

Diagnostic Accuracy of Ultrasound for Retained Products of Conception after First Trimester Miscarriage: A Retrospective Cohort Study



Background: First trimester miscarriages are common with an incidence of up to 31% of all pregnancies.¹ It is also estimated that up to 17% of first trimester miscarriages are further complicated by retained products of conception (RPOC) with risks of bleeding and infection.² Diagnosis is based on clinical symptoms and transvaginal ultrasound findings, however there is a lack of consensus regarding ultrasound diagnostic criteria.

Objective: This study aims to determine the diagnostic accuracy of transvaginal ultrasound in detecting RPOC after first trimester miscarriage and to determine a cut-off for endometrial thickness for diagnosis of RPOC. The secondary aims are to assess the demographic factors affecting RPOC, and to determine the rates of expectant, medical and surgical management of first trimester miscarriage which are complicated by RPOC.

Design & Method: The study was an observational retrospective cohort study which was performed across Liverpool Hospital and Campbelltown Hospital via the review of electronic and paper medical records of patients who presented with suspected RPOC following first trimester miscarriage between January 2020 and April 2021. Exclusion criteria were patients who did not undergo an ultrasound prior to management of RPOC. Statistical data analysis was performed.

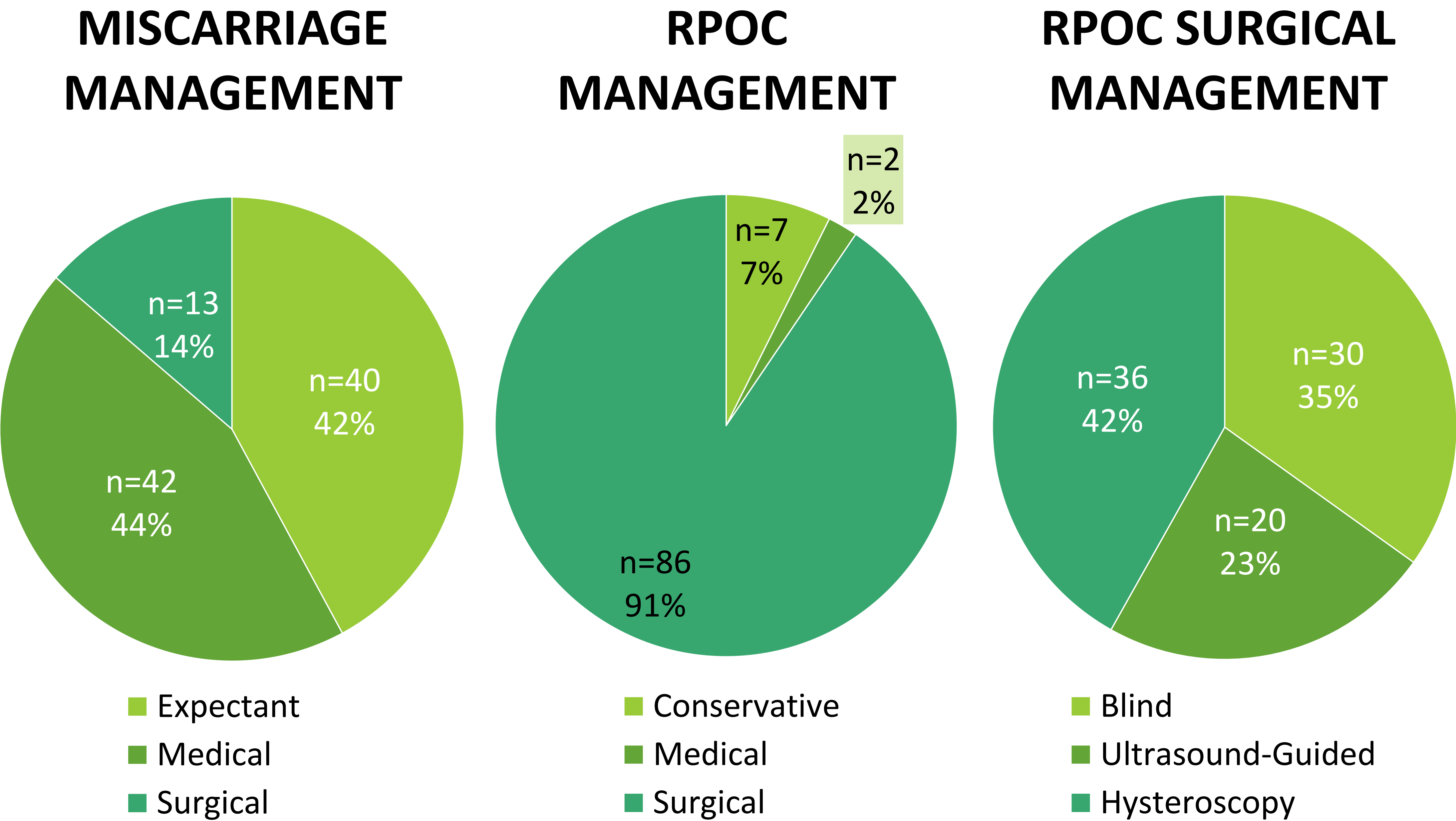
Results: 95 patients were identified. 90.53% (n=86) of cases were histopathologically confirmed RPOC and the remaining 9.47% (n=9) cases were histopathologically confirmed not to be RPOC. Gravidity >2 (84.3% vs 58.3%, p=0.047) and parity >1 (71.1% vs 25.0%, p=0.003) were associated with diagnosis of RPOC in RPOC versus non-RPOC groups, respectively. There were no statistically significant differences in patient age, patient BMI or gestational age between RPOC and non-RPOC groups. The most common presenting symptoms for patients with RPOC were vaginal bleeding (65.1%), abdominal pain (25.3%), vaginal spotting (18.1%), and vaginal discharge (3.6%), however there were no statistically significant differences in presenting symptoms between RPOC and non-RPOC groups. Endometrial thickness (ET) was found to be >10mm in all cases of confirmed RPOC, however there was no statistically significant difference in endometrial thickness between RPOC and non-RPOC groups at the cut-offs of >10mm, >15mm and >20mm. Vascularity was also not associated with a diagnosis of RPOC. 42.1% (n=40) of patients initially underwent expectant management for first trimester miscarriage, 44.2% (n=42) underwent medical management with misoprostol, and 13.7% (n=13) underwent surgical management with a dilatation of the cervix and curettage of the uterus (D&C). For the treatment of RPOC, 90.53% (n=86) of patients were managed surgically, 2.11% (n=2) were managed medically, and 7.37% (n=7) were managed conservatively. Of the patients who were surgically managed, 34.88% (n=30) underwent a blind D&C, 23.26% (n=20) underwent an ultrasound-guided D&C, and 41.86% (n=36) underwent a hysteroscopy D&C. Limitations of the study include small sample size of the non-RPOC group.

Conclusions: The most common presenting symptom for patients with RPOC following first trimester miscarriage was vaginal bleeding. Gravidity >2 and parity >1 were associated with a diagnosis of RPOC. RPOC are more common in first trimester miscarriages that have been expectantly and medically managed. Transvaginal ultrasound findings should be interpreted in the context of clinical symptoms to determine further management of suspected RPOC.

References

- 1 Incidence of early loss of pregnancy. The New England Journal of Medicine.
- 2 Occurrence and outcome of residual trophoblastic tissue: a prospective study. Journal of Ultrasound in Medicine.

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TRANSVAGINAL ULTRASOUND FINDINGS					
Findings	Sensitivity % (95% CI)	Specificity % (95% CI)	PPV % (95% CI)	NPV % (95% CI)	AUC under ROC curve (95 % CI)
Vascularity	83.1 (73.7-89.7)	16.7 (3.0-44.8)	87.3 (78.2-93.0)	12.5 (2.2-36.0)	0.490 (0.32-0.67)
ET >10 mm	85.5 (76.4-91.5)	0.0 (0.0-0.24)	85.5 (76.4-91.5)	0.0 (0.0-24.3)	0.531 (0.357-0.704)
ET >15 mm	60.2 (49.5-70.0)	33.3 (13.8-60.9)	86.2 (75.1-92.8)	10.8 (4.3-24.7)	0.515 (0.320-0.710)
ET >20 mm	33.7 (24.5-44.4)	50.0 (25.4-74.6)	82.4 (66.5-91.7)	9.8 (4.6-19.8)	0.708 (0.469-0.948)