestational age	No of cases	%
a)	5 to 6 weeks	22	18.3
b)	7 to 8 weeks	34	28.3
c)	9 to 10 weeks	64	53.3

**Table-2 Clinical presentation at the time of USG findings of RPOC-**

Sl.No	Clinical presentation	No of cases	%
a)	Prolonged uterine bleeding	66	55.0
b)	Pain abdomen + prolonged uterine bleeding	34	28.3
c)	Pain abdomen+ present uterine bleeding +fever	20	16.6

**Table-3 Biomarker criteria-**

Sl.No	Biomarker criteria	Number of cases	%
a)	ET > 10	18	15.0
b)	Intracavitary echogenic mass	36	30.0
c)	Vascularity within the mass	58	48.3
d)	Empty gestational sac	08	6.6

Out of 36 cases of intra cavity mass (without vascularity) the different position of RPOC in the endometrial cavity are upper 3<sup>rd</sup> of endometrium 16.6 %, mid 3<sup>rd</sup> of the endometrium 33.3 %, Lower 3<sup>rd</sup> 27.7 % & endocervix 22

% 16.6% in upper 3<sup>rd</sup> of endometrium,33.3% in mid 3<sup>rd</sup> of endometrium,27.7% in the lower 3<sup>rd</sup> of endometrium,22% in endocervix.

**Table-4 Position of the intracavitary mass (total 36 cases) in endometrium-**

Sl.No	Position of the 1 CM	Number of cases	%
a)	Upper 3 <sup>rd</sup>	06	16.6
b)	Mid 3 <sup>rd</sup>	12	33.3
c)	Lower 3 <sup>rd</sup>	10	27.7
d)	Endocervix	08	22.2

**Table-5 Result of vascularity within the mass-**

Sl.No	Type of vascularity	Number of cases	%
a)	Minimal vascularity	24	41.37
b)	Moderate vascularity	22	37.93
c)	Marked vascularity	12	20.68

It is important also to know the position of the RPOC in the endometrial cavity. In our study, position of RPOC is more in the mid 3<sup>rd</sup> & next is in lower 3<sup>rd</sup> of the endometrium. Mid 3<sup>rd</sup> position of RPOC is common, because position of normal early pregnancy is in mid 3<sup>rd</sup> of endometrial cavity. As per the result of vascularity (detectable color flow) within the mass we have detected 41.37 % cases of RPOC as minimal, 37.9 % of cases as moderate vascularity & 12.6 % cases marked vascularity. However it is noted that vascularity is an important criteria to detect RPOC.

**V. DISCUSSION:-**

Endometrial thickness is one of the Biomarker which is having less important than other markers. When endometrial thickness is less than < 10 mm & uniform outline, the presence of RPOC is extremely rare. If the endometrium appear irregular & thickened (more than > 10 mm) or having localised thickening > 10 mm then possibilities of RPOC may be there. If there is combination of echogenic mass within the endometrium with thickening & localised widening of endometrium then increases the possibility of RPOC. From our study we observed that more number of cases 48.3 % of RPOC are with echogenic intracavitary mass with detectable vascularity within the mass. Therefore degree of vascularity & echogenic intrauterine mass are the two important biomarkers in the detection of RPOC. When there is combination of echogenic endometrial mass with color flow noted within it there is increase more accuracy of RPOC. So detection of vascularity in the thickened endometrium or in the intracavitary mass is very sensitive for RPOC detection. By many authors it is also viewed that no detectable vascularity in the intracavitary mass does not exclude RPOC, where hypervascularity is more commonly observed in a patient with RPOC.

Steinkeler et al in 2012 concluded in his research that color Doppler can help in diagnosis of RPOC, but absence of color Doppler does not exclude RPOC.

Many authors have pointed out that color Doppler in AVM (Arterio-venous malformation) has resemblance with RPOC. However most of the AVM are acquired type due to

the instrumental or injury of the uterus. The congenital type of AVM is farless frequent. The other findings of the AVM are multiple or few hypoechoic areas within the myometrium which are irregular, heterogenic hypoechoic myometrial mass. It may also appear serpiginous or tortuous tubular having mosaic vascularity & low intensity. Again AVM is a rare condition. (Refer to literatures).

It is observed from our findings that all the cases having RPOC when show the vascular component was located or confined to endometrium only not extending beyond the interface of myometrium & endometrium. So we have excluded AVM from our findings. Also it is noted in many literatures that AVM is confined to myometrium only (sellmyer etal 2013). According to Aya Kamaya etal & Van Schoubreck etal assessed myometrial vascularity, where EMVC (enhanced myometrial vascularity) may be overlapped by marked vascularity. They defined EVM as an area of enhanced vascularity in the myometrium ranging from the local lesion to large area of hyper vascularity. They also found that most of their cases of EMV were associated with retained placental tissue which was more frequently observed after instrumental removal of placenta. However they did not comment on the associated endometrial thickness or vascularity.

The findings of Aya Kamaya and many authors show that the presence of vascularity in the intracavitary mass is more sensitive findings for RPOC than the intracavitary mass. An intrauterine mass may be either a blood clot or RPOC but the vascularity within the mass (intrising vascularity) can be a differentiating factor between the two entities. In majority of cases of RPOC in our study show color flow by Doppler imaging within intracavitary mass. If both thickened endohmetrium & endometrial vascularity is present then this findings creates a marked raised suspicious of RPOC.

So, as per Kamaya et.al, who concluded that RPOC can be diagnosed with images obtained using gray scale ultrasound & color Doppler with attention to be given to the endometrial thickness, intrauterine mass & degree of vascularity within the mass.



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When no mass within the endometrial cavity with endometrial thickness less than 10 mm, then there is no changes of RPOC.

It was also observed that there is disparity in findings of different research groups & institution for confirmation of RPOC.

However in our findings we have observed most of the cases of RPOC are having endometrial thickness > 10 mm, echogenic intracavitary mass & vascularity associated with the mass during our USG examination.

## VI. CONCLUSION:-

In suspecting RPOC with clinical signs & symptoms, thickened endometrial echo complex or intracavitary mass detected with color Doppler are more reliable Biomarkers which are based on our study & many referred articles that correlate on ultrasound findings.

Therefore decision making on RPOC should be done basing on the above three Biomarkers of USG findings with clinical findings & history of patients.

However further research works are needed on this topic.

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