



Original Article

Sclerotherapy with 6% polidocanol solution in patients with placenta accreta



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ARTICLE INFO

Article history:

Accepted 3 November 2015

Keywords:

hypogastric artery ligation
placenta accreta
polidocanol
sclerotherapy

ABSTRACT

Objective: Placenta accreta is one of the main obstetrical complications worldwide. The aim of this study was to report the experience of managing placenta accreta with a 6% polidocanol solution sclerotherapy. **Materials and Methods:** We selected patients between 37 weeks of gestation and 38 weeks of gestation, diagnosed with placenta accreta, treated at the Maternal Perinatal Hospital "Monica Pretelini Sáenz", Toluca, Mexico, during the period from November 2013 to August 2014. The surgical technique has two steps: (1) fundic-arciform caesarean section followed by a 6% polidocanol sclerosing solution through a 6Fr neonatal feeding tube upon its reaching the placental bed; (2) total abdominal hysterectomy with internal hypogastric artery ligation.

Results: Data were collected from 11 patients with a mean age of 33.9 years (range, 26–42 years) and 2.8 ± 0.6 days of hospitalization in the obstetrical intensive care unit. The majority of patients were classified as having pregnancies at an advanced age. All women were multigravidas. Bleeding volume exhibited a range between 2.5 L and 3 L without any case of neonatal death but one mother died because of coagulopathy.

Conclusion: We conclude that the technique that we are reporting is feasible for implementation in obstetric hospitals, with technical and economic feasibility.

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Introduction

Maternal mortality in Mexico remains high, with an annual report in 2009 of 1207 deaths and a maternal death rate (MDR) of 62.2/100,000 live births. In 2011 the State of Mexico, Mexico, reported 131 deaths with an MDR of 50.2, which, following a linear prospective, yields 98 projected deaths for the year 2015 with an MDR of 38.2, falling short of the target of millennium development goals, which established an MDR of 22/100,000 live births for 2015 [1].

The World Health Organization reports that there are 536,000 maternal deaths worldwide annually, of which 140,000 are caused

by obstetric hemorrhage, representing 25% of all maternal deaths, and >50% of these take place in the first 24 hours postpartum [2]. In the U.S., placenta accreta has become an increasingly important contributor to repeated cesarean delivery morbidity [3]. In Mexico, obstetric hemorrhage is the second leading cause of maternal death, causing an MDR of 14.3 in 2008. Uterine sluggishness continues to comprise the leading cause of obstetric hemorrhage in developing countries [4], followed by placenta accreta, which can range from one case per 2510 patients up to one case per 533 patients [5]. In a 20-year study conducted between 1982 and 2002, placenta accreta accounted for 39% of the causes of obstetric hemorrhage [6].

The main risk factors identified for placenta accreta include age (>30 years), multiparity, placenta previa with prior cesarean section (35% of cases), placenta previa with a history of three or more cesareans (67% of cases), history of curettage (18–60% of cases), a

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precedent of manual placental removal, a history of placental retention, and antecedents of intraamniotic infection [6].

Placenta accreta may lead to massive obstetric hemorrhage and, as a consequence, to coagulation disorders. The need for total hysterectomy, especially when associated with placenta previa and insertion in previous caesarean scars, can influence the risk of surgical damage to ureters, bladder, and other neighboring pelvic structures, as well as respiratory distress syndrome in adults, and even maternal death. Blood loss during birth fluctuates between 3000 mL and 5000 mL, thus having an institution with a blood bank is essential [7]. Fetal morbidity is affected by prematurity in up to 50–70% cases, mainly in emergencies.

Prenatal diagnosis of placenta accreta allows for a treatment plan based on a multidisciplinary and individualized approach. The two most important decisions are time of pregnancy resolution and whether radical or conservative management must be followed [8]. In the case of previous uterine surgery, the following study protocol is started: color Doppler ultrasound, magnetic resonance imaging, and cystoscopy.

The conservative decision is to leave the placenta *in situ*, with or without the use of drugs for expulsion or reabsorption, such as oxytocin or methotrexate. Sclerotherapy has been utilized since 1939 for the treatment of reticular veins or telangiectasias (veins ≤ 3 mm in diameter) and since 1944 for these mixed with air (Tessari three-way tap technique), with an increasing number of medical applications in diseases involving blood vessels of different sizes.

In relation to the previously mentioned method, polidocanol (hydropolyethoxydodecane) is a mixture of dextrose and sodium chloride that acts as a sclerosing liquid detergent, causing vascular damage by altering surface tension in endothelial cells. The foam preparation increases the duration and the surface area of contact between the sclerosant and the vein wall, producing effective sclerosis (fibrosis) by endothelial destruction and exposure of endothelial subsclerosing collagen fibers, activating the intrinsic

pathway of coagulation through factor XII and turning the vessel into a fibrous cord. The foam has early recanalization rates of up to 32%, suggesting that the primary mode of action of these agents is to promote thrombotic occlusion instead of producing permanent damage to the vein wall. The aim of this study was to report the experience of managing placenta accreta with polidocanol sclerotherapy.

Materials and methods

This was a prospective and descriptive study. We used a continuous collection method to select patients between 37 weeks of gestation and 38 weeks of gestation, diagnosed with placenta accreta by ultrasound, treated at the Maternal Perinatal Hospital “Monica Pretelini Sáenz”, Health Institute of the State of Mexico, during the period from November 2013 to August 2014.

Surgical technique

First surgical procedure: Fundic-arciform caesarean section

The patient is in supine position and ready for a caesarean section (C-section), with permeable transurethral catheter and under regional anesthesia. A midline extended supraumbilical incision is made about 10 cm above the umbilicus, habitual dissection by planes is done, and an intentional macroscopic exploration for bladder-invasive placenta is carried out when entering the abdominal cavity. If the diagnosis is confirmed, a fundic-arciform hysterectomy is performed on the infiltrated surface (Figure 1A), extracting the fetus. Thereafter, an umbilical vein is identified, phlebotomy is performed using a scalpel, and then this is cannulated with a 6Fr neonatal feeding tube upon its reaching the placental bed, with a prior 3-mL dilution of the polidocanol-type sclerosing solution, and 10 mL of room air mixing for about 20 seconds (Figures 1B and 1C). This is then applied directly into the vein through the tube previously placed in the umbilical vein.

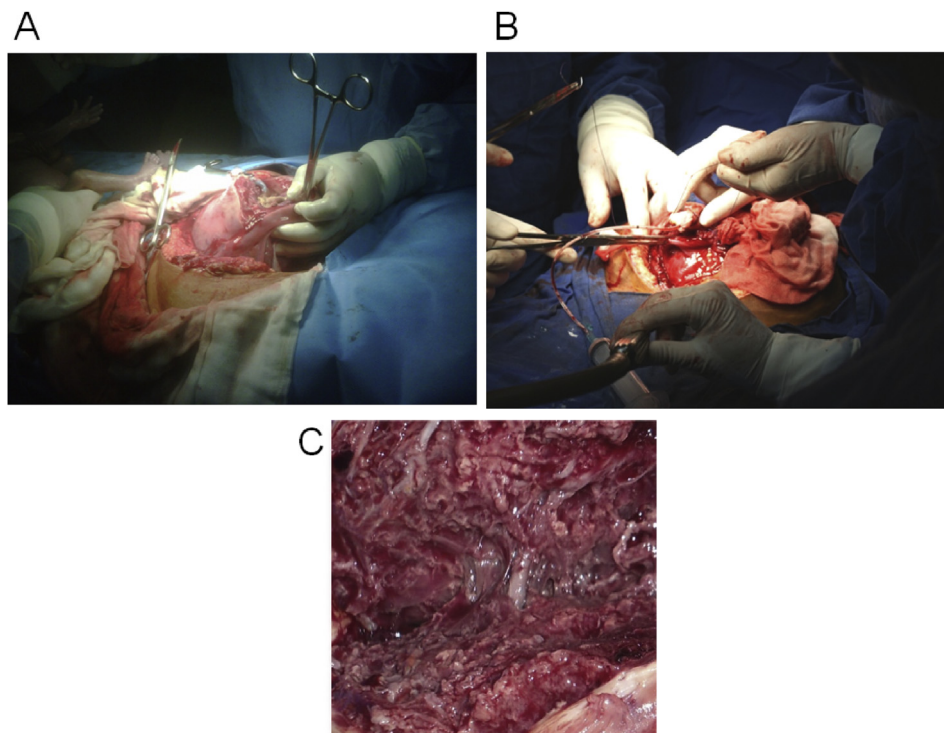


Figure 1. (A) Fundic-arciform cesarean incision; (B) polidocanol instillation; (C) tissular visualization after polidocanol instillation.

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