Middle East Fertility Society Journal (2014) 19, 171–175

Middle East Fertility Society

Middle East Fertility Society Journal

www.mefsjournal.org
www.sciencedirect.com

ORIGINAL ARTICLE

Routine ultrasound guided evacuation of first trimester missed abortion versus blind evacuation

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Received 8 September 2013; accepted 29 December 2013
Available online 18 March 2014

KEYWORDS

Missed abortion;
Surgical evacuation;
Ultrasound

Abstract *Background:* The clinical management of miscarriage has changed little over the years and many women undergo surgical uterine evacuation. Surgical evacuation of the uterine contents in missed abortion is a challenge to the obstetrician as it is done blindly. The current study recommends the use of ultrasound guided surgical evacuation. It serves two important advantages; the first is to complete evacuation without the need of additional step. The second is to protect against uterine perforation.

Outcome measures: The primary outcome measures were intraoperative and short-term complications (anesthetic complication, hemorrhage, ongoing pregnancy, cervical trauma, uterine perforation, need for laparoscopy and/or laparotomy, repeat evacuation, and infection). The secondary outcomes were the blood loss, procedure time, and convalescence time.

Design: A controlled trial.

Setting: Elbadr Hospital, Benha, Egypt.

Participants: Women undergoing STOP (surgical termination of pregnancy) in the first trimester.

Methods: Two hundred cases who refused medical evacuation of proved missed abortion were divided in two groups. Group one (one hundred patients) in whom surgical evacuation was done under sonographic guidance. Group two (one hundred patients) in whom surgical evacuation was done without sonographic guidance.

Results: Group one cases showed no surgical failure in contrast to 10 cases from group two who failed with contents presented after evacuation (failure rate 10%).

Conclusions: Surgical evacuation under sonographic guidance is recommended because there are

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Peer review under responsibility of Middle East Fertility Society.

Production and hosting by Elsevier

http://dx.doi.org/10.1016/j.mefs.2013.12.006

significant cases with missed abortion which can be incompletely evacuated without the use of the ultrasound guidance.

1. Introduction

It has been estimated that over 10 to 20% of pregnancies result in miscarriages, and that the majority occurs in the first trimester (1–3).

Clinical research has established suction curettage (vacuum aspiration) as the safest technique for uterine evacuation for induced abortion in the first trimester (4).

However, there are inherent risks related to the invasive nature of the procedure. STOP requires dilatation of the cervix.

The technique of dilating the cervix has remained largely unchanged since Alfred Hegar first demonstrated the procedure in 1874 (5).

The surgeon judges the completeness of the operation by subjective perception. The operation is generally considered safe, but a short-term complication rate of 6–10% has been reported (6–8).

With continuous ultrasound guidance, it should be possible to accurately identify the axis and the size of the uterus, position of the gestational sac, monitor the insertion of surgical instruments into the uterine cavity and the progress of the operation to confirm its safe completion.

The potential advantage of using ultrasonography in the management of elective STOP was described in the seventies in a series of case reports (9).

At present ultrasonography is not considered to be an essential prerequisite of abortion in all cases (2), however several reports describe its use to guide difficult therapeutic abortions (10–12), or to manage the complications (13,14).

A retrospective study has shown that the routine use of intraoperative ultrasonography reduces the incidence of uterine perforation during second trimester surgical abortion (15).

The objective of this study was to investigate in, controlled trial whether first trimester STOP under continuous ultrasound guidance is safer than the conventional procedure without ultrasound guidance.

2. Subjects and method

The study population consisted of the women undergoing STOP in the first trimester at the Elbadr hospital, Benha city, Egypt.

The participation was voluntary and an informed written consent was obtained in each case.

All women with confirmed intrauterine pregnancy with no contraindication to STOP under general anesthesia were included in the study.

2.1. Eligibility criteria

Gestational age more than 13 weeks or any suspicion of an ectopic pregnancy was the exclusion criteria.

2.2. Design

This was a controlled trial with two study arms. The participants were divided into two groups according to the use of ultrasound guidance.

Group one has the STOP (surgical termination of pregnancy) in the conventional way without the use of intra-operative ultrasound, and group two under continuous real-time ultrasound guidance.

All participants had a clinical history taken and general physical examination performed in the clinic.

An ultrasound examination was performed to confirm intrauterine pregnancy, to determine the gestational age, and number of gestational sacs and fetuses.

Any incidental findings, such as the presence of a uterine fibroids or ovarian cyst were recorded.

The operations were performed as a day case under general anesthesia.

The procedure done under ultrasound guidance had their entire operation monitored with real-time ultrasound A 3.5 MHz convex mindray (6600) China (abdominal transducer was used for this purpose).

2.3. Sample size calculation

The following simple formula (Daniel, 1999)

$$\text{Sample size} = n/[1 + (n/\text{population})]$$

In which $n = Z * Z[P(1 - P)/(D * D)]$

P = True proportion of factor in the population, or the expected frequency value,

D = Maximum difference between the sample mean and the population mean, Or expected frequency value minus (−) worst acceptable value,

Z = Area under normal curve corresponding to the desired confidence level.

Confidence level/value for Z
90%/1.645
95%/1.960
99%/2.575
99.9%/3.29

2.4. Operative procedure

The women were allowed to empty their urinary bladder before induction of anesthesia, but catheterization was not performed.

After positioning the patient appropriately on the operating table, bimanual pelvic examination was performed under anesthesia to assess the axis and the size of the uterus.