

Evaluating Role of Hysteroscopy in Removal of Retained Products of Conception

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Received on: 14 July 2024; Accepted on: 05 November 2024; Published on: 12 February 2025

ABSTRACT

Background: Retained products of conception (RPOC) is an intrauterine tissue that has developed during conception and is still persisting after miscarriage, medical, or surgical termination of pregnancy and vaginal or cesarean delivery. Retained products of conception is one of the most common causes of postpartum bleeding.

Materials and methods: It is a prospective comparative study conducted in the Department of Obstetrics and Gynaecology at Mahatma Gandhi Mission's Hospital, Kalamboli, over a span of 2 years in 60 pregnant women who were diagnosed by ultrasound to have RPOC >3 cm. A total of 60 cases were included in the study. Cases were randomly recruited and randomized into two groups of hysteroscopy group and Dilatation and evacuation (D&E) group. In this study, we have observed the patients for complications such as postoperative pain in abdomen was assessed using visual analog scale, vaginal bleeding was assessed by visual estimation, fever, injury to cervix, perforation of uterus, and ultrasonography evidence of no RPOC.

Results: In our study, hysteroscopic removal has better safety and efficacy when compared with standard D&E procedure.

Conclusion: The study shows that hysteroscopic removal of RPOC is more effective and safer procedure compared with blind D&E. We recommend that it may be used as first line of treatment for RPOC.

Keywords: Hysteroscopy, Retained products of conception, Ultrasonography.

Journal of Obstetric and Gynaecological Practices POGS (2025): 10.5005/jogyp-11012-0046

INTRODUCTION

Retained products of conception (RPOC) is an intrauterine tissue that has developed during conception and is still persisting after miscarriage, medical or surgical termination of pregnancy, and vaginal or cesarean delivery.¹ Retained products of conception is one of the most common causes of postpartum bleeding. However, the clinical presentation can be that of abdominal pain, vaginal bleeding, fever, or late complications including intrauterine adhesions (IUA) and infertility. The incidence is related to the gestational age of the pregnancy, most commonly after second-trimester delivery or termination of pregnancy. Retained products of conception is seen in about 1% of term pregnancies.² Long-term complications including the formation of IUAs result in adverse reproductive outcomes, such as subfertility, chronic pelvic pain, menstrual disturbances, and severe pregnancy complications such as abnormal placentation including the placenta accrete spectrum.³ Sometimes retained placenta or placental products can lead to severe hemorrhage, infection, or even death. A retained placenta is commonly seen after preterm vaginal delivery and in cases of placenta accreta.^{1,4} Dilatation and evacuation (D&E) is a standard procedure for the removal of RPOC which is generally used worldwide. Steps included in this procedure are dilatation of the cervix and evacuation of tissues present in the uterine cavity such as RPOC.⁵ This procedure occurs under short general anesthesia as it can be painful. The complications of this procedure are a pain in the abdomen, bleeding per vagina, perforation of the uterus, cervical injury, and fever. As the patient can do day-to-day activity after 4 hours of operation, hence the patient can be discharged the same day if no complications present. Dilatation and evacuation procedure can also be used for medical termination of pregnancy of first-trimester pregnancy. Hysteroscope is an endoluminal endoscope that can be used as an aid to visualize

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How to cite this article: Birle V, Joshi S, Nagare S, *et al.* Evaluating Role of Hysteroscopy in Removal of Retained Products of Conception. *J Obstet Gynaecol Pract POGS* 2025;3(1):22–25.

Source of support: Nil

Conflict of interest: None

inside the uterine cavity and perform a variety of intrauterine procedures under direct vision. It is a newer procedure which most commonly used in diagnostic as well as therapeutic procedure.⁶ To visualize the uterine cavity, a gas or liquid is introduced through the hysteroscopic sheath to create pressure and to visualize the uterine cavity better.⁴ Complications are rarely seen but can cause perforation of the uterus and it can very rarely cause embolism if the introduction of cavity is done by CO₂ gas, hence it not used nowadays as it can cause mortal complications.⁶

Aims and Objectives

- To compare hysteroscopic removal of RPOC (Retained products of conception with D&E (dilatation and evacuation) in terms of safety and efficacy of the procedure.
- To assess if hysteroscopic removal of RPOC is a safe procedure.
- To compare the efficacy of hysteroscopic removal of RPOC with standard D&E.

Table 1: Showing comparison between D&E and hysteroscopy procedure in statistical analysis by using mean and standard deviation for the age of the patients

Age	D&E		Hysteroscopy	
	Mean	Standard deviation	Mean	Standard deviation
Age	26.73	4.18	26.97	4.32

Table 2: Showing comparison between D&E and hysteroscopy procedure in statistical analysis by using mean and standard deviation for parity of the patients

Parity of patients	D&E		Hysteroscopy	
	Count	Column N%	Count	Column N%
Primigravida	8	26.7%	6	20.0%
Multiparity	22	73.3%	24	80.0%

MATERIALS AND METHODS

It is a prospective comparative study conducted in the obstetrics and gynecology department at Mahatma Gandhi Mission's Hospital, Kalamoli, over a span of 2 years in 60 pregnant women who were diagnosed by ultrasound to have RPOC >3 cm.

Inclusion Criteria

- All patients with RPOC > 3 cm in longest dimensions diagnosed by ultrasound.
- Patients willing to give consent for the procedure and follow-up at the hospital for 6 weeks were included in the study.

Exclusion Criteria

- Patients not willing to give consent for the procedure and patients with RPOC smaller than 3 cm on ultrasonography were excluded from the study.

Methodology

A total of 60 cases were included in the study. Cases were randomly recruited and randomized into two groups of hysteroscopy group and D&E group (Table 1).

In both the procedures used in this study, patients were shifted to the operation theater after giving preoperative medication, which was same in both the comparative procedures. Patients of both groups were induced with short general anesthesia through total intravenous anesthesia. In our study, during the D&E procedure, the cervix was dilated serially using Hegar dilator followed by the use of a curette to remove RPOC from the uterine cavity (Table 2).

In the case of hysteroscopy, the cervix was dilated the same as in cases of D&E followed by the introduction of hysteroscope in the uterine cavity. In our study, normal saline was used for insufflation, and pressure inflated for insufflation via distention media. In this study, we used a pressure cuff and pressure meter handled manually, 300 mm Hg pressure was maintained. A maximum 2500 mL fluid was used. After direct visualization of RPOC using the scope, grasper was introduced and RPOC was removed under direct visualization (Table 3).

In this study, we observed the patients for complications such as postoperative pain in the abdomen was assessed using the visual analog scale, vaginal bleeding was assessed by visual estimation, fever, injury to the cervix, perforation of uterus, and ultrasonography evidence of no RPOC (Table 4).

Table 3: Showing *p*-value for the Chi-square for comparison between D&E and hysteroscopy procedure in primigravida and multiparity patient

T-test	value
Chi-square	0.373
Df	1
<i>p</i> -value	0.542

Table 4: This table presents different criteria such as pain in the abdomen, bleeding for the number of days, and visual estimation for blood loss and is compared between D&E and hysteroscopy by mean and standard deviation

Assessment of patient symptoms	D&E		Hysteroscopy	
	Mean	Standard deviation	Mean	Standard deviation
Pain in the abdomen by visual scale	1.93	0.25	1.53	0.51
Bleeding for a number of days	1.80	0.66	1.13	0.35
Visual estimation for blood loss	1.37	0.49	1.00	0.00

Ethical Clearance

A clearance certificate from the institutional ethics committee was obtained.

RESULTS

Interpretation: As *p*-value for the Chi-square is greater than that of 0.05 indicates that the proportion of primigravida and multigravida are almost the same in both the groups

COMPARISON

Descriptive Statistics

Interpretation

- The *p*-value for Mann-Whitney *U* test is less than that of 0.05 in the case of pain in the abdomen by visual scale and the average score of pain in D&E is 1.93 and hysteroscopy is 1.53 indicating that the average score of hysteroscopy is significantly less than that of D&E when compared.
- The *p*-value for Mann-Whitney *U* test is less than that of 0.05 in the case of bleeding for the number of days and the average number of days in D&E is 1.80 and hysteroscopy is 1.13 indicating that the average number of days in hysteroscopy is significantly less than that of D&E when compared (Table 5).
- The *p*-value for Mann-Whitney *U* test is less than that of 0.05 in the case of visual estimation for blood loss and the average score of visual estimation for blood loss in D&E is 1.37 and hysteroscopy is 1.00 indicating that the visual estimation for blood loss in hysteroscopy is significantly less than that of D&E when compared (Table 6).

Only one case in D&E is reported with perforation of the uterus all others that are 29 in D&E and 30 cases in hysteroscopy reported no perforation of the uterus (Table 7).

Chi-square Test Result

The *p*-value for the Chi-square is greater than that of 0.05 indicates no significant association between groups (D&E or Hysteroscopy)

Table 5: It depicts different *p*-values for different criteria by Mann-Whitney test

Test	Pain in abdomen by visual scale	Bleeding for number of days	Visual estimation for blood loss
Mann-Whitney U test	270.000	191.000	285.000
Wilcoxon W	735.000	656.000	750.000
Z	-3.474	-4.435	-3.639
<i>p</i> -value	0.001	0.000	0.000

Table 6: It presents the comparison for three different criteria fever, perforation of the uterus, and injury to the cervix in D&E and hysteroscopy

Complications of procedure	D&E		Hysteroscopy	
	Count	Column N %	Count	Column N %
Fever				
No	30	100.0%	30	100.0%
Perforation of uterus				
No	29	96.7%	30	100.0%
Yes	1	3.3%	0	0.0%
Injury of cervix				
No	30	100.0%	30	100.0%

Table 7: Table presenting comparison for postoperative remnant of RPOC in D&E and hysteroscopy

Postoperative USG suggestive of RPOC	D&E		Hysteroscopy	
	Count	Column N %	Count	Column N %
No RPOC	26	86.7%	30	100.0%
USG suggestive of RPOC	4	13.3%	0	0.0%

and perforation uterus. From the table, we can observe that only one case in D&E is reported to have perforation of the uterus, all others, that is, 29 in D&E and 30 cases in hysteroscopy are reported to have no perforation of the uterus (Table 8).

Interpretation

- the *p*-value for Chi-square is less than that of 0.05 indicates that there is significance of association between USG suggestive of RPOC and D&E while in hysteroscopy it is more than 0.05 indicates that the chances of persistence of RPOC in Hysteroscopy is significantly less than that of D&E when compared.

DISCUSSION

Retained product of conception is a postpartum complication which generally presents with post-aborted/postpartum hemorrhage and pain in the abdomen. The incidence of RPOC is 1% in the third-trimester deliveries.²⁻⁶ In some studies, it has been shown that the incidence of RPOC after first-trimester abortion is 40%, second-trimester abortion is 17%, and third-trimester delivery is 2.7%.^{7,8}

Retained product of conception is associated with risk factors, such as placenta accrete, history of retained placenta in a previous pregnancy, advanced maternal age, assisted delivery, abortion in the second trimester of pregnancy, prolonged labor,

Table 8: Table depicts *p*-valuation for the postoperative remnant of RPOC in D&E procedure

<i>p</i> valuation	Value
Chi-square	4.286
Df	1
<i>p</i> -value	0.038

prolonged use of oxytocin, post-C-section, placental abruption, succenturiate lobes, bilobed placenta, scarred uterus following gynecological uterine surgeries and in patients with mullerian uterine anomalies.⁹

In our study we have evaluated the safety and efficacy of hysteroscopic removal as compared with the standard procedure, that is, dilatation and curettage.

In our study, we have observed seven most common postoperative complications in group A patients which were patients that underwent D&E.

In our study, for group A complications are postoperative bleeding which is 0.6% as in other study it has shown around 0–2.4%¹⁰ In our study, injury to the cervix has shown in 0% of the patient, as in other study, it is 0–1.0%.¹⁰ In our study, uterine perforation is seen in one patient out of the 30 patients that underwent dilatation and evacuation (D&E), which comes to 3% of the population while in a study of 2,000 patients, it was reported to be around 0–0.4%.¹⁰

In this study, there were no patients with fever or infection postoperatively for both groups. However, studies conducted elsewhere have shown that infection/fever complication is 0.6–2.5%.¹⁰

In Forna F and Gülmezoglu’s study in 2001, and assessed in 2021, it was suggested that pain is more in D&E when curettage is done, and similar results were observed in our study that postoperative was slightly more in D&E patients when compared with hysteroscopic removal of RPOC.¹¹

In our study, USG was done on all patients on postoperative day 7. Out of 30 patients, four patients had persistent RPOC in group A postoperatively. One such study conducted on persistent RPOC post-evacuation showed the presenting complaint to be postoperative bleeding and was associated with preoperative diagnosis of adherent placenta, placenta accreta, and in some cases, missed abortion.¹²

In our study, group B patients have undergone hysteroscopy accompanied by evacuation with the help of grasper. In some studies, operative hysteroscopy to the uterine wall was associated with excessive bleeding, monopolar electrosurgery was used to provide hemostasis to allow for complete evacuation of the uterine cavity. However, in our study, electrocautery was not used.¹³

In group B patients, postoperative complications were that of mild pain in the abdomen and bleeding in a milder form. None of the patients had a fever, uterine perforation, cervical injury, or RPOC persistent after evacuation seen on USG. In some studies, overall complications was observed following hysteroscopic removal of RPOC.¹⁴

In another study, it has shown that in hysteroscopic evacuation followed by embolism, especially where CO₂ is used for insufflation but in our study, we used normal saline as insufflation media, and not a single case was reported to have embolic complication.¹⁵

When one compares postoperative complications, from the above study, hysteroscopy shows better results than D&E. Hence,



hysteroscopy has better safety than D&E. Similarly efficacy of hysteroscopic procedure showed comparatively better results than D&E as postoperative USG was suggestive of RPOC more commonly in cases who underwent D&E.

CONCLUSION

This study shows that hysteroscopic removal of RPOC is a more effective and safer procedure compared with blind D&E. We recommend that it may be used as the first line of treatment for RPOC.

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