CLINICAL CASE

SECOND TRIMESTER SURGICAL TERMINATION OF PREGNANCY FOLLOWED BY AN UNUSUAL COMPLICATION AND WHY MEDICAL INDUCTION IS PREFERABLE WHENEVER POSSIBLE

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ABSTRACT

Although induced abortion, either elective or medically justified, is one of the most common gynecologic procedures worldwide, only a small proportion of these procedures are performed in the second trimester of pregnancy (10–15%). 2nd trimester pregnancy termination (PT) may be realized via medical or surgical methods. Over the last decades, both medical and surgical PT methods have evolved and been intensively studied in regard to efficacy, safety and acceptability. From medical system and health insurance point of view medical abortion / induction of labor is preferable whenever possible, since the overall costs are less than that of surgical removal of the fetus (potential complication risks included). However, in regard to patient's stress, the decision is debatable and should be made in accordance with the patient's preferences, especially when the PT is not elective.

KEYWORDS: *medical abortion, mifepristone, misoprostol, in utero fetal demise*

INTRODUCTION

Although induced abortion, either elective or medically justified, is one of the most common gynecologic procedures worldwide, only a small proportion of these procedures are performed in the second trimester of pregnancy (10–15%) [1], [2].

Women choose pregnancy termination (PT) in the second trimester for a multitude of reasons (unwanted / unplanned pregnancy, fetal, maternal, social etc.) [3], [4].

Second trimester PT may be realized via medical or surgical methods, including medical induction, dilation and evacuation (D&E), hysterotomy and, in rare cases, hysterectomy [4].

Over the last four decades, both medical and surgical PT methods have evolved and been intensively studied in regard to efficacy, safety and acceptability [4].

Even though, both surgical and medical methods are safe and can be utilized for PT after 12 weeks of gestation, provider's skill and comfort, patient's preferences, local laws and the availability of drugs, instruments, pain management options, all contribute to which method is used [4,5].

Some patients may favor medical induction because it appears to them as more natural, while other women prefer surgical PT because of the comfort and finality of the procedure and their preference for a pain-free procedure or their desire not to see the fetus [6] – [8].

Available drugs for medically induced pregnancy termination

Medical induction regimens used for PT include prostaglandin analogues like gemeprost, dinoprostone and misoprostol with/ without mifepristone or oxytocin. The prostaglandin E1 analogue, misoprostol offers an alternative to surgical approach allowing the patient to avoid at the same time and inconvenience of prostaglandin E2 suppositories, and also their costs [9]. The use of mifepristone has extended since its first clinical trials in the 1980s when investigated as an abortifacient in early pregnancy and has been efficaciously and safely used in medical PT also in the second trimester [10].

In regard to mechanisms of action mifepristone, a competitive progesterone antagonist, has been shown to prime the cervix and myometrium to respond to prostaglandins and this is why it proved to be useful in combination with a prostaglandin analogue like misoprostol [10].

The route of administration of misoprostol (after mifepristone) has been studied in the attempt to improve effectiveness and further reduce the time from induction to expulsion in 2nd trimester medical PT, misoprostol being a key component of the procedure and contributing to cervical dilation and uterine contractions necessary for expulsion [2]. So, according to available data, the bioavailability of misoprostol depends on the route of administration. By vaginal administration the bioavailability is three times higher than in the case of oral administration, and sublingual administration determined the highest bioavailability [11]. Even though buccal administration has been found to have a lower peak plasma concentration in comparison to other routes mentioned, the uterine response (meaning intrauterine pressure) and side-effects occurrence are similar to those of vaginal administration [2], [9], [12].

Pregnancy termination in case of medical justification

During the second trimester, elective PT is not permitted according to Romanian laws and it's made only with medical justification, like in utero fetal demise (IUFD), fetal malformations that are incompatible with postpartum life or important maternal health risk. IUFD may be managed either surgically with D&E or by medical induction. However, surgery is often very difficult for advanced pregnancies, while medical induction can be performed by mid-level providers in lower-level facilities [9].

Mifepristone 200 mg orally administered followed after 24–48 h by a prostaglandin is the recommended first line treatment for IUFD and stillbirth according to the Royal College of Obstetricians and Gynecologists and for IUFD between 14 and 28 weeks according to the World Health Organization [9], [13]. The medical 2nd trimester PT protocol supported by evidence, and recommended by professional societies, indicates the administration of misoprostol (400mg every 3–4 h) until the expulsion of the fetus [2].

This medical PT regimen including mifepristone and misoprostol has proven safe [14] and the incidence of side effects was low. Even so, mifepristone has only been approved in the US since 2000, whereas Sweden and the UK already had more than a decade of experience in its use [15].

CASE PRESENTATION

Patient aged 25 presents in May 2020 for a consult in regard to secondary infertility. The patient has married for five years by that time with a partner aged 29.

From her medical history we mention menarche at age 12, regular cycles, normal menses, a delivery by lower-segment transverse caesarean section in 2016 and a surgically evacuated missed miscarriage at the gestational age of 19 weeks in 2018.

Gynecological examination was within normal limits.

Transvaginal ultrasound revealed the following: normal sized anteversoflexed uterus with regular contour, homogeneous myometrium and trilaminar endometrium presenting in the posterior layer a hyperechogenic linear area of about 2 cm penetrating the myometrium of the posterior uterine wall about 1 cm. Ultrasonography shows both ovaries to be normally shaped, with evolving follicles (about 8 follicles per ovary) and the Douglas pouch to be free of fluid.

We decided to perform an exploratory hysteroscopy which revealed the presence of a fragment of trabecular bone enclaved in the posterior uterine wall (Figure 1), the rest of the uterine cavity having a normal appearance with both tubal ostia apparently patent. We remove the bone fragment hysteroscopically.

Figure 1 – May 2020, Hysteroscopic image: in the upper half bone - trabecular aspect, in the lower half endometrium - normal aspect

The patient was seen again after the first menstrual period, both the gynecological exam and the transvaginal ultrasound being within normal limits, so she was allowed to resume unprotected sexual intercourse.

Figure 2 – (August 2020), Pregnancy obtained spontaneously

After 3 months, she presented with 7 weeks amenorrhea and positive urine pregnancy test (Figure 2). The pregnancy evolved perfectly normally, ending with a lower-segment transverse caesarean section performed at the onset of labor. The result was a male newborn, VG = 38 weeks + 3 days, G 3100 g and APGAR score 9.

DISCUSSIONS

Unfortunately, our patient and the attending physician did not have the option of medical PT and had to resort to surgical evacuation of the uterine cavity, which caused the complication.

More than a decade ago, US Food and Drug Administration approved mifepristone for medical management of early abortion, allowing women to choose between medical and surgical PT methods. Even though these procedures have comparable success rates, the processes encompassed are quite different. And, according to available research women place a significant value on having a choice between medical and surgical abortion, and also on being allowed an informed decision-making [8].

2nd trimester medical abortion is well tolerated and has been revolutionized in the past decade by the availability of new evidence-based methods. Intra-amniotic instillation techniques have been abandoned while pharmacologic agents became the approach recommended by numerous professional forums [2].

Available research found misoprostol to be an effective induction agent after second (and third) trimester fetal demise. Mifepristone alone has also been proven to induce labor after in utero fetal demise in up to 66% of cases, although the rates are lower than reported for prostaglandins alone. Hoping to improve the efficacy of either mifepristone or misoprostol alone, researchers have studied the effectiveness of combinations of the two medications in regard to medical management of in utero fetal demise in the second and third trimester [9].

According to available data pretreatment with mifepristone seems to allow most women to complete their induction within one day and reduces both hospital stays and misoprostol doses used in order to complete the induction. Given the fact that IUFD in the second and third trimesters is a rather rare occurrence, randomized trials evaluating the clinical advantage of pretreatment with mifepristone are few [9], [15]. It has been, however stipulated that mifepristone in conjunction with misoprostol, can reduce by

approximately 50% the induction to abortion interval, making the procedure more efficient and well tolerated [2].

Medicated removal of the pregnancy in our case would not have resulted in fetal fragmentation and intracavitary persistence of the bone fragment enclaved in the posterior uterine wall.

The complication following the surgical method was a source of stress for the patient, both through the frustration generated by not being able to obtain a new pregnancy, and the consultations and assessments, including the diagnostic hysteroscopy which required sedation.

At the same time, the additional costs incurred by the health insurance system in this case should not be neglected. These costs, both in terms of medical expenses and days of sick leave granted to the patient, could have been avoided if the medical method of abortion induction had been available in the health care service.

CONCLUSIONS

From medical system and health insurance point of view medical abortion / induction of labor is preferable whenever possible, since the overall costs are less than that of surgical removal of the fetus (potential complication risks included). However, in regard to patient's stress, the decision is debatable and should be made in accordance with patient's preference. She might find the surgical procedure less emotionally painful by not adding suffering to the already painful experience of losing a desired child and long-term psychological impact may not be without effect on patient's ability to function from a social point of view.

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