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Real Time Ultrasound with Surgical Evacuation for Missed Abortion and its Success Rate

Sajid E* and Hassan M

Department of Obstetrics and Gynecology, Faith & Hope Hospital, India

***Corresponding author:** Erum Sajid, Senior Consultant, Department of Obstetrics and Gynecology, Faith & Hope Hospital, Bihar, India, Email: erumhaz14@gmail.com

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Abstract

Introduction: Dilation and curettage (D&C), with or without suction/vacuum aspiration, is a frequently performed gynecological procedure. However, it is historically carried out blindly with an early complication rate of approximately 6%. Such early complications include uterine perforation, excessive bleeding greater than 500 ml, retained products of conception necessitating further intervention and pelvic infection. The aim of this study was to analyze how real time ultrasound decreases the rate of these complications.

Methods: This study was carried out in the Obstetrics and Gynaecology Department of the Faith and Hope Hospital in Patna from July 2020 to July 2023.A consecutive series of 115 subjects who had missed miscarriage or incomplete miscarriage of <10 weeks of gestation were subjected to usg guided D&C procedure and outcomes noted in terms of time duration of the procedure, mean blood loss, completeness of procedure and need for additional procedure.

Results: In our Study of 115 Patients, we found that mean age of patients presenting with miscarriage was around 27yrs and around 58.26% were nulliparous. The mean duration of procedure was around 17 minutes. The most important aspect of our study was that 98.18% patients who underwent S/E procedure had a complete evacuation as it was under USG guidance. A very important observation in our study was also no incidence of uterine perforation as the dilators were introduced under USG guidance.

Conclusions: Ultrasound-monitored D/C +/-negative pressure suction has obvious advantages. It shortens operation time, reduce operative complications, and ensure a safe and effective abortion. Most striking result was the completeness of the procedure such that no repeat procedures were needed.

Keywords: Ultrasound; Surgical Evacuation; Missed Abortion; First Trimester

Abbreviations: D&C-Dilatation and Curettage; S/E -Suction Evacuation and USG -Ultra Sound.

Introduction

Miscarriage, defined as the spontaneous loss of a pregnancy before 24 weeks' gestation, is common with approximately 25% of women experiencing a miscarriage in their lifetime. An estimated 15% of pregnancies end in miscarriage. Miscarriage can lead to serious morbidity, including haemorrhage, infection, and even death, particularly in settings without adequate healthcare provision [1]. One method of decreasing these morbidities is to give an option of surgical intervention to the patient who not only decreases the morbidity but also saves time and multiple hospital visits. But it comes with a few complications.

Dilation and curettage (D&C), with or without suction/ vacuum aspiration, is a frequently performed gynecological procedure, making its safety paramount [2,3]. However, it is historically carried out blindly with an early complication rate of approximately 6% [4]. Such early complications include uterine perforation, excessive bleeding greater than 500 ml, retained products of conception necessitating further intervention and pelvic infection [4-6].

Material and Methods

This study was carried out in the Obstetrics and Gynaecology Department of the Faith and Hope Hospital in Patna from July 2020 to July 2023.

A consecutive series of 115 subjects who had missed miscarriage or incomplete miscarriage of <10 weeks of gestation.

Patients who conceived naturally or with the use of assisted reproductive technology were included in the study. Gestational age was calculated using the last menstrual period, or for artificially conceived pregnancies, according to the time of ovulation, oocyte retrieval or embryo transfer. All women were given a choice of other alternative management options including expectant, medical and traditional surgical (dilatation and curettage under general anesthesia) before providing informed consent for USG-D &C.

Missed miscarriage was defined as:
(i) A lack of cardiac activity at crown rump length ≥7 mm; or
(ii) An intrauterine gestational sac with a mean sac diameter of ≥20 mm without fetal pole; or
(iii) An intrauterine gestational sac ≤20 mm with no interval growth or persistent absence of fetal cardiac pulsation on rescanning 7–10 days later.

Incomplete miscarriage was defined as the passage of products of conception with residual products on ultrasound (homogenous intra-uterine dimension measuring ≥11 cm^2 sagittal and transverse plane) and/or if the patient had persisting symptoms (pain and / or bleeding).

Patients with uterine anomalies, cervical stenosis, multiple uterine fibroids with distortion of the cavity, suspected infection, abnormal coagulation profile, extreme anxiety leading to inability to tolerate a pelvic exam, suspected ectopic pregnancy, and those who were haemodynamically unstable were excluded.

All patients were given misoprostol 400 µg orally for cervical priming 2–3 hrs prior to the procedure and antibiotic prophylaxis (amoxicillin and clavulanate 1.2g) 30 min prior to the procedure. For pre-emptive pain relief, 500 mg naproxen was given orally 1 hr prior to the procedure. If the patient was allergic to non-steroidal anti-inflammatory drugs, paracetamol or codeine was used instead.

In case of heavy bleeding or passage of products of conception, a pelvic examination and/or ultrasound would be performed to ensure that MVA was still indicated. The patients were not required to empty their bladder for the procedure. USG-D&C was performed using Hegar dilator.

A tenaculum to hold the cervix was used at the discretion of the doctor. An experienced doctor and a nurse performed the procedure. Transabdominal USG during MVA was performed using a Voluson E730 Expert USG system. Pt was given light anaesthesia using Propofol by an anaesthetist in Ot. Pt was given dorsal lithotomy position and parts properly cleaned and draped. After proper curettage the patient was also subjected to a gentle suction evacuation. The procedure was stopped as soon as there was ultrasound confirmation of an empty uterine cavity, defined as a thin endometrial lining with no evidence of retained products of conception.

Complete uterine evacuation was defined as having no further need for medical or surgical intervention following the procedure and a negative pregnancy test at 2–4 weeks post-procedure.

Anti-D prophylaxis was administered to all Rhesus negative women. Patients were discharged 2 h after the procedure if they were clinically and haemodynamically stable with minimal bleeding and pain.

Discussion

Historically, physicians believed that all miscarriages should be considered incomplete, and that the potential complications of retained placental tissue justified surgical evacuation in all cases. When surgical intervention is needed, suction curettage is superior to sharp curettage with a rigid metal curette [7]. Surgical treatment has also been the standard management for pregnancies that are found to be non-viable on early ultrasound.

Surgical evacuation may lead to cervical trauma, uterine perforation, or intrauterine adhesions. Postoperative endometritis is another potential complication. Pelvic ultrasound examination has been suggested as a way to determine the presence or absence of retained tissue and need for further intervention. Medical management of miscarriage with agents such as misoprostol or the progesterone antagonist mifepristone has also been proposed as an alternative to surgical treatment [8].

In our study of 115 Patients, we found that mean age of patients presenting with miscarriage was around 27yrs and around 58.26% were nulliparous. Study by Jacqueline et al found mean age to be around 36.8 yrs and 77 % were nulliparous patients [9].

We had 44.35% patients with no previous miscarriage a.c.t 42.9% in the study by Jacqueline et al. Also, in our study the mean gestational age was around 56.97 days and almost 24.35% people had undergone MTOP and came with incomplete abortion.

Study by Jacqueline et al had mean blood loss only 9 ml [9] whereas it was 5.3ml in the study conducted by Jacqueline Pui Wah, et al. [10]. In our study it was 32 ml.

The mean duration of procedure was around 17 minutes which is comparable to study by Xi Feng [11] revealing a significantly shorter operative time in the ultrasound group than in the non-ultrasound group ($P < 0.05$). Also, the results of Jacqueline pui10 et al were comparable as the Mean operation duration, min (SD) was 22.0 (9.7) min in their study.

The most important aspect of our study was that 98.18% patients who underwent surgical evacuation procedure had a complete evacuation as it was under USG guidance. This is very close to the observation of Olivia, et al. [12] who reported 94.6% cases with complete evacuation under Usg Guidance. Also, the study by Xi Feng et al. [11] had just one case out of 100 who had RPOC after S/E. This was also under USG guidance. Retained products of conception rate (2.3% vs. 5.5%, respectively; p=0.385) was reported in the study by Adiel Cohen, et al. [13] where the study group which included women who underwent D&C with ultrasound guidance (US group) and the control group, which included women who underwent D&C without ultrasound guidance (N-US group. There are some five studies which reported on retained products of conception, incomplete miscarriage, or spontaneous loss but the methodology was different and the population under study was different as well as they selected spontaneous loss vs medical management vs surgical management [14-24].

A very important observation in our study was also no incidence of uterine perforation as the dilators were introduced under USG guidance. This is also supported by study of Xi Feng [11] who found no uterine perforation in USG group and one uterine perf out of 100 in the non USG category [10].

Conclusion

Ultrasound-monitored uterine evacuation using curettage or suction has obvious advantages. It shortens operation time, reduces operative complications, and ensures a safe and effective abortion. Most striking result was the completeness of the procedure such that no repeat procedures were needed. This also leads to better patient experience and decreased overall morbidity.

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Conflict of Interest

The authors hereby declare no conflict of interest.

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