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Placental percretism, surgical management

Percretismo placentario, manejo quirúrgico

Cárdenas Rodríguez Jorge Daniel[2], Robles Granda Eliana Piedad[3], Mora Lino Karen Tatiana[2], Cruz Freire Oscar Jorge[2], Vélez Astudillo Ana María[2], Calderón León María Fernanda[1*]

Article Data

[1] Ministry of Public Health.
Enrique Ortega Moreira General Hospital.
km 2.5 of the Durán-Tambo road.
Ecuador.

[2] Ministry of Public Health.
National Government Health System.
University Hospital of Guayaquil.
Calle 24A NW, Vía Perimetral.
Guayaquil, Ecuador.

[3] University of Guayaquil.
Av. Delta, Guayaquil 090510.
Quito-Ecuador.

***Contact address**:

Ministry of Public Health.
Enrique Ortega Moreira General Hospital.
km 2.5 of the Durán-Tambo road.
Ecuador.
Phone: +593 98 236 5566.

María Fernanda Calderón León
E-mail address : dracalderonleon@hotmail.es

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Abstract

A case is presented of a 31-year-old female patient with a gestational age of 29.2 weeks according to ultrasound. Medical history: two previous cesarean sections, incomplete pulmonary maturation scheme (one dose administered one week ago), and six prenatal check-ups. She was admitted to the emergency department due to spontaneous vaginal bleeding with clot expulsion of three hours' duration. Physical examination: gravid uterus with a single live fetus in cephalic presentation, evident vaginal bleeding, mild edema in the lower extremities, and preserved osteotendinous reflexes. Institutional ultrasound reported total occlusive placenta previa. An emergency cesarean section was performed, revealing placental percretism. Postoperative histological diagnosis confirmed concordance with intraoperative findings. Institutions managing patients with this condition must have maternal and neonatal intensive care units, as well as a blood bank available 24 hours a day to address massive hemorrhage and the need for multiple transfusions. Prenatal diagnosis reduces morbidity and mortality and can be achieved through 2D ultrasound or, in selected cases, magnetic resonance imaging. The treatment of choice is elective hysterectomy; however, in patients wishing to preserve fertility, conservative techniques may be considered. In such cases, it is essential to inform the patient and her family about the risks of subsequent hemorrhage and infection, which may ultimately require emergency hysterectomy. Placental percretism represents a condition of high maternal-fetal mortality, whose management must be individualized and carried out by a multidisciplinary team to reduce complications and optimize outcomes.

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Resumen

Se presenta el caso de una paciente femenina de 31 años, con edad gestacional de 29.2 semanas según ecografía. Antecedentes: dos cesáreas previas, esquema de maduración pulmonar incompleto (una dosis hace una semana) y seis controles prenatales. Ingresa a emergencia por sangrado transvaginal espontáneo con expulsión de coágulos de tres horas de evolución. Al examen físico: útero gestante con producto único vivo en presentación cefálica, sangrado transvaginal evidente, edema leve en extremidades inferiores y reflejos osteotendinosos conservados. La ecografía institucional reporta placenta previa oclusiva total. Se realiza cesárea de emergencia, encontrándose percretismo placentario. El diagnóstico histológico posoperatorio permite establecer la concordancia con los hallazgos transoperatorios. Las instituciones que atienden a pacientes con este cuadro deben contar con unidades de terapia intensiva materna y neonatal, así como con banco de sangre disponible las 24 horas para enfrentar sangrados masivos y necesidad de poli transfusión. El diagnóstico prenatal disminuye la morbimortalidad y puede realizarse mediante ecografía 2D o, en casos seleccionados, resonancia magnética. El tratamiento de elección es la histerectomía electiva; sin embargo, en pacientes que desean preservar la fertilidad pueden considerarse técnicas conservadoras, siempre informando a la paciente y su familia sobre los riesgos de hemorragia e infección, que podrían requerir finalmente una histerectomía de emergencia. El percretismo placentario constituye una condición de alta mortalidad materno-fetal, cuyo manejo debe ser individualizado y realizado por un equipo multidisciplinario para reducir complicaciones y optimizar resultados.

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Introduction

Placental disorders report an increase in recent years, with an incidence ranging between 0.12 and 0.31 %, and a mortality rate close to 7 %. Among them, *placental percretism* represents one of the greatest challenges in perinatal management within gynecology and obstetrics. This pathological condition is characterized by an abnormal insertion of the placenta, with penetration of placental tissue through the previously damaged uterine wall, extending to neighboring structures such as the urinary bladder and other adjacent tissues[1-4].

The main risk factors associated with the development of this condition include: advanced maternal age (≥ 35 years), history of multiple cesarean sections, peritonization of vesicouterine plica during hysterorrhaphy, presence of placenta previa, use of assisted reproductive technologies, and history of previous uterine procedures[4-7].

Due to the high associated morbidity and mortality, it is essential to have a highly specialized multidisciplinary team, made up of an obstetrician with experience in maternal-fetal medicine, imaging specialists for the detection of placental anomalies by ultrasound, pelvic surgeons (gynecologist and urogynecologist), anesthesiologist with training in obstetric or cardiac anesthesia, urologist, general surgeon, interventional radiologist and neonatologist. Likewise, the facilities must have intensive care units (ICU) for both neonatal and adults, with permanent availability of intensivists, as well as a blood bank that guarantees immediate access to blood components, given the high probability of transfusion due to massive hemorrhage. This complication occurs due to the impossibility of spontaneous separation of the placenta during delivery, which makes it necessary to perform a cesarean hysterectomy to control uterine bleeding and prevent maternal death[8,9].

The identification of placental percretism before delivery is highly desirable to prevent maternal-fetal complications. The evaluation of placental appearance by 2D ultrasound is an accessible and effective tool, which allows the medical team to anticipate and plan the appropriate management. It also makes it possible to provide timely information to the patient and her relatives. It is important to note that all women suspected of having the placental accretism spectrum are at high risk of complications and sequelae, including massive hemorrhage, need for blood transfusions, post-cesarean hysterectomy, and ICU admission[10-12].

Regarding the therapeutic approach, the American College of Obstetricians and Gynecologists (ACOG) recommend the performance of an elective hysterectomy by cesarean section with the placenta *in situ*, since its removal can cause massive bleeding and/or damage to surrounding organs, compromising maternal life[13]. However, this option may not be accepted in patients with genetic desires. In such circumstances, the possibility of conservative treatment should be assessed, which may include: gradual removal of the placenta, expectant management with the retained placenta, the Triple-P procedure, among other conservative surgical techniques[14,15].

When the placenta is left *in situ* after delivery, management includes embolization of the uterine artery, by occlusion of the common iliac artery and the infrarenal aorta, complemented by the administration of low-dose methotrexate (0.11 %) and ultrasound-guided curettage. With these measures, the placenta progressively loses its blood flow and is completely reabsorbed. However, it is essential to inform and emphasize that the main disadvantage of this ap-

proach is the prolonged time required for total resorption of placental tissue up to 20 weeks, which implies progressive necrosis and a high risk of secondary bleeding, sepsis, and the eventual need for an emergency hysterectomy[16,17].

Therefore, the objective of this study was to present a case of placental percretism and its surgical management.

Case Presentation

Female patient of 31 years of age, date of last period unknown, gestational age 29.2 weeks by ultrasound, gynecological-obstetric history: pregnancies 4, abortions 2 cesarean sections 2, interreproductive period 4 years, surgical history: 2 previous cesarean sections, pathological personal history denies, family history denies, allergies denies, vaccines: tetanus 2 doses, COVID-19 immunization, 3 doses, incomplete lung maturation scheme, 1 single dose a week ago, 6 prenatal check-ups.

Reason for consultation: Transvaginal bleeding.

Evolution of the disease: The patient presented to the emergency room due to spontaneous transvaginal bleeding with expulsion of clots of about 3 hours of evolution. *Vital signs*: blood pressure 115/76 mmHg, heart rate 110 beats per minute (bpm), respiratory rate 21 breaths per minute (rpm), temperature 36.6º C, proteinuria: negative. MAMA Score: 1, at the moment conscious, oriented in time and space, collaborates with the interrogation, Glasgow 15/15, clear and ventilated lung fields, rhythmic heart sounds, abdomen: with pregnant uterus, occupied by single live longitudinal cephalic product, right dorsum, fetal heartbeat 144 bpm, uterine height 32 cm, uterine activity: 2 contractions every 10 minutes of 35 s duration, transvaginal bleeding, lower extremities, mild edema, preserved osteotendinous reflexes are evident.

A particular ultrasound reported the presence of marginal placenta previa.

Category 1 fetal monitoring.

Obstetric risk 7 points, very high.

Results of institutional obstetric ultrasound report: single live product, longitudinal cephalic, with total occlusive placenta previa.

This is a patient with a very high obstetric risk with the need for abdominal hysterectomy, due to a history of placenta previa and/or the need for transfusion of concentrated red blood cells, due to a high risk of maternal-fetal morbidity and mortality. Lung maturation doses were applied and information is provided to both patients and family members.

It is indicated to go to emergency surgery, request 2 units of concentrated red blood cells for presenting a diagnosis of: placenta previa with hemorrhage, maternal care for previous uterine scarring, voluntary surgical sterilization and pregnancy of 29.2 weeks by ultrasound.

Red code activation, vital signs control, MAMA Score according to score, pending laboratory results requested on admission (complete blood count, HIV, VDRL, blood group, coagulation times, nothing orally, medical report to family member, signing of informed consents, neonatology consultation, placement of Foley tube, channeling two peripheral lines: sodium chloride 0.9 % 1000 cm^3, pass 500 cm^3 to rapid drip and then 40 drops per minute, Ringer's lactate 1000 cm^3 pass 500 cm^3 to rapid drip and then 40 drops per minute, apply dexamethasone 12 mg intramuscular STAT and move on to emergency surgery.

Obstetric ultrasound on admission: A single live cephalic pregnancy, right back, total anterior occlusive placenta previa, there is evidence of flow suggestive of active bleeding in the distal pole. ILA 7.7, weight 1620 g, fetal heart rate 138 per minute. Cervicometry, closed homogeneous cervix.

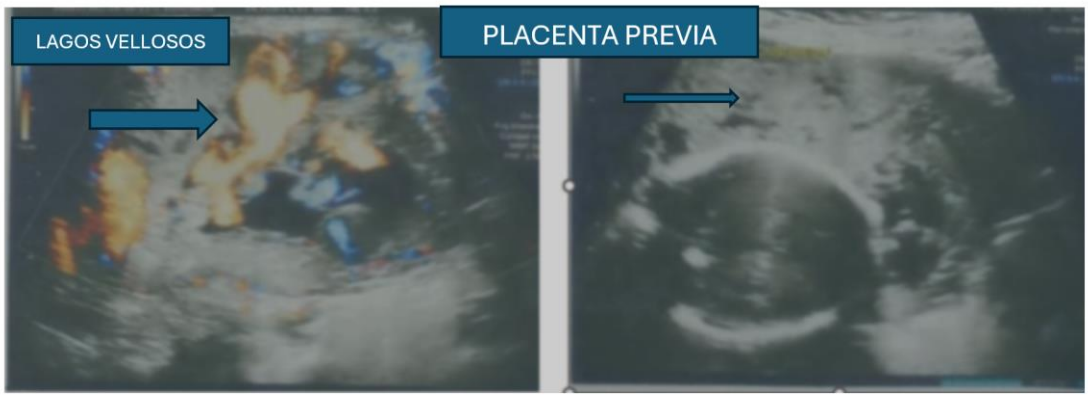


Figure 1 Ultrasound image of pregnancy at 26.2 weeks gestation plus marginal placenta previa, showing the presence of placental villous lakes

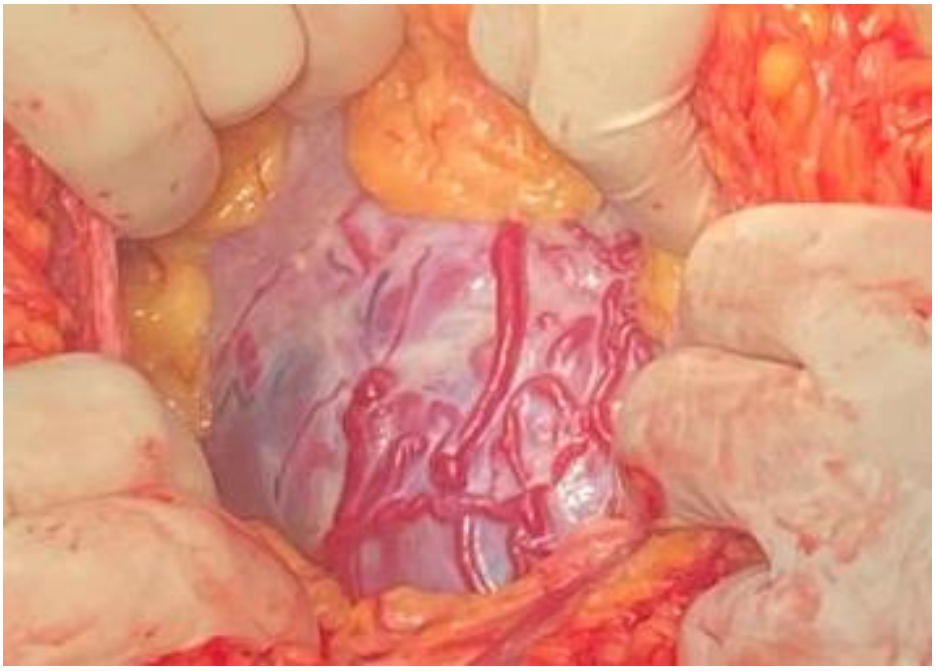


Figure 2 Image during the transoperative cesarean section, the abdominal cavity is explored by means of an infra media umbilical incision and before performing a body hysterotomy for product extraction, the anteroinferior aspect of the uterus is visualized with the presence of large placental vessels that infiltrate the anterosuperior region of the bladder

Body caesarean section + total abdominal hysterectomy + adhesiolysis was performed.

Findings: Previous uterine scar 2 times, subcutaneous cellular tissue approximately 8 cm, syndrome severe adhesion, pregnant uterus according to gestational age, clear amniotic fluid in moderate quantity, live newborn, female sex in breech presentation, weight 1535 g, height 34 cm, gestational age. 29 weeks gestation, Apgar 5/7/8 macroscopically normal adnexa, approximate bleeding during the transoperative of 2000 cm^3, total occlusive placenta previa, abnormal insertion of the placenta, total absence of the basal decidua, penetration of the chorionic villi in the myometrium with foci of placental percretism with bladder infiltration. Clear and permeable diuresis by bladder catheter, 600 cm^3.

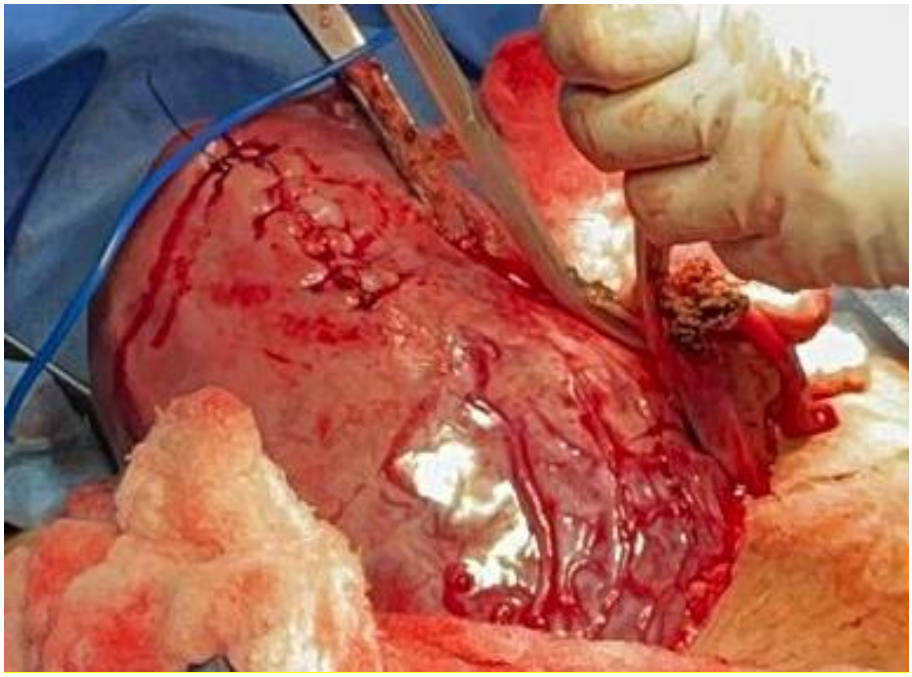


Figure 3 Image during transoperative hysterectomy due to placental percretism, a uterus with body hysterorraphy is visualized, inside which the placenta is located, in addition to the presence of large placental vessels that infiltrate the anterosuperior region of the bladder

Surgical technique: Prior asepsis and antisepsis-placement of sterile drapes-umlaut described above - opening of the abdominal cavity by anatomical planes: skin, subcutaneous cellular tissue, aponeurosis, muscle, peritoneum - exposure of surgical field - bladder cleavage - body hysterotomy, total occlusive placenta is evidenced, which is crossed to proceed to extract the product, clear amniotic fluid is evidenced in moderate quantity, extraction of female product in breech presentation - clamping and section of the umbilical cord is performed - extraction of blood sample from umbilical cord, newborn is delivered to the pediatrician on duty - clamping of the umbilical cord from the placenta, the placenta is introduced into the uterine cavity and hysterorraphy is performed in 2 planes and then proceed to perform clamping, section and ligation of round ligaments, next, clamping, sectioning and ligation of uterine-ovarian ligaments is performed, descent of the anterior and posterior peritoneum is performed, clamping, sectioning and ligation of uterine arteries and cervicovaginal ligaments is performed, surgical specimen is extracted, reinforcement of pedicles of ovarian, uterine and vaginal vault vessels. hemostasis is verified, during the transoperative 2 units of concentrated red blood cells and 1 of plasma are transfused, paritocolic slides are checked, bladder indemnity is verified, material is counted, synthesis is made by abdominal wall planes. Vaginal examination of the dome was performed; no active bleeding or clear urine was identified. Patient leaves the operating room in stable clinical conditions, goes to the ICU at the moment he breathes spontaneously, did not require invasive mechanical ventilation, did not perform hemodynamic alteration, due to replacement of blood components during the transoperative and strict control of bleeding.

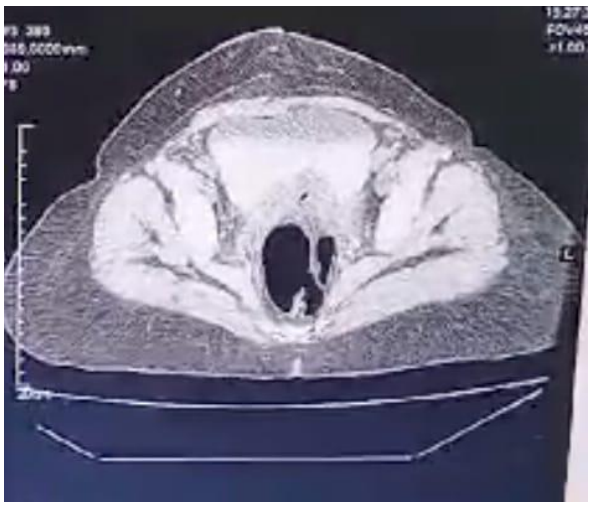


Figure 4 CT scan of the abdomen: postoperative control within normal limits

Evolution: patient remained for 72 h in the ICU area under antibiotic treatment with Ceftriaxone 1 g intravenously every 12 hours, analgesia, hydration, with stable hemodynamics, conscious oriented in time and space with strict control of parameters and continuous monitoring, clear and preserved diuresis.

Blood count result at 24 h postoperatively: Leukocytes 12.84, hematocrit 37.7 %, hemoglobin 12.2, Platelets: 262 × 103/μL (or 262 000/μL), neutrophils 73.2 %.

The physical examination was struck by the presence of a regular mass that was palpated in the pelvic region painlessly, which did not cause discomfort to the patient, Transvaginal ultrasound was sent to be performed, which reported: bladder with semi-distended walls without abnormal content, uterus absent by hysterectomy, right and left annex not assessable, heterogeneous refractive images of irregular borders were observed towards the pelvic cavity, color Doppler does not show abnormal vascularization, measures 55 x 44 x 57 with a volume of 70.7 cm^3. Diagnosis: blood remains, correlate with the patient's surgical history and possible simple and pelvic contrast tomography.

Abdominal tomography was performed, ruling out the presence of a mass, hematoma or collection, which would require reoperation of the patient.

The patient was transferred to the high-risk ward on the fourth day to continue his clinical evolution, remained hemodynamically stable, wandered, a thyroid goiter was evidenced on general physical examination, laboratory hormonal tests were requested, they reported: free T3: 2.87 pg/mL, free T4: 0.98 ng/dL TSH: 1.13 μIU/mL. *Thyroid ultrasound*: Right thyroid lobe of preserved volume of homogeneous regular contours measures 3.9 x 1.4 x 1.9 cm, volume 5.9 cm^3, isthmus of homogeneous normal thickness measures 0.18 cm left thyroid lobe increased in volume of regular heterogeneous contours measures 4.1 x 2.9 x 3.8 cm volume 24.8 cm^3, mixed heterogeneous lesion of poorly defined contours measuring approximately 4 x 2.8 cm is visualized that does not present uptake of the flow lymph nodes in carotid jugule chains of preserved morphology TI-RADS 4 A.

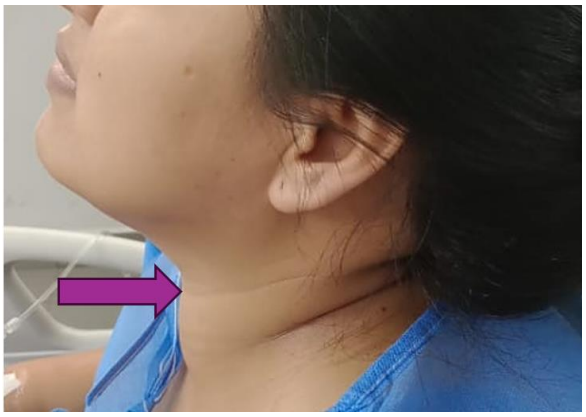


Figure 5 The anterior region of the neck is observed with goiter due to enlargement of the thyroid gland

Discussion

One study revealed that the main risk factors for placental insertion disorders were: maternal age greater than 32 years, history of two or more cesarean sec-

tions, multiparity (≥ 3), and history of placenta previa. These findings coincide with what has been reported by various authors in the scientific literature[8,18,19].

A systematic review noted that antenatal diagnosis of placental accretism or percretism is associated with a lower need for emergency caesarean sections, higher frequency of elective hysterectomy, less blood loss, and lower red blood cell transfusion requirements, compared with placenta accreta spectrum cases without antenatal diagnosis. Therefore, a thorough evaluation by ultrasound and, if necessary, magnetic resonance imaging (MRI) can be used to predict placental invasion in women at high risk. Finally, postoperative histological diagnosis allows us to establish agreement between the transoperative findings and the specific type of disorder present[7,14,20].

The management of placental percretism should be individualized, considering the type of patient, their risk factors, and their reproductive desires. In women with satisfied motherhood, the standard treatment consists of hysterotomy, clamping of the uterine and hypogastric arteries, followed by total hysterectomy, with the aim of preventing morbidity and mortality associated with hemorrhage secondary to abnormally attached placenta previa in its different degrees of trophoblastic invasion to the myometrium.

On the other hand, in patients who wish to preserve their fertility, conservative treatment strategies can be considered, such as cesarean section without total hysterectomy and ligation of the uterine artery using the clover suture technique, aimed at compressing the bleeding site and controlling bleeding[21,22].

In contrast to our case, the literature reports a case of central placenta previa accreta (CPPA) with focal bladder percretism in a 29-year-old pregnant woman, with an obstetric history of one vaginal delivery and four curettages after a miscarriage. The patient was treated at the S. Marco University Hospital in Catania at 20 weeks of gestation, where CPPA was diagnosed by ultrasound. At 31 weeks, magnetic resonance imaging (MRI) confirmed the diagnosis of APPC with focal bladder percretism.

After alerting the multidisciplinary team and having blood units, a cesarean section was planned at 34 weeks, motivated by the presence of an area of detachment with bleeding evidenced by ultrasound. The patient and her husband were informed of the risks and signed the informed consent, accepting the possibility of hysterectomy and blood transfusions.

After alerting the multidisciplinary team and having blood units, a cesarean section was planned at 34 weeks, motivated by the presence of an area of detachment with bleeding evidenced by ultrasound. The patient and her husband were informed of the risks and signed the informed consent, accepting the possibility of hysterectomy and blood transfusions.

The procedure consisted of a Pfannestiel laparotomy, with transverse body uterine incision, bilateral uterine ligation, uterine tamponade, and removal of the separated placental tissue during fetal extraction. The portion of the placenta corresponding to the percretism area was left in situ, which allowed a conservative intervention with preservation of the uterus, obtaining good results for both the mother and the newborn.

It should be noted that this type of approach is carried out assuming risks and is not yet part of the protocols established in public hospitals in our country. Regarding urological complications, an incidence of 15.4 % (95% CI: 8.1-24.6) has been reported in planned procedures and 24.6 % (95 % CI: 13.0-38.5) in emergency interventions[6,23].

Conclusion

Placental percretism is a condition of high maternal-fetal mortality that requires management by a multidisciplinary team, with the aim of preventing serious

complications. The institution that cares for a patient with this diagnosis must have a maternal and neonatal intensive care area, as well as a blood bank with blood components available 24 hours a day, to respond in a timely manner to massive bleeding with the need for polytransfusion.

Prenatal diagnosis decreases morbidity and mortality and can be performed by 2D ultrasound and, in selected cases, magnetic resonance imaging. The treatment of choice is elective hysterectomy; however, in patients who wish to preserve their fertility, conservative techniques may be considered to avoid removal of the uterus. In these cases, it is essential to inform and explain to the patient and her relatives the associated risks, such as infection and secondary bleeding, which may eventually require an emergency hysterectomy.

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Conflicts of interest

The authors declare that they have no conflict of interest.

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Ethical considerations

For this publication, authorization was requested from the patient by signing informed consent, in this case description patient identification is not placed. Authorization was obtained from the patient for publication of photos and review of medical history.

Limitations in research

Lack of randomization, we cannot generalize the results on a large scale.

Publishing permissions

A document signed by the patient authorizing the publication of the clinical case is attached.

Identification of the responsibility and contribution of the authors in the article

The authors declare to have contributed to the original idea (*María Calderón*), research design (*Jorge Cárdenas*), data collection (*Eliana Robles, Karen Mora, Oscar Cruz, María Calderón, Ana Vélez*), data analysis (*María Calderón, Eliana Robles*), draft writing and article writing (*María Calderón, Jorge Cárdenas, Karen Mora, Ana Vélez, Oscar Cruz, Eliana Robles*).

Use of artificial intelligence

We assume that the entire document was written based on ethical and professional criteria, and AI was not used to make the images or text.

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