

Saline Hysteroscopy for Removal of Retained Intrauterine Contraceptive Devices in Early Pregnancy

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Abstract

Objective: Pregnancies complicated by a retained intrauterine device (IUD) are at increased risk for adverse outcomes such as miscarriage and preterm labour. There is limited evidence to guide the management of retained IUDs in pregnancy when the strings are not visible at the external cervical os. We describe a method for IUD retrieval in such cases.

Methods: Twenty-six patients underwent saline hysteroscopy with or without concurrent ultrasound guidance for retrieval of a retained IUD in early pregnancy between 2002 and 2015. We retrospectively evaluated procedural and pregnancy-related outcomes in this case series.

Results: The average gestational age at the time of the procedure was 11+0 weeks. Successful IUD retrieval occurred in 22 of 26 cases (84.6%). There were 23 live births, including 20 full term and three preterm deliveries. The average gestational age at delivery was 38+4 weeks. There was one miscarriage and one elective termination of pregnancy following the procedure. There were no complications directly related to the procedure.

Conclusion: Saline hysteroscopy is a safe and effective method for retrieval of a retained IUD in early pregnancy. It appears that concurrent ultrasound guidance can facilitate IUD localization, but more cases are needed to confirm this. Pregnancy outcomes after IUD retrieval were favourable, with a low rate of miscarriage and preterm labour.

Résumé

Objectif : Les grossesses compliquées par la rétention d'un dispositif intra-utérin (DIU) présentent un risque supérieur d'issue négative comme une fausse couche ou un travail préterme. On dispose toutefois de peu de données probantes pouvant guider la prise en charge de cette situation lorsque les fils ne sont pas visibles à l'orifice externe du col. Nous décrivons ici une méthode pour récupérer le DIU.

Key Words: Intrauterine device, hysteroscopy, ultrasound guidance, removal, pregnancy, pregnancy outcomes

Competing Interests: None declared.

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Méthodologie : Vingt-six patientes en début de grossesse ont subi entre 2002 et 2015 une hystérocopie avec infusion saline, avec ou sans guidage échographique, visant à récupérer un DIU. Nous avons évalué rétrospectivement les issues liées à l'intervention et à la grossesse dans le cadre d'une étude de série de cas.

Résultats : L'âge gestationnel moyen au moment de l'intervention était de 11+0 semaines. La récupération du DIU a fonctionné dans 22 des 26 cas (84,6 %). Il y a eu 23 naissances vivantes, dont 20 bébés à terme et trois prématurés. L'âge gestationnel moyen à l'accouchement était de 38+4 semaines. Une fausse couche et une interruption volontaire de la grossesse sont survenues à la suite de l'intervention. Aucune complication n'a été associée directement à l'intervention.

Conclusion : L'hystérocopie avec infusion saline est une méthode sécuritaire et efficace pour récupérer un DIU en début de grossesse. Il semble que le guidage échographique puisse aider à repérer le DIU, mais l'utilité de cette manœuvre devra être confirmée par d'autres cas. Les issues de grossesse après la récupération d'un DIU étaient favorables : les taux de fausses couches et de travail préterme étaient faibles.

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INTRODUCTION

Use of an intrauterine device is one of the most common forms of contraception worldwide, and its prevalence has increased in recent years.^{1,2} It is also one of the most effective forms of contraception, with first year failure rates of 0.8% for the copper IUD and 0.2% for the levonorgestrel-releasing intrauterine system.³ Nonetheless, pregnancies with an IUD in place do occur, and it is prudent to understand the relevant risks and management options.

Women with a retained IUD are at increased risk of adverse pregnancy outcomes.⁴ As a result, in women with a desired pregnancy the World Health Organization recommends removal of the IUD at the earliest gestational age possible if the strings are visible at the external cervical os.⁵ Although

the quality of evidence is limited, cohort studies suggest that IUD removal will reduce miscarriage rates from 50% to 55% to approximately 17% to 20%,^{6–8} with a corresponding reduction in preterm delivery (PTD) rates from 17% to 23% to approximately 4% to 6% after IUD removal.^{6,7,9}

A dilemma arises, however, when the IUD strings are not visible or retrievable from the cervical canal. The literature on this subject contains only isolated case reports and small retrospective studies. Several variations of hysteroscopic or ultrasound-guided IUD removal techniques have been described,^{10–15} although only four case reports describe concurrent use of both ultrasound and saline hysteroscopy.^{15–18} No single technique has been deemed superior, and there are likely substantial differences in the availability of equipment and expertise at different centres that limit the generalizability of certain techniques.

Developing recommendations for the management of retained IUDs in pregnancy is challenged by limited data and variable clinical expertise. While the condition is encountered infrequently, more cases can be anticipated with the increasing use of IUDs for contraception¹⁹ and the approved use of the levonorgestrel-releasing intrauterine system for heavy menstrual bleeding.²⁰ We therefore examined a single practitioner's experience with an easily reproducible technique involving saline hysteroscopy, with or without ultrasound guidance, for IUD removal. We describe here the procedural and pregnancy-related outcomes of the procedures performed.

METHODS

Twenty-six women underwent saline hysteroscopy for removal of a retained IUD in pregnancy between 2002 and 2015. In all cases, ultrasound examination had shown an IUD within the uterine cavity adjacent to a viable pregnancy and the IUD strings were not visible or retrievable from the cervical canal. Although all of the pregnancies had been conceived inadvertently, they were all deemed desired pregnancies at the time of referral. One of us (B.H.S.) performed 25 of the cases at BC Women's Hospital in Vancouver, BC, and trained the gynaecologist who performed the twenty-sixth case at a peripheral hospital.

The primary outcome of interest was the safe removal of the IUD, confirmed by the absence of procedure-related complications of bleeding, rupture of membranes, and immediate pregnancy loss, defined as pregnancy loss within the 24 hours following the procedure. Secondary outcomes included the occurrence of chorioamnionitis, preterm premature rupture of membranes, fetal anomalies, and live birth, as well as gestational age at delivery.

At the initial consultation, the ultrasound findings were reviewed and a repeat vaginal speculum examination was performed to ensure that the IUD strings could not be visualized in the cervical os. Uterine packing forceps were used in an attempt to grasp IUD strings that may have retracted into the cervical canal, but this was unsuccessful in all cases at BC Women's Hospital. The patients were subsequently counselled on further treatment options. They were offered pregnancy continuation with the IUD in utero, attempting IUD removal hysteroscopically, or pregnancy termination with IUD removal. Patients were advised of the risks of leaving the IUD in utero (miscarriage [approximately 50%] and preterm delivery [approximately 20%]), and of attempting hysteroscopic IUD removal (bleeding, infection, uterine perforation and associated risk for adjacent organ/vessel injury, gestational sac rupture, pregnancy loss, and unsuccessful IUD removal). Any remaining questions were addressed and informed consent for hysteroscopic IUD removal, if desired, was obtained.

On the morning of the procedure, fetal viability was documented by ultrasound or Doppler assessment of fetal heart rate. Most cases were performed under general anaesthesia. All women received cefazolin 1 g intravenously 30 minutes preoperatively, and cervical preparation was carried out with povidone iodine solution. A single-toothed tenaculum was attached to the anterior lip of the cervix and a Wolf 5 mm operating hysteroscope (Richard Wolf Medical Instruments Corp., Vernon Hills, IL), with a 1.7 mm grasping forceps preloaded in the operative channel, was inserted into the cervical canal and advanced using direct vision into the uterine cavity. Warmed normal saline was allowed to drip slowly, without added pressure, through IV tubing attached to the hysteroscope sheath for dilatation of the cervical canal and distension of the uterine cavity. The saline infusion was stopped as soon as the uterine cavity was entered and visualization was adequate. If the IUD was seen to be located in the lower uterine cavity, it was removed with no further manipulation. When the IUD was not visualized below the gestational sac, slow infusion of saline was reinitiated to create a hydro-dissected channel to facilitate identification and removal of the IUD from the upper uterine cavity. Real-time transabdominal ultrasound guidance was used for the last eight cases and was requested intraoperatively during two earlier cases when the IUD could not be located hysteroscopically.

Fetal viability was reconfirmed by ultrasound or Doppler assessment immediately after the procedure. Patients who were RhD negative were given Rh immune globulin prior to discharge. Clinical and ultrasound follow-up with the

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