A case of uterine rupture in mid-trimester spontaneous abortion: a complication of gemeprost vaginal administration

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Summary

The only prostaglandin analogue licensed in Italy for induction of labour in spontaneous and therapeutic abortion is gemeprost. The authors report a case of spontaneous uterine rupture of a scarred uterus, for previous caesarean sections, in a woman at 20 weeks of gestation with a diagnosis of spontaneous abortion. She received a pessary of gemeprost every three hours. After the fifth pessary, she complained of severe pain. At the ultrasound examination, uterine cavity appeared empty and the dead fetus was dislocated in the abdomen. Emergency laparotomy was performed and uterine tear was repaired. To induce labour for fetal demise or therapeutic abortion in second trimester in women with scarred uterus, the authors decided to lengthen the time between administrations of pessary from four to five hours depending on patient's symptoms. However the appropriate drug regimen has still to be found and more data are necessary.

Key words: Gemeprost; Spontaneous abortion; Uterine rupture.

Introduction

An increased rate of caesarean section has been registered worldwide in last decades [1, 2]. At the same time, a growing request for prenatal diagnosis and an improvement of prenatal diagnostic techniques allowed the detection of a higher number of fetal anomalies early in gestation [3]. Obstetricians have often to face labour induction in the trimester in women with a uterine scar. A potentially life-threatening complication in these patients is uterine rupture [4]. The rate of uterine rupture seems to vary in relation to many factors: medications used, week of gestation [4] and regimens [5]. The only prostaglandin analogue licensed in Italy for induction of labour in spontaneous and therapeutic abortion is gemeprost [6]. It is administered in the posterior fornix of vagina in a cycle of five doses usually at three- to six-hour intervals. It normally causes a softening and a dilatation of cervix, and growing uterine contractions that cause fetal expulsion. The authors describe a case of uterine rupture after administration of five pessaries of gemeprost in a case of spontaneous abortion in a woman at 20 weeks of gestation.

Case Report

A healthy 30 year-old woman, gravida 3, para 1, at 13 weeks of gestation, was referred to the present centre of Prenatal Diagnosis for a fetal urogenital anomaly detected during a routine scan in the first trimester. The pregnant woman had no past medical history of note, except an appendectomy in childhood. Her obstetrics history consisted in a voluntary termination of pregnancy in the first trimester and in two previous caesarean sections, ten years and eight years before, respectively. Ultrasound examination confirmed the presence of a severe urogenital malformation: mega bladder occupying all fetal abdomen was visualized. Biometry of fetal limbs was inferior to the mean for gestational age while cephalic biometry was normal. No further fetal anomalies were noted. An amniocentesis, performed at 16 weeks of gestation, showed a normal male karyotype, 46 XY. The patient underwent multidisciplinary counselling with obstetrics, geneticist, and paediatrics surgeon that explained the grave prognosis of this malformation. The couple decided to continue the pregnancy. A sonographic examination at 19 weeks of gestation showed a worsening of fetal condition: mega bladder measuring 74 x 77 mm, bilateral dilated urethras, and hyperechogenic kidneys were visualized. Amniotic fluid was inferior to the mean. The next week during a routine scan no fetal heart activity was registered and a diagnosis of spontaneous abortion was confirmed. The woman was admitted to the present department for induction of labour. Preliminary obstetrics examination revealed a uterine size consistent with gestational age. Cervix was long, tubular, and closed. Blood test was normal. The patient was counselled for induction of labour with gemeprost. She signed consent form for the induction protocol. Five pessaries of gemeprost (one pessary every three hours) were administered in the posterior vaginal fornix. After the third pessary, the woman complained of pain and analgesia was prescribed. After a pause of five hours, the fourth and fifth pessaries were administered, three hours apart. Obstetric examination showed a contracted uterus with a cervix that was long and closed. It was decided to wait at least 12 hours before beginning a new cycle of gemeprost. After two hours from the last administration, the patient complained of important abdominal pain. Blood pressure was 80/40 mm Hg, pulse was 110 beats per minute and the uterus was tender, not contracted, with fundus two cm over the transumbilical plane. There was a minimal vaginal bleeding with clots. An obstetric ultrasound showed that the uterine cavity appeared empty and the dead fetus was dislocated in abdomen under left costal arch. Hemoperitoneum was present. Emergency laparotomy was performed. While opening the abdomen, a tear on the left lateral surface of the uterus was visualized extending into the homolateral broad ligament. From the breach extruded the umbilical cord while the gestational sac with the dead fetus was dislocated in the left hypochondriac region. The

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placenta, still fixed to the uterus, was manually removed from the fetus. The uterine tear was repaired. Two intraperitoneal drainage tubes were positioned. Emergency blood test showed severe anaemia. Volume replacement therapy was necessary (seven units of packed red blood cells, six vials of albumin, antithrombin III - 1,000 IU).

The patient had a rapid revival and an uneventful postoperative recovery. She was discharged ten days later in good clinical conditions. Her blood test was normal. The gynaecological examination showed a regular uterus with a thin endometrium and minimal fluid in the Douglas cavity.

Discussion

Uterine rupture is a catastrophic complication that often results in hysterectomy and can occur in a scarred or an unscarred uterus during induction of labour [4]. The reported incidence of uterine rupture in women without scarred uterus is 0.2% [7], compared to 3-8% - 4.3% risk of scar rupture of the uterus [7, 8]. Recently, a large retrospective analysis of gemeprost-induced termination of pregnancy, after previous caesarean delivery, was performed. The authors concluded that using gemeprost in late gestation for medically induced labour in women with a uterine scar seems to be effective and safe [9]. This is in compliance with the clinical guidelines from the Society of Family Planning for labour induction abortion: there is no clear evidence of an increased risk of uterine rupture with labour induction abortion in women with one prior cesarean delivery; for women, who had multiple cesarean deliveries, there are no data to make evidence-based recommendations [4]. Pregnancy with fetal demise may be treated similarly to abortion of a living fetus. However, the dosage usually necessary to cause fetal expulsion is lower, and the induction process is typically shorter [4].

The typical patients with uterine rupture are older and multiparous, have had an initiation-to-abortion interval > 24 hours, have received oxytocin for > 12 continuous hours, had a gestation age > 21 weeks [7]. Using one uterotonic agent at a time should help reducing the chance of uterine rupture, particularly in women with a history of uterine surgery [6]. The present patient was young and only one uterotonic was administered for induction of labour. She was closely monitored, above all for pain and long initiation-to-abortion interval. As soon as she developed the most common signs and symptoms of uterine rupture (cessation of contractions, abdominal pain, vaginal bleeding, maternal cardiovascular instability), quick decisions were made and her life and uterus were saved.

What was, therefore, missing? How can we predict which woman will experience a uterine rupture? To induce labour for fetal demise or therapeutic abortion in second trimester in women with scared uterus, the authors decided to lengthen the time between administration of pessary from four to five hours depending on patient's symptoms. However, many more data are required about induction in the second and third trimester in scarred uterus. The appropriate drug regimen has still to be found.

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