



## Acute rectal ischaemia after bilateral uterine artery embolization and urgent hysterectomy to treat massive bleeding



Anne-Sophie Didnée Jr.<sup>a,\*</sup>, Poirier Philippe<sup>b</sup>, Jean Marc-Henri<sup>c</sup>, Samuels Louisa<sup>a</sup>, Comy Michel<sup>c</sup>

<sup>a</sup> Service d'Urgences Chirurgicales, Chirurgie Digestive, 5 Place d'Arsonval, 69003 Lyon, France

<sup>b</sup> Service de Chirurgie Vasculaire, CHD Vendée, Boulevard Stéphane Moreau, 85000 La Roche sur Yon, France

<sup>c</sup> Service de Chirurgie Digestive, CHD Vendée, Boulevard Stéphane Moreau, 85000 La Roche sur Yon, France

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### ABSTRACT

**INTRODUCTION:** This is the first case of total rectal and anal canal necrosis following uterine arteries embolization described in the literature.

**PRESENTATION OF CASE:** A 34 year-old woman suffered from massive Post Partum Haemorrhage. A vascular surgeon performed bilateral uterine arteries embolization with absorbable gelatin sponge which did not allowed a sufficient control of the bleeding, leading to hysterectomy.

Perineal gangrene was diagnosed on day 10 on CT scan, pelvic MRI, and rectosigmoidoscopy. The etiology was a rectal ischaemia going from the level of the second sacral vertebra to the anal canal. Drainage and a lateral laparoscopic sigmoidostomy were associated to antibiotherapy.

**DISCUSSION:** Ornan et al. described complications of bilateral uterine arteries embolization in a serie of 28 patients with post partum haemorrhage. One of these patients presented a necrotic segment of small bowel 7 days after the embolization, she required a surgery. The hypothesis for these kinds of complications is the migration of the gelatine sponge particles.

**CONCLUSION:** This rare but life-threatening complication has never been reported before and should be known when considering perineal pain after bilateral uterine arteries embolization.

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### 1. Introduction

A 34 year old woman, whose only significant medical history comprised a haemorrhoidectomy, gave birth in October 2013 to her third child at 41 weeks gestation. Foetal macrosomia was noted.

Labour was spontaneous and lasted 4 h, the placenta was delivered three minutes after delivery. A perineal tear caused superficial vulvovaginal lacerations and was repaired with a simple suture.

Postpartum haemorrhage began one hour following delivery. Manual uterine exploration was performed under anaesthesia, without effect.

The patient lost 2000 ml of blood so the vascular surgeon decided to perform a bilateral uterine artery embolisation via the right common femoral artery. The left uterine artery was embolised with an absorbable gelatine sponge (Gelitaspon) and the subsequent angiogram showed a complete thrombosis (Figs. 1 and 2, ). The procedure was then repeated on the right (Figs. 3 and 4)). However, the patient became unstable again and the blood loss

increased to 3000 ml. Uterine massage was performed, followed by a hysterectomy in order to arrest the bleeding.

Total blood loss was 4500 ml. The patient received 8 units of packed red blood cells, 6 units of fresh frozen plasma and 1 g of fibrinogen. She was admitted to the Intensive Care Unit for the treatment and surveillance of haemorrhagic shock for 48 h, before being returned to the maternity hospital.

The patient's clinical condition began to deteriorate and an abdominal CT scan and a pelvic MRI (Fig. 5) were performed on day 10 for suspected perineal gangrene.

Imaging demonstrated rectal ischaemia to the level of the second sacral vertebra, and a large abscess extending from the left of the rectum to the left ischio-rectal fossa. The patient underwent surgery immediately. ,

Examination under general anaesthesia showed perineal gangrene (Fig. 6) which extended into the left ischio-rectal fossa, and a partial rupture of the anal sphincter at the 2 o'clock position. The anoscopy and rectosigmoidoscopy revealed black, necrotic mucosa and associated mucosal slough within the anal canal, and the lower and middle rectum. The defect in the anal canal at the 2 o'clock position was also noted.

Surgical debridement was performed and multiple drains were placed in the spaces created by the extension of the gangrene. The

\* Corresponding author. Tel.: +33 251 49 63 59; fax: +33 251 49 63 59.  
E-mail address: [annesodidnee@hotmail.fr](mailto:annesodidnee@hotmail.fr) (A.-S. Didnée Jr.).

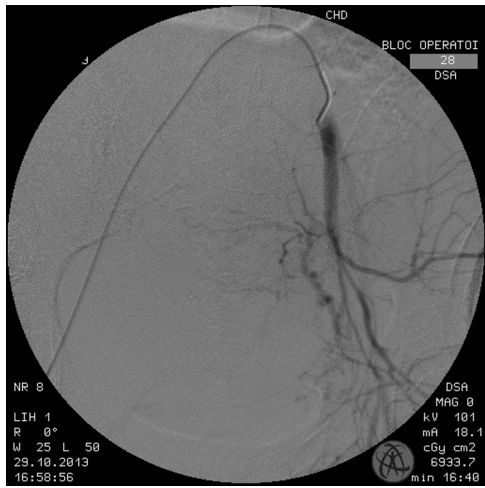


Fig. 1. Before left uterine artery embolization.



Fig. 4. After right uterine artery embolization.



Fig. 2. After left uterine artery embolization.

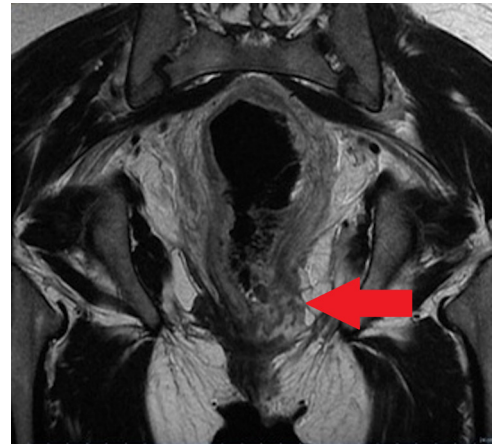


Fig. 5. Coronal T2 weighted pelvic MRI. Rectal wall thickening, pararectal abscess.



Fig. 3. Before right uterine artery embolization.



Fig. 6. Perineal gangrene.

surgeon performed a lateral laparoscopic sigmoidostomy and parenteral antibiotics were started. The patient required daily nursing care for the perineal wounds and was discharged 20 days post surgery.

During follow up, a rectovaginal fistula was detected clinically and confirmed on pelvic MRI. After many examination of patient's perineum under general anaesthesia, a laparoscopic Soave procedure was performed in association with a lateral ileostomy, eleven months after the first surgery. The ileostomy was reversed three months later. At the time of publication, the patient enjoys a normal social life and does not suffer from faecal incontinence.

## 2. Discussion

To our knowledge, this is the first case of total rectal and anal canal necrosis following bilateral uterine artery embolisation to be described in the literature.

The pathophysiology of this rare, but severe complication remains unclear. Haemorrhagic and hypovolaemic shock are certainly risk factors for ischaemia [1–3]. Nevertheless acute rectal ischaemia is rare due to the abundant blood supply and rich collaterals of the rectum [3]. Moreover, the superior, middle and inferior rectal arteries have three different arterial origins: the inferior mesenteric artery, the internal pudendal artery and the internal iliac artery [3]. Furthermore, intramural collaterals exist between the small arteries often lower rectum [3,4].

In the majority of cases, acute rectal ischaemia occurs in patients with a history of vascular disease [3], or cardiac risk factors [1], in a context of haemodynamic instability. Occlusion or ligation of both hypogastric arteries is also a risk factor. Rectal ischaemia has been previously reported in a 24 year old man, 12 days after he suffered hypovolaemic shock caused by a deep penetrating injury in the right cubical fossa [2].

Embolic events have previously been described following bilateral uterine artery embolisation for postpartum haemorrhage. Ornan et al. [6] described the complications of the procedure in a series of 28 patients, one of whom presented requiring surgery for a necrotic segment of small bowel 7 days following embolisation. Additionally, Massen et al. [7] reported a thromboembolic event of the right leg in one of their 11 patients, also treated with bilateral uterine artery embolisation for postpartum haemorrhage.

It is hypothesised that these complications are a result of the migration of particles of the gelatine sponge from the internal iliac artery [7].

Cooper et al. [8] showed that the outcomes of uterine artery embolisation are similar regardless of whether the procedure is performed by a vascular surgeon or an interventional radiologist.

## 3. Conclusion

Despite its rarity, rectal ischaemia should be kept in mind by physicians dealing with perineal pain or sepsis following bilateral uterine artery embolisation.

## Conflict of interest

No conflicts of interest.

## Consent

Studies on patients or volunteers require ethics committee approval and fully informed written consent which should be documented in the paper.

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## Author contribution

Anne-Sophie Didnée – conception and design, writing the article. Philippe Poirier – critical revision of this article. Louisa Samuels – English student, English revision of the article. Marc-Henri Jean – critical revision of this article. Michel Comy – final approval of the article.

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