

Case Report

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A Case of Ischemic Necrosis of the Uterus Secondary to Infection Following Cervical Suturing for Lack of Uterine Contraction during Cesarean Delivery and Review of the Literature

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Introduction

Weak uterine contractions during cesarean section are the most common cause of Postpartum Hemorrhage (PPH) [1], accounting for 70-80% of cases, with a progressive increase [2-4], For weak uterine contractions in addition to the first use of uterine contraction agents, when they are ineffective, surgical treatment needs to be used as early as possible [5,6]. The B-Lynch method of uterine loop suturing and intrauterine balloons Intrauterine Balloons (IUB) are relatively easy and commonly used methods to stop bleeding, but in recent years complications associated with uterine loop suturing have been reported, such as myometrial damage necrosis, catastrophic uterine rupture in mid to late pregnancy, uterine adhesions, secondary infertility, etc., causing pelvic and abdominal adhesions and bringing about a significantly higher incidence of complications [7-12]. Recently, in our hospital, due to intraoperative uterine contraction weakness after using circumferential suturing caused partial ischemic necrosis of the uterus and secondary infection, the patient was treated conservatively for up to 6 months and eventually the ischemic necrotic tissue of the uterus gradually returned to normal and the infection was controlled, the clinical data of this patient combined with literature review is reported below.

Case information

Female, 26 years old, primigravida. The pregnancy was terminated by cesarean section due to social factors, intraoperatively the uterus was weakly contracted after placental spontaneous abruption, and she was given 20 U of contractin, 2 ml of motherwort uterine body injection, 0.2 mg of ergometrine maleate injection drip, 2 layers of myometrium were continuously sutured with barbed sutures, and 1 layer of plasma myometrium was continuously sutured with barbed sutures, the uterus was still weakly contracted like a sack, continuous massage of the uterus was ineffective, she was given 0.9% NS+ The uterus contraction was still not improved, the uterus was quickly delivered outside the abdominal cavity, and the uterus was circumferentially sutured and tied with 1-0 absorbable thread in the non-vascular area of the broad ligament of the parametrium for 3 times with an interval distance of about 5.0 cm, the uterus was observed to be circumferential in shape, the uterus was normal in color, and no blood was oozing from the suture eyes, and the uterus was placed into the The pelvic cavity was explored and the abdomen was closed after the uterine incision suture was free of blood and the bilateral adnexa were free of abnormalities. On postoperative day 4, he developed fever and was treated with ceftazidime + ornidazole. On postoperative day 11, he was still febrile, and

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the culture result of vaginal secretion suggested *Escherichia coli* (+). Moxifloxacin + Ornidazole triple anti-infection. On the 13th postoperative day, fever was still present, and in order to be alert to potential fungal infection, the medication was adjusted to the combination of meropenem + voriconazole anti-infective treatment. No fever was observed after the 15th postoperative day. Relevant postoperative ancillary tests are shown in Figures 1, 2 and 3 below.

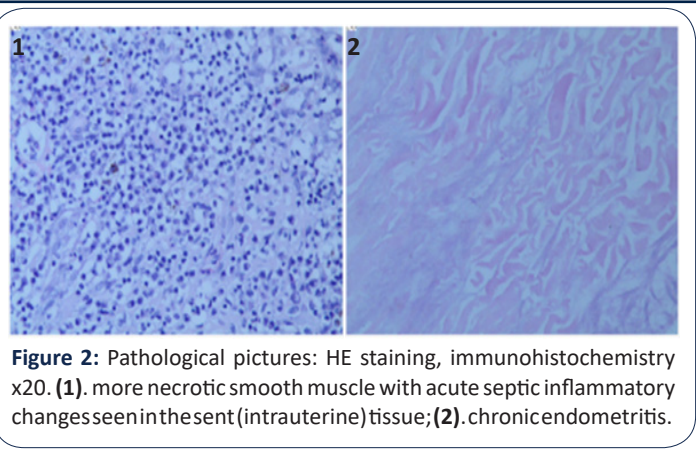


Figure 2: Pathological pictures: HE staining, immunohistochemistry x20. (1). more necrotic smooth muscle with acute septic inflammatory changes seen in the sent (intrauterine) tissue; (2). chronic endometritis.

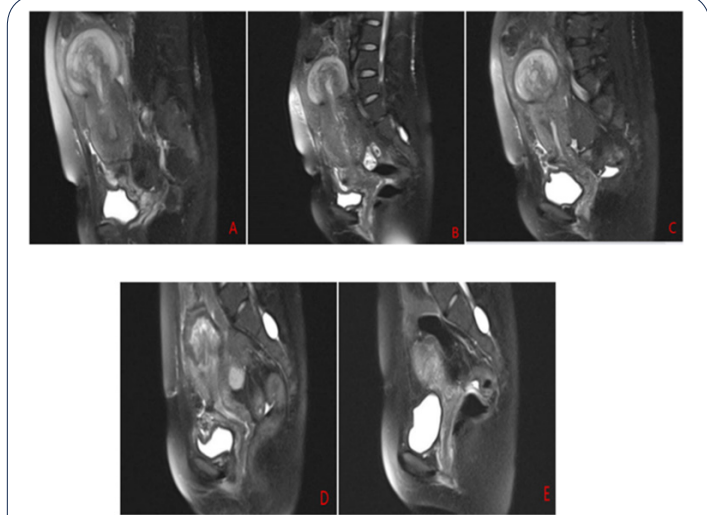


Figure 1: Postoperative review MRI images. (A): postoperative day 11; (B): postoperative day 15; (C): postoperative day 25; (D): postoperative day 59; (E): postoperative day 188.

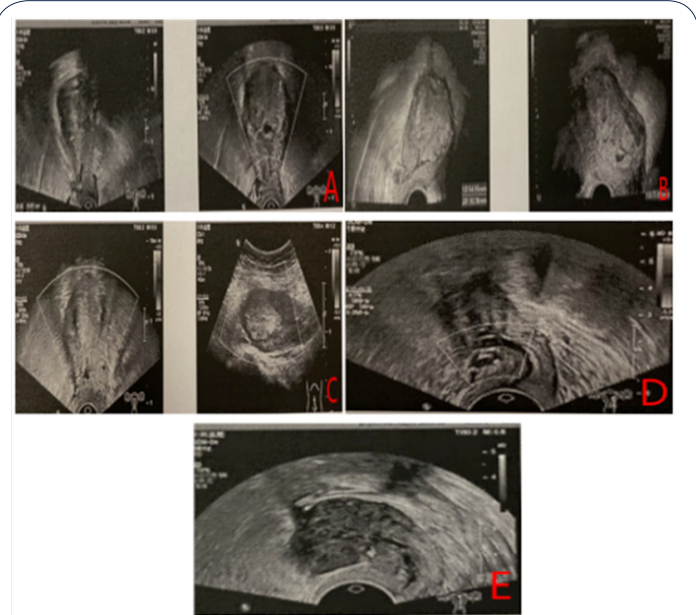


Figure 3: Postoperative review of vaginal ultrasound images. (A): postoperative day 34; (B): postoperative day 48; (C): postoperative day 67; (D): postoperative day 125; (E): postoperative day 188.

Table 1: Postoperative antibiotic use in this case.

Time (post-operative)	Fever	Antibiotics
the same day	not	Cefuroxime sodium
4 d	have	Ceftazidime + Ornidazole
11 d	have	Ceftazidime + Ornidazole + Levofloxacin
12 d	have	Meropenem + Moxifloxacin + Ornidazole
13 d	have	Meropenem + voriconazole
15 d	not	Meropenem + voriconazole

Table 2: Post-operative review of the mother in this case.

Time (post-operative)	Magnetic resonance results	Time (post-operative)	Color ultrasound results
11 d	The uterus is enlarged and the wall thickened, with fascicular changes seen in the fundic-body junction area, which is poorly defined.	34 d	The uterine body measures approximately 98 x 89 x 59 mm, and an inhomogeneous echogenic mass measuring approximately 65 x 66 x 45 mm is seen in the uterine cavity.
15 d	The uterus was enlarged, wall thickened, and fasciculated changes were seen in the fundic-body junction area, which was reduced from the previous subserosal cystic lesion within the uterus.	48 d	The uterine body is approximately 78 x 89 x 55 mm in size, and an inhomogeneous hyperechoic mass of 55 x 77 x 50 mm in size is seen in the uterine cavity.
25 d	The uterus was enlarged and wall thickened, with fascicular changes seen in the fundus-body junction area, 64 mm in diameter; the cystic lesion was reduced from the previous fundus and body of the uterus.	67 d	The size of the uterine body was about 67 x 61 x 37 mm and the size of the inhomogeneous hyperechoic mass was seen in the uterine cavity about 51 x 47 x 29 mm.
59 d	The uterus is slightly enlarged and a round-like cystic long T2 signal of approximately 44x39x62mm is seen at the base of the uterus, which is reduced from the previous cystic lesion at the base of the uterus.	125 d	The size of the uterine body is about 31 x 39 x 35 mm, and a mixed echogenic area with a range of about 28 x 13 mm is seen in the middle and lower part of the uterine cavity.

188 d	The uterus was not abnormal in size or morphology, and the bottom wall was seen to be 12m m in diameter isosignal; it was significantly smaller than the previous fundal uterine lesion.	188 d	The size of the uterine body was about 34 x 37 x 27 mm, and an area of 11 x 6 mm inhomogeneous echogenicity was seen within the myometrium at the lower anterior wall incision.
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Discussion

Uterine contraction weakness refers to the weakness of uterine contraction, as the most common cause of postpartum hemorrhage, and is also an indication for uterine compression suture [4], the basis of this suture technique used in surgery is from the British scholar B-Lynch proposed in 1997 [13], it belongs to a kind of uterine body compression suture, through the compression of the uterine cavity, reduce the volume of the uterine cavity to achieve the purpose of hemostasis, mainly used for bleeding caused by contraction weakness of the uterine body part, currently based on this suture technique has been derived from surgical sutures used in different ranges and with different advantages and disadvantages [14,15], such as Haymen modification of the B-Lynch suture technique, Cho square suture (patch suture, multi-square pressure suture), Hwu suture (patch suture, multi-square pressure suture), Hwu suture (parallel vertical compression suture of the lower uterine segment), etc. In this case, the patient developed partial ischemic necrosis of the myometrium and secondary infection after circumferential binding suture of the uterus, and the early antibiotics used failed to control the infection effectively. Therefore, in similar rare cases when infection cannot be effectively controlled with conventional antibiotics, whether early prophylactic use of antifungal drugs would bring unexpected anti-infective effects and perhaps better improve the patient's postoperative recovery, and avoid the occurrence of infection. After postoperative imaging data, hysteroscopy and pathological examination all suggest the presence of defective necrotic lesions in the uterus and the presence of infection in the uterine cavity, whether hysterectomy must be performed to resolve the symptoms of ischemic necrosis and infection when imaging and related ancillary examinations and clinical symptoms suggest the presence of ischemic necrosis and co-infection, after the availability of hysterectomy guidelines [4], it is still necessary to For patients who are primiparous or have high fertility requirements, and whose clinical symptoms have gradually decreased after surgery and whose lesions have gradually decreased in size and normalized on relevant ancillary tests, continued conservative treatment under close monitoring is also a better option. Ischemic necrosis of the uterus complicated by infection as one of the complications after cricothyrotomy [4], this patient as a rare clinical case, after ischemic necrosis of the uterus and secondary infection through up to six months of conservative treatment, not only the infection was controlled, ischemic necrosis of the uterus lesion also gradually shrunk and returned to normal, although avoiding hysterectomy, but for our clinical treatment of such cases brings reflections, for intraoperative uterus due to Although hysterectomy was avoided, it brings reflections on our clinical treatment of such cases. For patients who underwent uterine cricothyrotomy due to weak intraoperative contraction, more attention should be paid to postoperative condition monitoring, clinical treatment, and clinical care to achieve early monitoring, early treatment, and early management to facilitate postoperative recovery.

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