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Office hysteroscopy for removal of retained products of conception: can we predict treatment outcome?

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Summary

Purpose of investigation: To evaluate the safety and efficacy of office hysteroscopy in the management of retained product of conception (RPOC) and to identify those predictors for treatment success. *Study Design:* A retrospective cohort study that was conducted in tertiary university-affiliated medical center. One hundred and eight women with sonographic findings of RPOC, who underwent see-and-treat hysteroscopy, were included in this study. Demographic data, indication for treatment, and preoperative patient characteristics and ultrasound findings were evaluated as predictors for treatment outcome. *Results:* Office-hysteroscopy was well tolerated by most of the patients (96%), with an overall success rate of 65%. Causes of treatment failure were: actual RPOC size (assessed during see-and-treat hysteroscopy), bleeding, and pain. In univariate analysis, none of the examined factors was shown to predict complete removal of RPOC. Furthermore, RPOC size assessed by ultrasound was not shown to be valuable predictors for treatment outcome. *Conclusions:* The efficacy of office hysteroscopy for removal of RPOC is limited. Ultrasound measurement of RPOC size should not be used as a predictor for treatment outcome.

Key words: Hysteroscopy; Office hysteroscopy; Retained products of conception; See-and-treat hysteroscopy.

Introduction

Retained products of conception (RPOC) are a well-known complication after delivery (vaginal or cesarean), termination of pregnancy (medical or surgical) and miscarriage [1, 2]. Although the precise incidence of RPOC is unknown, evidence of suspected RPOC using color Doppler was identified in 6.3% of women following delivery or termination of pregnancy [3]. Clinical signs at presentation include abdominal pain, vaginal bleeding, fever, and intrauterine finding on ultrasound examination. However, the reliability of ultrasonographic imaging as a diagnostic tool of RPOC showed variable accuracy in different studies [1, 4-6].

Intrauterine adhesions formation is considered to be a serious complication of RPOC, which may result in infertility, recurrent pregnancy loss, and menstrual abnormalities [7]. Until recently, the management of RPOC has been dilatation and curettage (D&C). Hysteroscopic removal of RPOC was shown to be an alternative for D&C, allowing a more selective procedure with the advantage of reduced intrauterine adhesions and increase pregnancy rate [8, 9].

The development of small diameter operative hysteroscopes enabled surgeons to perform small operative procedures in an office-based setting. Moreover, the introduction of the vaginoscopic approach by Bettocchi *et al.* allowed abandoning the use of tenaculum and speculum and therefore avoiding the use of anesthesia and analgesia in this setting [10]. This technique allows evaluation, definitive diagnosis and treatment at a single office procedure (See-and-treat hysteroscopy). Furthermore, it was to shown to be feasible in a variety of medical conditions such as polypectomy, myomectomy, and adhesiolysis, with the advantage of cost saving, reduced operation time and a high degree of patient satisfaction [11, 12].

The aim of our study was to examine the safety and efficacy of office hysteroscopy in the management of RPOC and to evaluate clinical parameters that allow optimal patient selection and predict successful treatment.

Materials and Methods

The present authors conducted this retrospective cohort study at a tertiary, university-affiliated medical center. IRB approval was obtained from the local ethics committee. Medical records of all patients who underwent see-and-treat hysteroscopy for RPOC in the present department between 2011 and 2014 were reviewed.

Women after vaginal delivery, cesarean section or abortion (medical and surgical) with clinical and sonographic suspicion of RPOC were included in the study. All patients underwent outpatient hysteroscopy with a semi-rigid hysteroscope. Distension of the uterine cavity was achieved by a continuous infusion of saline solution. The present authors used the vaginoscopic approach in all the procedures, without using either tenaculum or speculum. Neither did they use analgesia nor anesthesia during the procedures. During the procedure, residual tissue was removed with hysteroscopic forceps. They defined treatment success in those cases where residual tissue was completely removed (either in one

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or more attempts), whereas procedures failure was defined as those cases where residual tissue could not be removed and therefore the patients were sent for hysteroscopy procedure under anesthesia in the authors' day-hospitalization unit.

For the purpose of the study, women who were successfully treated for RPOC by office hysteroscopy were compared with those women with treatment failure. The retrieved data included demographic data (age, parity, and gravidity), indication for treatment (index pregnancy), preoperative patient's complaint of vaginal bleeding, ultrasound finding (RPOC size in its greatest dimension and Doppler studies), and intra- and postoperative complications.

The statistical analysis was carried out using SAS version 9.2. The authors used univariate analysis to characterize the different variables with respect to both groups. Pearson chi-square and Fisher exact tests were used to compare categorical variables, while Two Sample T-test and Two Sample Wilcoxon test were used to compare continuous variables. Continuous variables were reported by means and standard deviations, while categorical variables were reported by their relative frequencies.

Results

During the study period, 870 office hysteroscopies were performed in the present unit. One hundred eight women after first trimester termination of pregnancy, spontaneous abortion or delivery, were referred with ultrasonographic finding of RPOC. In 71 cases (65.74%), complete removal of RPOC was feasible by office hysteroscopy. In six women, it was accomplished by a second office hysteroscopy. The mean RPOC size measured by ultrasound was 17.48 ± 8.75 mm (mean ± SD). Since all cases were referred to the present tertiary medical center for see-and-treat hysteroscopy after initial evaluation in the community, the prevalence of RPOC after delivery or TOP in this study does not represent the true prevalence in the general population. The demographic characteristics of women enrolled in this study are summarized in Table 1.

The procedure was well tolerated by most patients and only four see-and-treat procedures (3.70%) were discontinued due to patient discomfort. The main reason for failure was the actual size of the RPOC (as evaluated during OH). In 19 cases (17.59%), full evacuation of the uterus was not feasible due to the size of RPOC. The second most common reason of failure was preoperative bleeding. Nine women (8.33%), bled before the procedure, resulting in visual impairment, therefore preventing the completion of the procedure. In three cases, removal of RPOC by see-and-treat hysteroscopy was not attempted because of suspected arterial venous malformation (AVM), large fibroid in the cavity, and cervical stenosis. There were no procedure related complications such as accidental uterine perforation, excessive bleeding, and fluid overload during the study. Uterine abnormalities were diagnosed in five women (bicornuate uterus: two, uterus didelphys: one, intrauterine adhesions: two). Nevertheless, it was possible to completely remove RPOC despite these findings.

The following factors were analyzed in univariate analysis to search for predictors of successful removal of RPOC by see-and-treat hysteroscopy: time elapsed after pregnancy, patient age, previous deliveries, vaginal bleeding, third trimester pregnancy *vs*. first trimester abortion, medical *vs*. surgical TOP. None of these factors can be used to predict complete evacuation of RPOC. Furthermore, RPOC size and blood flow assessed by ultrasound were not found be valuable predictors (Table 2).

Table 1. — *Analysis of demographic characteristics.*

Characteristics	Successful group	Failed group	*p*
Age (years), mean (SD)	32.62 (5.42)	31.95 (5.54)	0.54
Gravidity, mean (SD)	2.21 (1.56)	2.18 (1.64)	0.93
Nulliparity, n (%)	19 (26.76%)	14 (37.84%)	0.23
Obstetric event			
Delivery, n (%)	37/71 (52.11%)	13/37 (35.14%)	0.61
First trimester TOP , n (%)	34 (47.89%)	24 (64.86%)	0.11

Data are presented as mean ± standard deviation or absolute numbers (percentage).
TOP: termination of pregnancy

Table 2. — *Analysis of clinical and sonographic predictors for successful office hysteroscopy.*

Characteristics	Successful group	Failed group	*p*
Time elapsed after index pregnancy, weeks (SD)	10.39 (6.42)	8.31 (4.79)	*0.12*
Bleeding, n (%)	13 (18.30%)	6 (16.22%)	*0.76*
RPOC size (mm) by US, mean (SD)	15 (9)	16(8.3)	*0.55*
US Doppler flow, n (%)	16/30 (53.33%)	16/21 (76.19%)	*0.09*

Data are presented as mean ± standard deviation or absolute numbers (percentage).
RPOC: Retained products of conception, US- ultrasound

Discussion

Office hysteroscopy allows minimally invasive diagnostic and therapeutic procedure for removal of RPOC. It can serve as an alternative for operative hysteroscopy, obviating general anesthesia, and saving operating room time and costs. As with every minimal invasive office based procedure, patient selection is of utmost importance to ensure both patient satisfaction and safety. The results of this study show that complete removal of small size RPOC can be accomplished by office-hysteroscopy with minimal patient discomfort and without complications.

Patient age and gravidity did not predict successful RPOC removal by see-and-treat hysteroscopy. Furthermore, the present authors hypothesized that preoperative

parameters like parity, vaginal bleeding, and time elapsed from index pregnancy can effect cervical dilatation and tissue organization within the uterine cavity. Thus, they can potentially increase the technical difficulty and cause patient discomfort during office-hysteroscopy. However, the authors found that patient selection for RPOC removal by office hysteroscopy cannot be based on preoperative clinical signs and patient complaints.

Surprisingly, RPOC size by ultrasound examination was not shown to be a predictor for treatment outcome. In contrast, it was shown that actual RPOC size (as documented during hysteroscopy) was a major reason for procedure failure. Ultrasonography is considered to be an important diagnostic tool regarding RPOC, however, its reliability was shown to vary in different studies (1, 4-6). In his study, Sawyer *et al.* (13) examined the significance of endometrial thickness and volume as predictors for the presence of RPOC. In their study, the authors did not identify a cut-off value for endometrial thickness nor volume that could be used to diagnose RPOC. These results are further supported by the study of Levin *et al.* (14), who showed in his study that surgeon opinion based on hysteroscopic findings is a predictor for RPOC, as opposed to other clinical parameters and sonographic finding. There is no doubt that actual RPOC size is a limiting factor in successful outcome, mainly due to extended procedure time, patient discomfort, and tissue adherence. However, it seems that RPOC size by ultrasound examination does not reflect the actual size as was perceived by the surgeon during office hysteroscopy, and therefore was not shown to be a predictor for treatment outcome.

Based on the results of this study and the limitation of ultrasound in accurately diagnosing RPOC, the authors suggest the following office hysteroscopy for the diagnosis and treatment of RPOC: women with suspected RPOC will initially undergo office hysteroscopy for diagnosis, followed by a trial of removal in cases with small size RPOC. In women with large size RPOC or those where complete evacuation of the tissue has failed, referral for operative hysteroscopy under general anesthesia should be advised.

Conclusion

The results of this study show that office hysteroscopy can be used as an accessible diagnostic tool, overcoming the limitations of ultrasonographic diagnosis of RPOC. However, its use as a treatment tool for removal of RPOC should be limited to small size residual tissue. Future randomized controlled studies comparing office hysteroscopy and operative hysteroscopy are required to define evidence-based clinical guidelines for removal of RPOC.

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