



CIRUGÍA y CIRUJANOS

Órgano de difusión científica de la Academia Mexicana de Cirugía
Fundada en 1933

www.amc.org.mx www.elsevier.es/circir



CLINICAL CASE

Placenta percreta with bladder and rectum invasion[☆]



Froilán Tórrez-Morales^{a,*}, Jesús Carlos Briones-Garduño^b

^a *Medicina Crítica en Obstetricia, Hospital General de México Dr. Eduardo Liceaga, Mexico City, Mexico*

^b *Unidad de Terapia Intensiva de Ginecología y Obstetricia, Hospital General de México Dr. Eduardo Liceaga, Mexico City, Mexico*

Received 30 April 2015; accepted 27 August 2015

Available online 12 January 2017

KEYWORDS

Placenta accreta;
Embolisation;
Chemotherapy

Abstract

Background: Placenta percreta may lead to massive obstetric haemorrhage, haemodynamic decompensation, and ultimately death. Total obstetric hysterectomy is universally accepted as treatment; however, the emergence of new techniques such as the uterine artery angioembolization approach, and the use of chemotherapy agents such as methotrexate, are alternatives also described in the literature.

Clinical case: A 28 year-old patient, in her fourth gestation, with a previous history of 2 vaginal and 1 caesarean birth 4, in her 28.4 week of pregnancy, by second trimester ultrasound, was diagnosed with placenta percreta with bladder and rectal invasion using magnetic resonance imaging. Multidisciplinary and sequential treatment included: Caesarean with placenta *in situ*, uterine artery embolisation immediately after caesarean, chemotherapy with methotrexate weekly for 4 doses, and finally obstetric hysterectomy after bilateral hypogastric artery ligation. The outcome was favourable and the patient was discharged in good general condition.

Conclusions: The protocolled and sequential management including selective embolisation immediately after caesarean section with placenta *in situ*, weekly chemotherapy with methotrexate and obstetric hysterectomy, preceded by bilateral ligation of the hypogastric arteries, is a therapeutic alternative to be considered in cases of placenta percreta.

© 2015 Academia Mexicana de Cirugía A.C. Published by Masson Doyma México S.A. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

[☆] Please cite this article as: Tórrez-Morales F, Briones-Garduño JC. Percretismo placentario con invasión de vejiga y recto. *Cir Cir.* 2017;85:66–69.

* Corresponding author at: Calle Coyoacán 1435, Edif. H 433, Colonia Del Valle, Delegación Benito Juárez, C.P. 03100 Mexico City, Mexico. Telephone: +52 55 3516 0428.

E-mail address: lanciomed@hotmail.com (F. Tórrez-Morales).

PALABRAS CLAVE

Percretismo
placentario;
Embolización;
Quimioterapia

Percretismo placentario con invasión de vejiga y recto**Resumen**

Antecedentes: El percretismo placentario puede llevar a hemorragia obstétrica masiva, descompensación del estado hemodinámico y finalmente a la muerte. Con relación al tratamiento, la histerectomía obstétrica total de inicio se encuentra universalmente aceptada; sin embargo, el surgimiento de nuevas técnicas de abordaje, como la angioembolización de arterias uterinas y el uso de agentes quimioterapéuticos como el metotrexato, con el objetivo de disminuir las complicaciones asociadas, son alternativas también descritas en la literatura. **Caso clínico:** Paciente femenina de 28 años de edad, multigesta, gesta 4, partos 2, cesárea una, que cursó con embarazo de 28.4 semanas por ultrasonografía del segundo trimestre, es diagnosticada de percretismo placentario con invasión vesical y rectal, mediante resonancia magnética. Ingresa bajo protocolo de manejo multidisciplinario y secuencial, cuyos componentes fueron cesárea con placenta *in situ*, embolización selectiva de arterias uterinas inmediatamente posterior a cesárea, quimioterapia semanal con metotrexato por 4 dosis y, finalmente, histerectomía obstétrica, previa ligadura bilateral de arterias hipogástricas. El resultado fue favourable, ya que la paciente egresó en buenas condiciones generales, sin presentar hemorragia ni otras complicaciones durante el tratamiento.

Conclusiones: El manejo protocolizado y secuencial, que incluye embolización selectiva de las arterias uterinas inmediatamente posterior a la cesárea con placenta *in situ*, quimioterapia con metotrexato de forma semanal y, finalmente, histerectomía obstétrica precedida de ligadura bilateral de las arterias hipogástricas es una alternativa terapéutica a considerar en casos de percretismo placentario.

© 2015 Academia Mexicana de Cirugía A.C. Publicado por Masson Doyma México S.A. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Background

Placenta percreta is defined as the abnormal insertion of chorionic villi in the myometrium, in the absence of decidua basalis and Nitabuch's¹ fibrinoid layer that, depending on the degree of penetration, is classified as placenta accreta (78% of cases), which reaches the myometrium but does not invade it; placenta increta (17% of cases), which invades the myometrium, and finally placenta percreta (5% of cases), in which the chorionic elements penetrate and pass through the serous layer of the uterus and may reach neighbouring organs.²

Placenta accreta may lead to massive obstetric haemorrhage, with haemodynamic decompensation and eventually death, making it a public health problem. The World Health Organisation recently described placenta accreta as a new pandemic that is directly associated with patients with a history of 2 or more previous cesarian sections. In Mexico the rate of cesarian sections has gradually increased to levels above 36% in 2012, as a result of which the number of cases of placenta accreta has also increased.³

The American College of Obstetricians and Gynaecologists indicates that, if data exist that lead to a suspicion of placenta accreta certain measures should be taken to optimise birth and treatment, to reduce the risk of maternal morbimortality. These measures include:

1. Warning the patient of the risks of hysterectomy and blood transfusion.
2. A reserve of hemoconcentrates must be available.

3. A suitable place for the resolution of the pregnancy must be available, in terms of its staff as well as its facilities.
4. Previous evaluation by anaesthesiology.
5. If necessary, the pelvic arteries can be embolised as an alternative to hysterectomy or to reduce blood loss in the latter.⁴

This clinical case aims to present the clinical and surgical evolution of a patient diagnosed placenta percreta, with invasion of the bladder and rectosigmoid, treated in the Gynaecology and Obstetric Intensive Care Unit of the Hospital General in México.

Clinical case

A 28-year-old female patient who had previously undergone several pregnancies and who was admitted to the Gynaecology and Obstetric Intensive Care Unit of the Hospital General in México, after referral by the Hospital Materno Infantil of the State of México (Toluca). She had a history of: 4 pregnancies, with 2 normal births (7 and 5 years previously) and one caesarean section (9 years previously, due to the umbilical cord wrapping round the foetus) and the diagnosis of pregnancy at 28.4 weeks by ultrasound scan in the second three-month period, haemorrhage in the second half of the pregnancy, anaemic syndrome under treatment, a previous totally occlusive placenta, placenta percreta up to the bladder and sigmoid rectum. The previous placenta study was included, with: Doppler ultrasound cystoscopy and nuclear magnetic resonance, showing involvement of the bladder

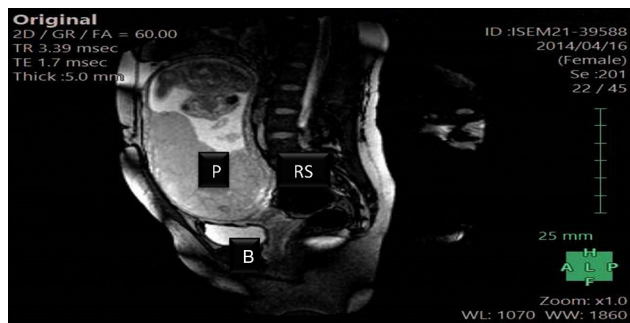


Figure 1 Nuclear magnetic resonance image. P: placenta; RS: recto sigmoid; B: bladder.

and rectosigmoid (Fig. 1); at the same time treatment with foetal pulmonary maturity inductors commenced. Doppler ultrasound scan also showed previous placenta body and previous total placenta, with pelvic presentation, placenta accreta and percreta to the bladder and sigmoid rectum. Cystourethroscopy reported premeatal sentinel vessel, right lateral with serous membrane involvement, 2–3 cm and pulsatile; left posterolateral wall with large calibre sentinel vessel in the left lateral wall without involvement of the bladder dome, with placenta percreta to the bladder.

Interruption of the pregnancy by cesarian section was planned, under peridural conduction anaesthesia. During the surgical procedure medusa head infiltration of the placenta that compromised the bladder dome, the broad ligament in its right thickness and the posterior fundus of the sac was found. Classical hysterotomy was performed in the fundic region resulting in a single male foetus weighing 1 kg and 34 cm in size, Apgar 5/6, Capurro 31.5 weeks. The umbilical cord was sutured with 1/0 silk and re-inserted in the uterine cavity. Single plane hysterorrhaphy was carried out using 1/0 chromed catgut. The patient was immediately taken to the Interventional Radiology department for the selective embolisation of the uterine arteries with gelfoam, and 100% of them were embolised (Figs. 2 and 3).

Following the third day after the cesarian section 80 mg IV of methotrexate was administered weekly in 4 consecutive doses. Levels of human chorionic beta subunit gonadotropin were also monitored, with an initial figure of 598.960 mIU/ml (Table 1).

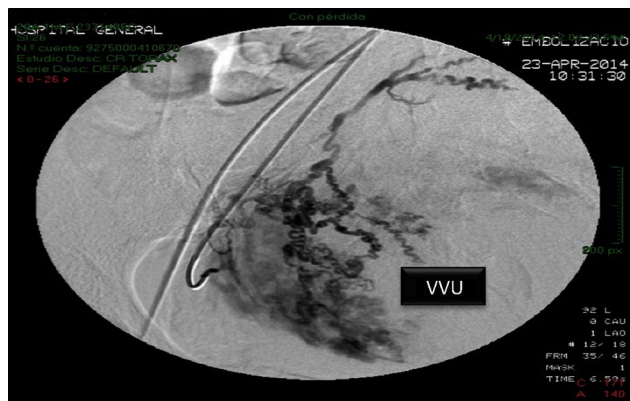


Figure 2 Selective embolisation of the right uterine artery. VVU: right bladder and uterine vascularisation.

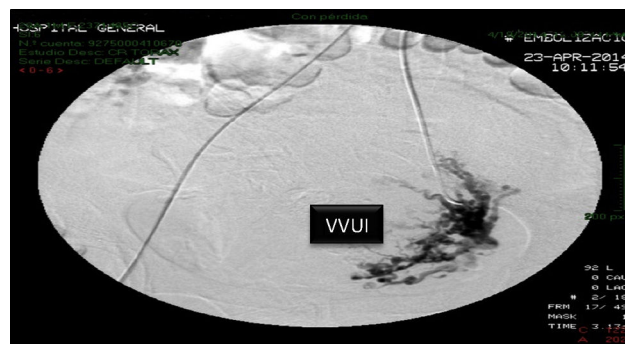


Figure 3 Embolisation of the left uterine artery. VVUI: left bladder and uterine vascularisation.

Table 1 Levels of human chorionic beta subunit gonadotropin.

Week	Values in mIU/ml
First week	748,070
Second week	603,550
Third week	382,780
Fourth week	245,000

A slight increase was detected in bilirubin levels after the final dose of methotrexate had been administered, when total bilirubin levels were found to be 1.32 mg/dl, indirect bilirubin was 0.92 mg/dl and direct bilirubin was 0.40 mg/dl.

After 32 days of hospitalisation the patient was hemodynamically stable and quantitative levels of human chorionic beta subunit gonadotropin were below 250 mIU/ml and Doppler ultrasound scan showed a significant reduction in bladder and uterine circulation (Fig. 4), so that it was decided to perform a second surgical operation to carry out a total obstetric hysterectomy.

To reduce the risk of bleeding during surgery a ligature was first applied to the hypogastric arteries using the GALA technique, after which the classical surgical technique was performed, corresponding to obstetric hysterectomy.

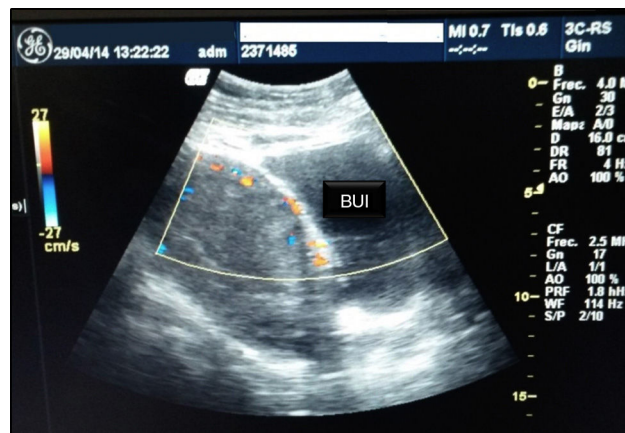


Figure 4 Doppler ultrasound scan. BUI: bladder and uterine interface.

Surgical findings showed a 90% reduction in infiltration by medusa head placenta towards the dome of the bladder, the broad ligament and posterior sac fundus. Total estimated bleeding amounted to 1800 ml, so that two globular concentrates were transfused.

The patient was monitored for a further 24 h for multiple parameters in the Obstetric Intensive Care Unit before being moved to the Perinatology Department, from where she was discharged without complications.

Discussion

The phenomenon of invasion of the bladder and adjacent structures almost always occurs in patients with totally occlusive placenta previa and a history of one or more previous cesarian sections.⁵ Thanks to the introduction of new diagnostic methods such as Doppler ultrasound scan, magnetic resonance imaging and cystoscopy, the diagnosis of placenta accreta, increta or percreta may be carried out in an opportune manner before the end of gestation.⁶ Although total obstetric hysterectomy is universally accepted,⁷ the emergence of new techniques to treat symptoms such as the angioembolization of the uterine arteries and the use of chemotherapeutic agents such as methotrexate are alternatives for the safer management of placenta accreta.

Angioembolization of the uterine arteries is performed with the aim of reducing the risk of surgical bleeding,⁸ which is often associated with the ligation of the hypogastric arteries.

Methotrexate is a chemotherapeutic medication which is classified as a folate antagonist. It is used in placenta accreta due to its action against proliferative trophoblasts, although it is said that, following birth, it loses its usefulness given that the placenta ceases to be biologically active. Nevertheless, research works published by authors such as Arulkumaran et al. in 1986,⁹ followed by Mussalli et al. in 2000¹⁰ raise doubts about these hypotheses.

Conclusion

Protocol-governed and sequential management including the selective embolisation of the uterine arteries immediately following cesarian section with the placenta *in situ*, chemotherapy with methotrexate and, finally, obstetric hysterectomy after bilateral ligation of the hypogastric arteries is a therapeutic alternative to be considered in cases of placenta percreta.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors declare that no patient data appear in this article.

Conflict of interests

The authors have no conflict of interests to declare.

References

1. Vera ME, Lattus OJ, Bermúdez LH, Espinoza UL, Ibáñez BC, Herrera VA, et al. Placenta percreta con invasión vesical: Reporte de 2 casos. *Rev Chil Obstet Ginecol.* 2005;70:404–10.
2. Ortiz-Villalobos RC, Luna-Covarrubias EE, Serrano-Enríquez RF, Laureano-Eugenio J, Mejía-Mendoza ML, Rodríguez-Rodríguez JG. Placenta percreta con invasión a la vejiga, el uréter y la pared abdominal. *Ginecol Obstet Mex.* 2013;81:487–93.
3. Noguera Sánchez MF, Karchmer Krivitzky S, Rabadán Martínez CE, Sánchez PA. Acretismo placentario, un problema en aumento. El diagnóstico oportuno como éxito del tratamiento. *Ginecol Obstet Mex.* 2013;81:99–104.
4. Breen JL, Neubecker RL. Placenta accreta. ACOG Committee. Opinion No 266. Washington, DC: American College of Obstetricians and Gynecologists. *Obstet Gynecol.* 2002;99:169–70.
5. O'Brien JM, Barton JR, Donaldson ES. The management of placenta percreta: conservative and operative strategies. *Am J Obstet Gynecol.* 1996;175:1632–8.
6. Bakri YN, Rifai A, Legarth J. Placenta previa-percreta. Magnetic resonance imaging findings and methotrexate therapy after hysterectomy. *Am J Obstet Gynecol.* 1993;169:213–4.
7. Dueñas GO, Rico OH, Rodríguez BM. Actualidad en el diagnóstico y manejo del acretismo placentario. *Rev Chil Obstet Ginecol.* 2007;72:266–71.
8. Otaño L, García-Mónaco R. Embolización pelviana en Obstetricia. *Bol Med Fetal.* 2007;3:1–2.
9. Arulkumaran S, Ingemarsson I, Ratnman S. Medical treatment of placenta accreta with methotrexate. *Acta Obstet Gynecol Scand.* 1986;65:285–6.
10. Mussalli GM, Shah J, Berck DJ, Elimian A, Tejani N, Manning F. Placenta accreta and methotrexate therapy: 3 cases reports. *J Perinatol.* 2000;20:331–4.