Radiology Case Reports 16 (2021) 3787–3789

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/radcr

Case report

Spontaneous uterine rupture of an unscarred uterus revealed by a subocclusive syndrome: A case report and review of the literature ☆

Narjisse Aichouni[a,*], *Aahd Belharti*[a], *Hanane Saadi*[b], *Ahmed Mimouni*[b], *Siham Nasri*[a], *Imane Skiker*[a]

[a] *Department of Radiology, Mohammed VI University Hospital, Faculty of Medicine, University Mohammed First, Oujda, Morocco*

[b] *Department of Obstetrics and Gynecology, Mohammed VI University Hospital, Faculty of Medicine, University Mohammed First, Oujda, Morocco*

ARTICLE INFO

Article history:
Received 11 August 2021
Revised 6 September 2021
Accepted 8 September 2021

Keywords:
Uterine rupture
Subocclusive syndrome
Imaging
Case report

ABSTRACT

Spontaneous uterine rupture of an unscarred uterus is a complication that has dramatic results for both mother and fetus. The clinical presentation commonly comprises abdominal pain and metrorrhagia however we report a case of spontaneous uterine rupture revealed by a subocclusive syndrome. We report a case of a young woman who came to the ER with 3 days of progressive abdominal pain and subocclusive syndrome. The current pregnancy was estimated at 32 weeks of amenorrhea and the patient was hemodynamically stable. An obstetric ultrasound was performed showing a progressive monofoetal pregnancy and moderate peritoneal effusion. In view of the presence of effusion on ultrasound and the subocclusive syndrome, an abdominal and pelvic CT scan with contrast was carried out, showing a fundal uterine rupture defect with contrast media extravasation and intraperitoneal hemoperitoneum. The patient was immediately transferred to the operating room for a caesarean section. Although CT scans use radiation, their contribution was essential to avoid maternal death.

Spontaneous uterine rupture of an unscarred uterus is a rare complication of pregnancy with potentially dramatic results for both mother and fetus. We report a case of spontaneous uterine rupture of an unscarred uterus revealed by a subocclusive syndrome. We will discuss the clinical data, the imaging findings and the different therapeutic options and compare our results with the literature. This is an exceptional case that we observe for the first time in our unit.

Case presentation

Mrs LI, 29 years old, gravida 4 para 3, all delivered vaginally without instrumental manœuvres. She came to the ER with a

☆ Competing interests: The authors declare that they have no conflicts of interest.

* Corresponding author.
E-mail address: a.narjisse@hotmail.com (N. Aichouni).

https://doi.org/10.1016/j.radcr.2021.09.016

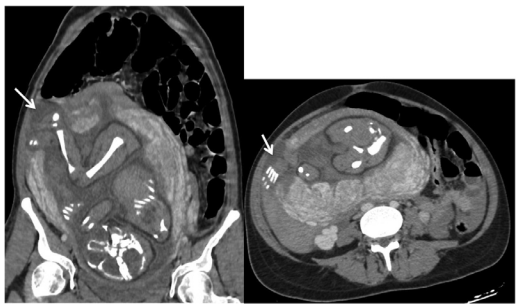

Fig. 1 – Axial (A) and coronal (B) CT scan showing a fundal uterine rupture with protrusion of the amniotic sac containing the feet of the fetus (arrow).

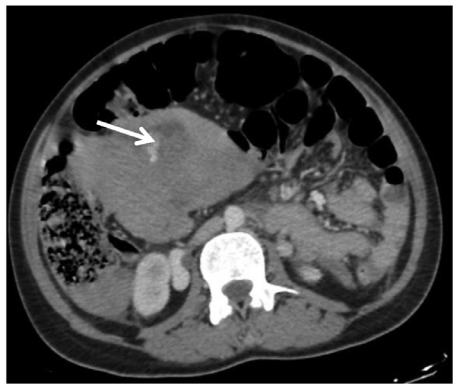

Fig. 2 – Contrast-enhanced CT scan showing a focus on the active extravasation medium in the uterine fundus (arrow).

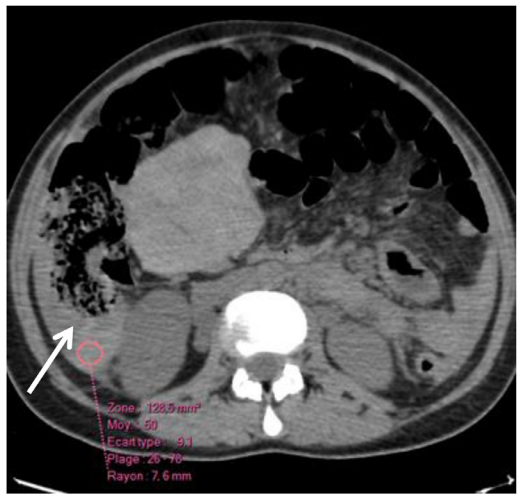

Fig. 3 – Non-contrast CT scan showing intraperitoneal hemoperitoneum along the right paracolic gutter (arrow).

3 days progressive evolution abdominal pain and subocclusive syndrome.

The current pregnancy estimated at 32 weeks of amenorrhea was well attended. At 30 weeks of amenorrhea, the patient presented a premature labor with a favorable outcome.

The patient was hemodynamically stable. A biological check-up was carried out

The patient was hemodynamically stable. A biological check-up was carried out showing microcytic hypochromic anaemia with a haemoglobin value at 7.3 g/dl, no thrombocytopenia, a correct prothrombin time and O Rh- grouping. A request for blood was made.

Gynaeco-obstetrical examination found diffuse abdominal tenderness, foetal heart sounds, no uterine contractor, the pelvic exam showed a cervix 70% effaced, a cephalic presentation, and an intact amniotic sac with no bleeding. The rectal examination revealed an empty rectal ampulla.

An obstetric ultrasound was performed showing a progressive monofoetal pregnant with an estimated foetal weight of 1750 g, normal amniotic fluid volume with a big cistern at 5 cm, Fundal-posterior placenta and moderate peritoneal effusion. The normal fetal heart rate was normal.

The presence of abundant hemoperitoneum and uterine fundal hematoma had impeded the ultrasound exploration. Therefore, and in front of the notion of occlusive syndrome, it was decided to complete by a CT scan showing a fundal uterine rupture defect with protrusion of the amniotic sac containing the feet of the fetus (Fig. 1) with contrast media extravasation (Fig. 2) and intraperitoneal hemoperitoneum extending from the upper abdomen around the liver and spleen to the paracolic gutters (Fig. 3).

The patient was immediately transferred to the operating room for a caesarean section which revealed two ruptures at the level of the uterine fundus, the first lateralized on the right of 5 cm and the second fundal of 2 cm. The exploration also revealed the presence of abundant hemoperitoneum.

An amniotomy was performed giving birth to a female baby.

The fundal rupture was sutured and a bilateral tubal ligation was performed.

The patient was first hospitalized in the intensive care unit for 48 hours then in the department of obstetrics and gynecology.

Discussion

Spontaneous uterine rupture is defined as a break in the continuity of the uterine wall during pregnancy or labor. This complication occurs mainly in the case of a scarred uterus [1]. In the absence of a history of myomectomy or caesarean section, the uterus is most often described as unscarred. In an unscarred uterus, it is estimated to be between 1/16,840 and 1/19,765 deliveries in high-income countries [2–3]. The risk factors identified in the literature are numerous but non-specific, the best known being caesarean section and uterine surgery techniques (myomectomy), multiparity, mechanical dystocia and prolonged labor, the use of prostaglandins, misoprostol, oxytocin, obstetric maneuvers (version, instrumental extractions), external trauma, uterine malformations, Ehler-Danlos syndrome [1,2,4,5,6]. The only risk factor found in our patient was multiparity.

In case of uterine rupture in unscarred uterus, Sho *et al.* have suggested the possible presence of arteriovenous malformations, uterine diverticula or endometriosis which would

weaken the uterine wall, the uterus then being more sensitive to rupture [7].

Uterine rupture in an unscarred uterus is mainly diagnosed during uterine revision for postpartum haemorrhage or incidentally during caesarean section [1,4,5]. Reported spontaneous uterine ruptures occur mainly in the third trimester as in our case the uterine rupture occurred at 32 weeks of amenorrhea.

The clinical presentation of uterine rupture commonly comprises sudden abdominal pain, a sensation of tearing, metrorrhagia and hemodynamic instability evolving towards the circulatory shock [8]. Clinically, our patient had a subocclusive syndrome for 3 days without any hemodynamic instability. As the clinical presentation was misleading, imaging plays an important role in the diagnostic process. Ultrasound is an accessible and not irradiant examination, that is first used in emergency to visualize the uterine defect and evaluate the fetal suffering. Because of its irradiant nature, the CT scan has no place in the diagnosis of uterine rupture. But in some circumstances the long-term theoretical risk of radiation to the mother and fetus may be outweighed by the immediate benefit of having a life-saving diagnosis. In our case, the CT scan played a major role in the diagnosis of uterine rupture, particularly in view of the misleading clinical picture presented by our patient. The latter allowed us to demonstrate a defect of the uterine wall, its location and the associated hemoperitoneum.

Despite the increasing popularity of magnetic resonance imaging (MRI) as a diagnostic tool, the literature contains few case reports illustrating the utility of MRI and its adva. With fast T2-weighted sequences, relevant uterine structures can be reliably visualized, independent of ultrasound limitations. MRI allows the visualization of the uterine wall defect or tear itself resulting in a more definitive diagnosis. In comparison to ultrasound, MRI is less operator-dependent and provides a more comprehensive study with a larger field of view [9]. Since the clinical presentation was a subocclusive syndrome and the ultrasound exam was normal, MRI was not indicated in our case.

Most authors agree that ruptures occurring during labor are more likely to occur in the lower segment, whereas those occurring outside labor are more likely to be corporal [10]. In our case, it was a rupture of the uterine fundus.

The therapeutic management of the uterine rupture remains a medical and surgical emergency. It includes medical resuscitation followed by surgical exploration via the laparotomic route. Although the majority of authors recommend a hysterectomy, conservative treatment by hysterorrhaphy can nevertheless be carried out in cases where reconstruction is technically possible, particularly in young patients who wish to have subsequent pregnancies [11,12]. Our patient underwent surgical exploration by caesarean section with suture of the uterus defect.

Conclusion

Spontaneous uterine rupture of an unscarred uterus is life-threatening for the mother and the fetus, hence the need for rapid and immediate management. Imaging plays a very important role if the clinic is not suggestive of uterine rupture.

Patient consent

Consent was obtained from the patient. The study was conducted anonymously.

Availability of data and materials

The data sets are generated on the data system of the university hospital of Oujda.

Informed consent

An informed consent was obtained from the patient.

REFERENCES

[1] Parant O. Rupture utérine : prédiction, diagnostic et prise en charge. J Gynécologie Obstétrique Biol Reprod. déc 2012;41:803–16.
[2] Gibbins KJ, Weber T, Holmgren CM, Porter TF, Varner MW, Manuck TA. Maternal and fetal morbidity associated with uterine rupture of the unscarred uterus. Am J Obstet Gynecol 2015;213(3) 382.e1-382.e6.
[3] Landon MB. Uterine rupture in primigravid women. Obstet Gynecol 2006;180:709–10.
[4] Amate P, Se ´ror J, Aflak N, Luton D. Rupture ute ´rine pendant la grossesse. EMC Obstet 2014;10 [5-080-A-10].
[5] Smith JG, Mertz HL, Merrill DC. Identifyingriskfactorsforuterinerupture. Clin Perinatol 2008;35(1):85–99.
[6] Hagneré P, Denoual I, Souissi A, Deswarte S. Rupture utérine spontanée après myomectomie. A‘ propos d’un cas et revue de la litte ŕature. J Gynecol Obstet Biol Reprod 2011;40(2):162–5.
[7] Sho EP, Wells M, Baxter T, Lane G. Recurrent spontaneous uterine rupture in a nulliparous young woman. Br J Obstet Gynaecol 1995;102(5):420–1.
[8] Khediria Zied, Mbarkia Chaouki, Anis Ben Abdelaziza, Hsayaouia Najeh, Slim Khlif A, Chaabenea Mariem, Mezghennib Sana. Oueslatia Hedhili. Rupture utérine spontanée de découverte tardive sur utérus sain après utilisation du misoprostol. Imagerie de la femme 2012;22(3):152–5.
[9] Hruska Karim M, Coughlin Bret F, Coggins Allahna A, Wiczyk Halina P. MRI diagnosis of spontaneous uterine rupture of an unscarred uterus. Emerg Radiol 2006;12:186–8.
[10] Bretones S, Cousin C, Gualandi M, Mellier G. Rupture uterine. J Gynecol Obstet Biol Reprod 1997;26:324–7.
[11] Sakr R, Berkane N, Barranger E, Dubernard G, Daraï E, Uzan S. Unscarred uterine rupture: case report and literature review. Clin Exp Obstet Gynecol 2007;34:190–2.
[12] Walsh CA, Baxi LV. Rupture of the primigravid uterus: a review of the literature. Obstet Gynecol Surv 2007;62:327–34.