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Evaluation of uterine cavity and blood flow after conservative surgical management of placenta previa /accrete (Cross Sectional Study)

Shimaa Thabet Hussien Ahmed

Specialist of gynecology and obstetrics in Elman General hospital in Assiut , Egypt
Email: shimaathabet85@gmail.com

Abdel Ghaffar Mohamed Ahmed

Professor of obstetrics and gynecology, faculty of medicine, Assiut , Egypt

Ali Mahmoud Mohamed Mostafa El Saman

Professor of Obstetrics and Gynecology, faculty of medicine, Assiut , Egypt

Ahmed Mohamed Abbas Sobh

Assistant professor of obstetrics and gynecology. Faculty of Medicine, Assiut , Egypt

Abstract---The aim of the work is aiming at determining the impact on Fertility and pregnancy outcomes of uterine artery ligation or Compression sutures for severe PPH based on a large single-center cohort, The secondary objectives were to compare maternal long term. 90 cases were recommended after taking in the consideration the inclusion and exclusion criterion. 47 women followed up with US after 3 months of operation from whom 2 got pregnant. 23 women continued follow up from whom 5 cases got pregnant. 18 cases continued the follow up at 6 month Two out of 47 cases of the follow up got pregnant after 3 months postpartum by asking them by telephone and confirmed positive pregnancy tests. 6 months postpartum 5 women got pregnant .3 of the 7 cases we could follow up by telephone and they got delivered at GA of 38 w by elective C.S with no recurrence of placenta previa or accrete and no post-operative complications and for luck one of those we followed up at 3 month and moderate adhesions were found in office hysteroscopy and followed her by telephone by asking on her menstrual pattern which was irregular at first for 2months and regulated by hormonal treatment after which she got pregnant and was followed up for recurrence of placenta previa or accrete but her placenta was normal situated and

underwent an elective C.S at 38 weeks with no postoperative or intraoperative complications . And she was the only case in whom the office hysteroscopy was significant.

Keywords---PPH Postpartum hemorrhage; Doppler , Hysteroscopy;

Introduction

Postpartum hemorrhage (PPH) remains one of the major causes of maternal morbidity and mortality throughout the world. Approximately 1% of births are complicated by Severe PPH of more than 1000 ml.

Uterine-sparing medical (pelvic arterial embolization) and surgical (Vessel ligation including uterine artery ligation, stepwise uterine devascularisation and/or hypogastric artery ligation, and uterine compression suture) procedures are reliable and effective alternatives to homeostatic hysterectomy. They are currently recommended for the management of severe PPH by various authorities worldwide. (**RCOG Placenta Praevia: Diagnosis and Management. Guidelines No. 27, 2001**)

All of these procedures offer the advantages of uterus-saving Potential and the capacity to preserve the uterus and therefore, the woman's fertility. However, they may subsequently have hidden mid-And long-term effects (**Sentilhes** et al., 2008) Primary long-term studies Suggest that uterine-sparing surgical procedure do not appear to impair Subsequent fertility and pregnancy. Previous studies of women undergoing embolization have suggested that it does not impair subsequent fertility. But the cohort, methodology and follow up rate of these small case series are limited. (**Doumouchtsis** et al., 2007) Moreover, in the majority of case series, no information is available regarding women with presumed preserved fertility and desire for pregnancy who do not become pregnant.

2. Materials and Methods

2.1. Patients Selection

The current study was a prospective single center cross sectional Study encompassing all women managed by conservative surgical Techniques during cesarean section after intraoperative hemorrhage due To placenta previa or accreta.

The current study was registered (Clinical trials. gov: ID: NCT02878187).

The study was conducted in Assiut Women's Health Hospital In Assiut University between the first of January 2017 and 31 st Of December 2018.

Recruitment:

All women delivered by elective /emergency caesarean section due To placenta previa /accrete during the study period were included in the Study.

Inclusion criteria:

1. Women in reproductive age between 18- 40years.
2. Gestational age of pregnancy 28-40 week.
3. Diagnosed antenatal as placenta previa or accreta.
4. Patients who were managed by conservative surgical techniques for intraoperative hemorrhage.
5. Women who accepted in the study and reliable for follow up.

Exclusion criteria:

1. Patients who were managed by hysterectomy.
2. Patients who were managed by conservative leaving the placental insitu
3. Patients who inserted IUD in the first 3 months postpartum.
4. Diabetic or hypertensive women

2.2. Intervention Procedure

All women were counseled for inclusion in the study before Delivery during the usual preoperative counseling about the Consequences of placenta previa or accreta according to the Hospital protocols, informed written consent for participation in the

Study was signed. All social-demographic data was collected by the researchers including age, parity .BMI. Gestational age, previous C.S or other Surgeries medical diseases, socioeconomic level. Educational level and contact telephone numbers.

All data related to the survey were collected including occurrence Of intraoperative hemorrhage, different surgical techniques Performed, other surgical complications, amount of blood Transfusion and post-operative admission to ICU.

The patients who were managed by conservative surgical Techniques were followed up till hospital discharge then they will were contacted by telephone calls for secluded follow up.

The control group of women delivered by C.S for any other Indication with no intraoperative hemorrhage or any additional surgical techniques performed during CS was taken as a control Group for comparison of ultrasound and Doppler results.

2.3. Ethical Approval

Before beginning the study, a written informed consent was obtained from all women participating in the study. The study was approved by the Scientific Ethical Committee of Faculty of Medicine, Assiut University Egypt.

2.4. Records

All social-demographic data was collected by the researchers including age, parity .BMI. Gestational age, previous C.S or other Surgeries medical diseases, socioeconomic level. Educational level And contact telephone numbers. All data related to the survey were collected including occurrence of intraoperative hemorrhage, different surgical techniques Performed, other surgical complications, amount of blood Transfusion and post-operative admission to ICU.

2.5. Follow up

The first follow up visit:

It was done 3 months after delivery Women were asked about the menstrual pattern, lactation status, contraceptive use and occurrence of pregnancy, D grey scale ultrasound of the uterus and ovaries was performed. Doppler evaluation of the uterus and ovaries and office hyterectomy for uterine cavity evaluation were done (only in the study group).

The second follow up visit:

It was done 6 menthes after delivery. Women were subjected to the same previous interventions without repeating the office hysteroscopy evaluation. Gray scale ultrasound evaluation Data, 2d ultrasound evaluation was done using A SONO-AceX6 (Madison, Korea) with (4-MHZ) transvaginal probe.

The patients were asked to empty the bladder, US was done for evaluation of uterine volume (in the sagittal view uterine length and width will be measured then in the transverse view, uterine height was measured and the same applied for measuring the volume of both ovaries. Endometrial thickness was measured as the distance between the echogenic interfaces of the endometrium and the myometrium through the central longitudinal axis of the uterine body at the junction between the upper one third and lower two thirds of the body of the uterus.

3. Results and Discussion

90 cases were recommended after taking in the consideration the inclusion and exclusion criterion. 47 women followed up with US after 3 months of operation from who 2 got pregnant. 23 women continued follow up from whom 5 cases got pregnant. 18 cases continued the follow up at 6 month.

Postpartum by asking them by telephone and confirmed positive pregnancy tests. 6 months postpartum 5 women got pregnant .3 of the 7 cases we could follow up by telephone and they got delivered at GA of 38 w by elective C.S with no recurrence of p placenta previa or accrete and no post-operative complications and for luck one of those we followed up at 3 month and moderate adhesions were found in office hysteroscopy and followed her by telephone by asking on her menstrual pattern which was irregular at first for 2months and regulated by hormonal treatment after which she got pregnant and was followed up for recurrence of placenta previa or accrete but her placenta was normal situated and underwent an elective C.S at 38 weeks with no postoperative or intraoperative complications . And she was the only case in whom the office hysteroscopy was significant.

Table (1): Comparison personal characteristics of the studied and controlled groups

	Study (n= 47)		Control (n= 50)		P-value
	No.	%	No.	%	
Residence:					0.670
Rural	16	34.0	15	30.0	
Urban	31	66.0	35	70.0	
Age: (years)					0.887
Mean ± SD	30.45 ± 4.05		30.56 ± 3.76		
Range	23.0-40.0		23.0-37.0		
Socio-economic level:					0.056
Low	27	57.4	34	68.0	
Middle	15	31.9	16	32.0	
High	5	10.6	0	0.0	
Parity:					0.004*
Mean ± SD	3.19 ± 1.39		2.46 ± 1.03		
Range	1.0-6.0		1.0-5.0		
Abortion:					0.002*
Yes	16	34.0	4	8.0	
No	31	66.0	46	92.0	
BMI:					0.000*
Normal	30	63.8	11	22.0	
Overweight	17	36.2	39	78.0	
Mean ± SD	24.13 ± 3.75		27.80 ± 4.67		0.001*

Gestational age: (weeks)					
Mean $\pm$ SD	37.38 $\pm$ 0.87		38.15 $\pm$ 0.18		0.000*
Range	35.0-38.0		38.0-38.4		
Previous surgeries:					
Yes	17	36.2	4	8.0	0.001*
No	30	63.8	46	92.0	
Educational level:					
Illiterate	9	28.1	0	0.0	0.000*
Low education	19	59.4	33	68.8	
Average	2	6.3	13	27.1	
High	2	6.3	2	4.2	

*Statistically significant difference BMI: body mass index SD: Standard deviation regarding the sociodemographic characteristics there was no difference between both groups regarding age, residence and socioeconomic level.

On the other side the mean parity was higher in the study group ($p=0.004$).the number of previous abortions ($p=0.002$) and the number of previous surgeries was ($p=0.001$). (Table 1)

BMI was significantly higher in the control group ($p=0.000$) the mean gestational age at delivery was also higher in the control group ($p=0.000$). (Table 1)

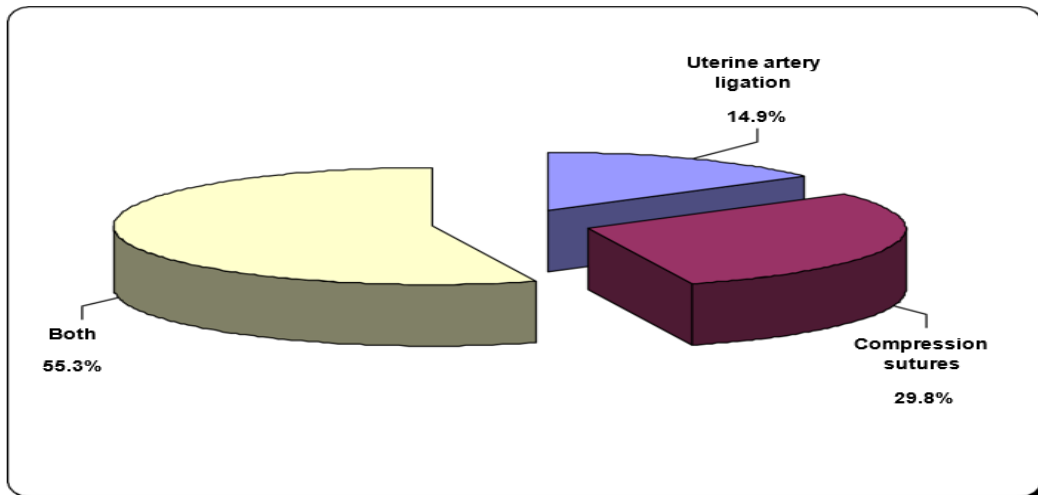


Figure (1): Surgical technique used for 47 cases of placenta praevia and accreta spectrum

Regards to the operative data we found that the use of combined technique was in 26 case (55.3%) then compression sutures in 14 cases (29.8%) and finally uterine arteries ligation in 7 cases (14.9%).

Table (2): menstrual and lactational history of the study group after 3months

Menstrual pattern:	No. (47)	%
Amenorrhea	22	46.8
Regular	13	27.7
Irregular	12	25.5
Lactational:		
Yes	40	85.1
No	7	14.9
Contraceptive:		
Yes	24	51.1
No	23	48.9

At 3 months amenorrhea was in 22 cases (46,8%) and regular menstruation in 13 cases (27,7) and irregular in 12 cases (25,5%) and 40 who were lactating (85,1%) and 24 (51.1%) who used contraception(Table 2).

Table (3): two dimensional transvaginal ultrasound results of the comparison between study and controlled groups after 3 months

2D TVUS	Study (n= 47)	Control (n= 50)	P-value
	Mean $\pm$ SD	Mean $\pm$ SD	
Uterine volume(cm)	56.41 $\pm$ 20.21	46.85 $\pm$ 12.07	0.005*
Right ovarian volume (cm3)	4.48 $\pm$ 3.31	3.38 $\pm$ 2.07	0.059
Left ovarian volume (cm3)	4.11 $\pm$ 2.49	3.12 $\pm$ 2.11	0.047*
Endometrial thickness(mm)	3.61 $\pm$ 1.36	3.85 $\pm$ 1.08	0.336
Uterine artery diameter(Rt)(mm)	2.91 $\pm$ 0.70	3.62 $\pm$ 0.88	0.000*

Uterine artery diameter (Lt)(mm)	3.05 ± 0.70	3.52 ± 0.37	0.000*
Sonohesterio-salpinogram:			
Seen	28 (59.6%)	--	
Not seen	19 (40.4%)	--	

* Statically significant difference

Table 3 shows that uterine volume was significantly higher in the studygroup (p=0.005)

Also uterine artery diameter was significantly higher in the control group (p=0.000)

On sonohysterosalpingram the fluid seen in DP in 28 cases (59.6%).

Table (4): Comparison between study and controlled groups regarding color and pulsed Doppler results after 3 months:

	Study (n= 47)	Control (n= 50)	P-value
	Mean ± SD	Mean ± SD	
Right:			
PI	1.69 ± 1.12	2.54 ± 1.00	0.000*
RI	0.76 ± 0.17	0.84 ± 0.20	0.053
PSV	19.33 ± 11.02	31.59 ± 9.88	0.000*
EDV	5.95 ± 2.94	6.34 ± 2.15	0.462
TAMXV	8.12 ± 6.31	5.32 ± 1.66	0.003*
Left:			
PI	1.64 ± 0.70	2.69 ± 0.87	0.000*
RI	0.78 ± 0.23	0.83 ± 0.24	0.283
PSV	19.73 ± 10.53	32.01 ± 10.48	0.000*
EDV	6.94 ± 5.87	6.04 ± 4.59	0.416
TAMXV	8.67 ± 6.46	5.03 ± 2.33	0.000*

Statistically significant.PI: pulatility index.

RI: resistant index.

PSV: peak systolic velocity.EDV: end diastolic velocity

TMAX: Timed maximum velocity.

The results of Doppler evaluation of uterine arteries at the first follow up visit were presented in (Table 4).

PI was significantly lower in both right and left sides in the study group while PSV was significantly higher in the control group

No difference in RI between both groups on both sides.

As regard to color and pulsed Doppler of studied groups(after 3 month) and

control groups we found significant P value in PI,PSV and TAMXV in both right and left sides.

Table (5): Menstrual and lacational history of the study group after 6months

	No. (18)	%
Menstrual pattern:		
Amenorrhea	11	61.1
Regular	4	22.2
Irregular	3	16.7
Lactational status:		
Yes	17	94.4
No	1	5.6
Contraceptive use:		
Yes	9	50.0
No	9	50.0

At 6 months amenorrhea was in 11cases (61,1 %) and regular menstruation in 4 cases (22,2) and irregular in 3 cases (16,7 %) and 17 who were lactating (94,4 %) and 9 cases (50 %)who used contraception. (Table 5)

Table (6): two dimensional transvaginal ultrasound of the study group after 3 months and after 6 months

	After 3 months (n= 47)	After 6 months (n= 47)	P-value

	Mean $\pm$ SD	Mean $\pm$ SD	
Uterine volume	56.41 $\pm$ 20.21	47.33 $\pm$ 13.54	0.457
Right ovarian volume(cm3)	4.48 $\pm$ 3.31	2.91 $\pm$ 0.93	0.170
Left ovarian volume(cm3)	4.11 $\pm$ 2.49	3.10 $\pm$ 1.16	0.328
Endometrial thickness(mm)	3.61 $\pm$ 1.36	4.23 $\pm$ 1.31	0.191
Uterine artery diameter (Right)(mm)	2.91 $\pm$ 0.70	2.67 $\pm$ 0.54	1.000
Uterine artery diameter (Left)(mm)	3.05 $\pm$ 0.70	2.96 $\pm$ 0.45	0.741

No difference in uterine volume, ovarian volume, endometrial thickness and uterine artery diameter in the study group at 3 and 6 months follow up (Table 7).

Table (7): Comparison between color and pulsed Doppler of the study group after 3 months and after 6 months

	After 3 months (n= 47)	After 6 months (n= 47)	P-value
	Mean $\pm$ SD	Mean $\pm$ SD	
Right:			
PI	1.69 $\pm$ 1.12	2.61 $\pm$ 1.32	0.303
RI	0.76 $\pm$ 0.17	0.82 $\pm$ 0.16	0.381
PSV	19.33 $\pm$ 11.02	16.65 $\pm$ 7.71	0.587
EDV	5.95 $\pm$ 2.94	6.28 $\pm$ 4.11	0.987
TAMXV	8.12 $\pm$ 6.31	3.54 $\pm$ 2.54	0.025*
Left:			
PI	1.64 $\pm$ 0.70	2.32 $\pm$ 1.10	0.117

RI	0.78 ± 0.23	0.96 ± 0.90	0.530
PSV	19.73 ± 10.53	16.61 ± 9.81	0.819
EDV	6.94 ± 5.87	5.66 ± 3.50	0.911
TAMXV	8.67 ± 6.46	4.07 ± 2.83	0.011*

Statistically significant

PI: pulatility index - **RI:** resistant index - **PSV:** peak systolic velocity - **EDV:** end diastolic velocity -

TMAXV: Timed maximum velocity

On 3 months visit 45 out of 47 were followed up and we found 5 cases of unilateral no blood flow and 1 case with bilateral blood flow. And when we compared color and pulsed Doppler in the studied group after 3 and 6 months TAMXV was only of significant P value.

We found 1 case of persistent bilateral absence of blood flow and 1 case of persistent unilateral no flow, 1 case of bilateral blood flow after unilateral absence at 3 months, 1 case of bilateral blood flow after its absence bilaterally and 2 cases of unilateral no flow after it was detected on 3 months visit. (Table 7).

Table (8): Comparison of color and pulsed Doppler results of the study group after 3 months according to the surgical technique used

	Surgical technique used			P-value
	Uterine artery Ligation	Compression sutures	Both	
	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD	
Right:				
PI	1.35 ± 0.71	1.97 ± 0.82	1.60 ± 1.32	0.495
RI	0.77 ± 0.09	0.82 ± 0.13	0.73 ± 0.20	0.306
PSV	24.25 ± 19.76	21.12 ± 9.64	17.26 ± 9.35	0.350
EDV	5.80 ± 2.55	5.75 ± 3.25	6.09 ± 2.95	0.942
TAMXV	8.83 ± 5.05	7.77 ± 6.38	8.17 ± 6.74	0.951
Left:				
PI	1.74 ± 0.78	1.98 ± 0.63	1.40 ± 0.66	0.058
RI	0.87 ± 0.12	0.81 ± 0.22	0.73 ± 0.25	0.349
PSV	18.03 ± 13.50	22.55 ± 12.01	18.46 ± 8.74	0.509
EDV	4.70 ± 2.95	8.96 ± 9.34	6.33 ± 2.84	0.273
TAMXV	8.15 ± 5.93	8.84 ± 7.36	8.70 ± 6.33	0.977

PI: pulatility index - RI: resistant index - PSV: peak systolic velocity - EDV: end diastolic velocity -

TMAXV: Timed maximum velocity

No difference in all Doppler indices in the study group between women subjected to different surgical techniques, (Table 8)

In the present work the effect of conservative surgical techniques on Uterine cavity and Doppler blood flow in urine arteries studies were studied.

The study began with 90 cases and after taking in the consideration the Inclusion and exclusion criterion 47 women followed up with US after 3 Months of operation from who 2 got pregnant. 23 women continued follow-up from which 5 cases got pregnant. 18 cases continued the follow up at 6 months. This cases were compared them by control group of 50 women who had C.S operation for any cause and without any intraoperative hemorrhage or any additional surgical techniques performed during C.S. Doppler and US Findings were compared.

For this study 47 cases were recruited. Seven cases were managed by uterine artery ligation, fourteen cases by compression sutures and twenty six artery ligation, fourteen cases by compression sutures and twenty six cases by combined techniques .Doppler was performed at 3 & 6 month and office hystercopy at 3months.The occurrence of placenta accrete has augmented over the past century from 1/7000 to 1/2500 deliveries due to extensive cesarean deliveries Notably, every previous cesarean birth increases the risk of both, placenta previa and PA, respectively. Conventionally, the option of treatment for aggressive placentation has been associated with hysterectomy because of the potentially high risk of postpartum hemorrhage. (**Creanga** et al., 2016)

Comparison between our work and previous results:

One case of persistent bilateral absence of blood flow and one case of Persistent unilateral no flow was found. One case of bilateral blood flow after unilateral absence at 3 months was found. One case of bilateral blood flow after its absence bilaterally was found. 2 case of unilateral no flow after it was detected on 3 months visit was found.

Two out of forty seven cases during the follow up got pregnant after 3 Months postpartum. After 6 months postpartum five women got pregnant.

Three of the seven cases we could follow up by telephone and they got Delivered at GA of 38 w by elective C.S with no recurrence of placenta previa or accrete and no post-operative complications and for luck one of Those we followed up at 3month and we found moderate adhesions in office Hysteroscopy and followed her by telephone by asking on her menstrual Pattern which was irregular at first for 2months and regulated by hormonal Treatment after which she got pregnant and was followed up for recurrence of Placenta previa or accrete but her placenta was normal situated and Underwent an elective C.S at 38 weeks with no postoperative

or intraoperative Complications. And she was the only case in whom the office hysteroscopy was significant.

Management of Placenta Accreta:

The only recommended management of placenta accreta is planned Cesarean hysterectomy with the placenta left in situ because removal of the Placenta is associated with significant hemorrhagic morbidity. However, this Approach might not be considered first-line treatment for women who have a Strong desire for future fertility.

Uterine Sparing Approaches in management of placenta accrete. These are techniques developed to preserve uterus and future fertility which is crucially linked to societal status and self-esteem: Conservative method require aggressive antibiotic therapy to combat Infection and many adjuvant approaches to minimize bleeding like oxytocin,

Compression sutures or intervention radiology methods like embolization. **Gauthier** Rathat et al presented a study of 37 women who went Uterine compression sutures for postpartum hg with 13 postoperative Assessments by hysteroscopy synchia was reported in 7 patients of whom 3 Had asherman syndrome (23% of women who desired pregnancy and had hysteroscopic evaluation that could not be corrected).

Bowman et al., Suggest that uterine compression sutures exposed Patients to the risks of subsequent abnormalities of the uterine cavity and Development of uterine synchia it was hypothesized that vascular embolization And or ligation could lead to endometrial or myometrial damage and cause Placental dysfunction in subsequent pregnancies but in this systematic review Does not agree with that suggestion and almost all studies included had Uncomplicated full term deliveries after conservative management of PPH in A few studies that reported fetal growth restriction or preeclampsia and their Incidence did not exceed the respective incidence in the general population.

The literature also presented conflicting data evidence about the risks of abnormal placentation and recurrent PPH following fertility sparing Procedures for PPH although some reports said that there is increased risk of placenta previa or accrete following that maneuver.

Loic Sentilhes et al., 2010 studied the maternal out comes regarding Fertility to 131 women who had conservative management of placenta previa And this was a retrospective national multicenter study in French hospitals From 1993 through 2007 and data were retrieved from medical files and Telephone interviews and found 8 women who suffered amenorrhea and were amenorrhic and 24 women (21 3 third trimester deliveries .2 elective Abortion and 10 miscarriages, 1 ectopic with mean time to conceive 17.3 Months (range 2-48 months). All 21 deliveries had result in healthy babies Born after 34 weeks of pregnancy placenta accrete returned in 6 out 21 cases And was associated with placenta previa in 4 cases postpartum hemorrhage

Occurred in 4 cases related to placenta accrete in 3 and to uterine atony in one and it was concluded that conservative management for placenta previa does not appear to compromise patient's subfertility or obstetrical outcomes.

In a systemic review of English and non-English articles using the Cochrane library 2012 PubMed (1950- 2012), Embase (1980-2012) and the National research register and they extracted 28 out of 402 articles 17 studies (675 women) reported on fertility outcomes after uterine artery embolization, (**Doumouchissis** et al., 2010).

5 studies (195) women reported on fertility outcomes after uterine devascularization and 6 studies (125) reported on the fertility outcomes following uterine compression sutures, overall 553 out of 606 (91.25%). Resumed. Menstruation within 6 months of delivery 183 out of 235 (77.87%).

Women who desired another pregnancy achieved conception and it was concluded that uterine sparing radiological and surgical techniques for Management of severe PPH do not appear to adverse effects on menstrual and Fertility outcomes but the number and the quality of available evidence is of Concern.

Salmon et al., hypothesized that high frequency of abnormal placental Insertion could result from endometrial damage caused by embolization Which is in turn leads to abnormal trophoblastic invasion during the Subsequent pregnancy but the number of studies was too small to draw any Definite conclusions. Salvatore et al., had found in a systematic review that Compression sutures and vessel embolization may be lifesaving procedure by Achieving the best hemostatic efficacy and data on restoration of menses and pregnancy rates after these procedures are limited short term follow up and Paucity of studies especially for vascular ligation.

Mark Alanis et al., had done a case report and found that arterial Embolization Is effective for treating placenta increta in women who wished To preserve fertility.

A review of literature demonstrates a 76.9 % success rate and 11% complication rate. Marie Aimee et al., had found that arterial Embolization doesn't adversely affect menstrual cycle, fertility and subsequent Pregnancies but may affect placentation and fertility rate reaches about 70-8%.

French university hospitals, 40 (88.9%) agreed to participate in the Study, and 25 had used conservative treatment at least once (range 1–46), Treating 167 women. Of the 131 women who had successful conservative Management of placenta accreta and were included in the study, 96 (73.3%).

Women were successfully contacted at follow-up (range, 2–172 months) Follow-up information about the subsequent outcome of the placenta was Available for 88 of these 96 (91.7%) women. In 75 (85.2%) cases, spontaneous placental resorption occurred, while hysteroscopy resection or Curettage or both were used to remove

the retained placenta in 13 cases (14.8%). (**Sentilhes et al., 2010**) Of the 96 women successfully contacted at follow-up, 88 had resumed menstruation. Severe intrauterine synechiae (stage III) were identified during Ambulatory hysteroscopy in the eight women with amenorrhea. One of these Eight women declined further treatment; hysteroscopy treatment of the synechiae was successful for six of the seven. Twelve other women, five Complaining of decreased menstrual flow, and seven for routine reasons, also Underwent outpatient hysteroscopy, which was normal in all cases. Nine non-Amenorrhea women had voluntarily undergone ligation of fallopian tubes, so That only 85 (89.5%) women in this study remained fertile. (**Sentilhes et al., 2010**).

There was a systematic review for evaluating failure rates and success Rates (subsequent menstruation and pregnancy following radiological and or Conservative surgical interventions for MAP the cumulative out comes Showed success rates of 159/177 for arterial embolization and secondary Hysterectomy in 20/177 a subsequent menstruation in in 7485 and subsequent Pregnancy in 3/10.uterus preserving surgery showed a success rate of 48/76 And subsequent pregnancy in 21/27 so these measures may be effective in Managing placenta previa and or accrete. (**Sentilhes et al., 2010**)

No previous studies on the Doppler finding after conservative Management of placenta previa or accreta all results mentioned or studied Fertility out come by history and by telephone follow up about fertility or Menstrual pattern but without what we did in our study.

Limitation and strength points:

Our present study may not satisfy with the revascularization Assumption and that after ligation the occluded vessel undergoes Recanalization and redistribution of its blood flow perhaps ligation level or Bilateral occlusion or anatomical variation or use of hormonal contraception As 3 out of 6 of women with those findings used hormonal contraception (one Used DMPA and the other 2 used COCS).may be if longer follow up could Reveal that conflict and leads us to more results. No previous studies on the Doppler finding after conservative management of placenta previa or accreta all results mentioned or studied fertility out come by history and by Telephone follow up about fertility or menstrual pattern but without what we Did in our study.

In the present study we found that different conservative surgical Techniques used for management of placenta previa has no future effect on the uterine blood flow or uterine cavity, so the menstrual and fertility status Are not affected by different techniques.

4. Conclusions

In conclusion doing uterine artery ligation or compression sutures Or doing both of them for management of post-partum hemorrhage seems Not affecting fertility parameters in form of uterine cavity abnormalities Or Doppler changes in the uterine blood flow

References

1. Bowman ZS, Eller AG, Bardsley TR, Greene T, Varner MW, Silver RM. Risk factors for placenta accreta: a large prospective cohort. *Am J Perinatol*. 2014;31(09):799-80.
2. Creanga A, Bateman B, Butwick A, et al. Morbidity associated with cesarean delivery in the United States: is placenta accreta an increasingly important contributor? *Obstet Anesth Digest*. 2016;36(3):138.
3. Doumouchtsis SK, Papageorghiou AT, Arulkumaran S. Systematic review of conservative management of postpartum hemorrhage what to do when medical treatment fails. *Obstet Gynecol Surv*. 7- 62:540,2007.
4. Goucher H, Wong CA, Patel SK, Toledo P. Cell salvage in obstetrics. *Anesth Analg* 2015;121:465–8.
5. Marie.Aimee paivisero et .al;short,longterm adverse outcomes after arterial embolization for the treatment of postpartum Hg .a systemic reviewer Radial,2017.
6. Manscri_Letcrs\Doppler in Ob Gyn Principles and Practice.doc Rev1.02- 2005 Casper, R. F., & Mitwally, M. F. (2011).
7. RCOG Green-top Guideline No. 126e40 of e48^a2018 Royal College of Obstetricians and Gynecologists Dasari, P., & Pranahita, G. K. (2009).
8. Salvatore Gizzo,MD,Titosivio Patrelli,MD,StefaniaDiGangi ,MD,Mouiva Cairozozini,MD,Carlo Saccard.,MD,PHD,Alssandra Zamban,MD,Anna Berrocco,Md,and Givoanni Battista Nardelli,MD,January 2013,Reproductive sciences,20(9)Dol:10.1177/1933719112468951.
9. Salomon LJ, de Tayrac R, Castaigne-Meary V, Audibert F, Musset D Ciorascu R, et al. Fertility and pregnancy outcome following pelvic arterial embolization for severe post-partum haemorrhage: a cohort study.*Hum Reprod* 2003;18:849 –52.
10. Sentilhes L, Gromez A, Clavier E, Resch B, Verspyck E, MarpeauL Fertility and pregnancy following pelvic arterial embolization forpostpartum haemorrhage.*BJOG*2010;117:84–9.
11. Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2022). Post-pandemic health and its sustainability: Educational situation. *International Journal of Health Sciences*, 6(1), i-v. <https://doi.org/10.53730/ijhs.v6n1.5949>