

Uterine Necrosis in the Context of B-Lynch Compressive Sutures: Case Report

Inês Ferreira Jorge^{1*}, Sofia Rodrigues², Gonçalo Dias¹, Leonor Aboim¹, Elsa Dias¹ and Carlos Veríssimo¹

¹Gynecology/Obstetrics Department, Hospital Beatriz Ângelo, Portugal

²Gynecology/Obstetrics Department, Maternidade Dr. Alfredo da Costa - Centro Hospitalar de Lisboa Central, Portugal

***Corresponding Author:** Inês Ferreira Jorge, Gynecology/Obstetrics Department, Hospital Beatriz Ângelo, Portugal.

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Abstract

B-lynch compression sutures, applied as a life-saving procedure in cases of atonic postpartum hemorrhage can sometimes lead to life-threatening complications. We report a case of uterine necrosis following B-lynch compression sutures application, at the time of cesarean section. The end result was a hysterectomy.

A 34-year-old gravida 2, para 1, was admitted in labor at 40 weeks and 2 days. She was submitted to a cesarean section due to obstructed labor. Because of significant refractory atony, B-Lynch hemostatic sutures were placed. On postoperative day 8, the patient returned to the hospital due to persistent pain, abdominal distension, fetid-smelling lochia, vomiting and cessation of gas and feces emission. CT scan revealed intrauterine air content and marked distention of the intestinal loops. Due to suspected intra-abdominal infectious focus, she underwent exploratory laparotomy, which revealed uterine necrosis. A total hysterectomy was performed.

Although compression sutures are an effective technique for patients with uterine atony, uterine necrosis is a rare complication. It is important to promptly recognize signs and symptoms of this possible complication in order to act effectively.

Keywords: Postpartum Hemorrhage; Uterine Necrosis; B-Lynch Sutures

Introduction

Uterine atony is the main cause of postpartum hemorrhage [1]. One of the treatment modalities, when medical therapy fails, is uterine compression sutures, which are an effective conservative surgical therapy in the control of postpartum hemorrhage, with a high success rate [2-5].

B-Lynch suture technique for uterine compression was the first reported technique and was described in 1997 [2]. This technique has been recommended worldwide and has been included in the routine clinical practice for postpartum hemorrhage treatment in several protocols around the world. It has a success rate of 91,7% [7,8].

However, as in all surgical procedures, it is associated with short-term and long-term complications, as occlusion of the uterine cavity, necrosis, infection, synechiae, and incarceration of adjacent organs, among others [8-13].

The authors present a case that represents a complication of this surgical procedure.

Case Report

A 34-year-old gravida 2 para 1 was admitted to our institution at 40 weeks and 2 days due to spontaneous labor. She was previously healthy and her pregnancy was uneventful. In her obstetric history, she had one previous eutocic delivery without complications.

At 5 cm of dilation, a cesarean section was performed due to obstructed labor. A male newborn weighing 4030g was delivered. The cesarean was complicated by refractory uterine atony. Uterine massage and the administration of oxytocin, misoprostol, and intravenous sulprostone (in maximum doses according to the protocols of our institution), did not lead to any improvement in the uterine tonus. B-Lynch hemostatic sutures were placed. There was no need for transfusional support.

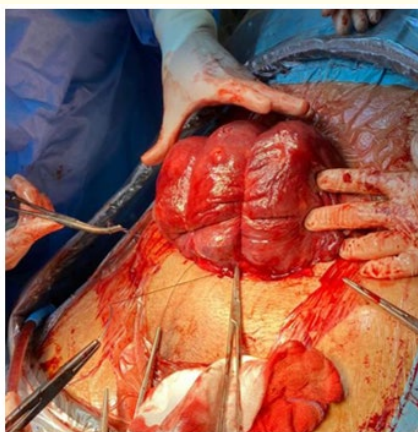


Figure 1: Intraoperative B-lynch sutures.

The postoperative period was complicated by intestinal ileus, which was managed conservatively with favorable clinical evolution, having been discharged on the 5th day of puerperium.

On the 8th day of puerperium, she went to the emergency department of our hospital due to pain and marked abdominal distension, with vomiting and cessation of gas and feces emission. On physical examination, she was afebrile and hemodynamically stable. Marked abdominal distension and fetid-smelling lochia were observed. In the analytical study, infection parameters were detected, namely leukocytosis ($31.46 \times 10^9/L$) and increased C-reactive protein (45.69 mg/dL). An abdominopelvic CT scan was performed, which revealed intrauterine air content and marked distention of the intestinal loops.

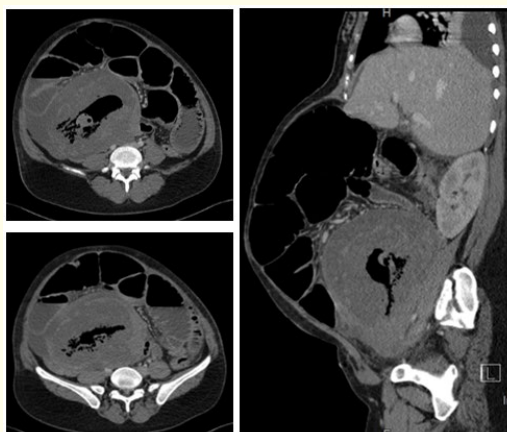


Figure 2: Abdominal CT showing intrauterine air content and marked distention of the intestinal loops.

Due to suspected intra-abdominal infectious focus, she underwent exploratory laparotomy. At the entrance to the abdominal cavity, cloudy ascites is visualized, which was aspirated in the amount of 1000 mL. Intraoperatively, uterine necrosis and focal, multi-segmental intestinal ischemia were observed. A total hysterectomy was performed with preservation of the fallopian tubes and ovaries. Cultures of the ascitic fluid and blood were negative.

She was transferred with a laparostomy to the intensive care unit due. The abdominal wall was closed 2 days later. The abdominal drain was removed after 3 days.

The postoperative period was uneventful and she completed 7 days of broad-spectrum antibiotic therapy with piperacillin and tazobactam. The patient was discharged on the 9th postoperative day.

The histopathologic analysis identified extensive lesions of coagulation necrosis, clots in the uterine cavity and myometrial hypertrophy with congestion, hemorrhage, and necrosis. These findings are suggestive of ischemic necrosis of the uterus.

Discussion

Compression sutures like B-Lynch sutures are effective conservative surgical modalities for preserving future fertility in the management of atonic postpartum hemorrhage [14]. The ease of implementation has allowed their rapid dissemination all over the world [15].

This case report confirms the efficacy of B-Lynch sutures in uterine atony treatment.

The B-lynch technique of a "belt and braces" uterine compression suture was described in 1997 and it involves a pair of vertical brace sutures around the uterus, essentially to oppose the anterior and posterior walls, thereby applying pressure on the placental bed bleeding and thus reducing it. It envelops and compresses the uterus, similar to the result achieved with manual uterine compression [6].

This type of suture was the first described in the literature and the most common technique for uterine compression. Several variations of this technique have been described and no technique has been proven significantly more effective than another [16,17].

Although there is still no randomized controlled trial comparing different types of sutures' effectiveness, the results published so far show a success rate between 36 and 98% (the majority of them above 75%). The time between the beginning of the hemorrhage, its diagnosis, previous medical treatment and the time by which the sutures are applied may be vital to success, as well as the experience of the surgeon [7,16,17].

Although the B-Lynch suture has a high rate of effectiveness, there is a risk of some complications [8,9,13]. There is a risk that apposition of the anterior and posterior walls of the uterus will impede the drainage of lochia, resulting in complications, such as pyometra, formation of synechiae and ischaemic necrosis [18-20]. Also, too tight sutures may compromise the blood supply of the uterus and lead to ischemic necrosis. Nevertheless, the frequency of such complications remains uncertain given the lack of reports in the literature concerning these procedures [15].

Additionally, if the sutures are applied in cases of chorioamnionitis, underlying septic foci and infectious process may already be present, leading to uterine necrosis [11]. In our case, there was no clinical evidence of intraamniotic infection at the time of cesarean delivery and placement of the two longitudinal sutures.

The nature of the sutures used and the initial tension degree of the points are two elements that may explain the difference in terms of ischemia. The technique itself could affect the occurrence of necrosis: uniform compression not interrupting the parietal vascularization by totality could reduce this risk. The correct placement of compression points such that reperfusion of the myometrium via the collateral anastomotic network is preserved may decrease the risk of necrosis [15].

Given the absence of big trials and the biases regarding complications, it is hard to compare the different compression sutures in terms of complications. All the complications mentioned above for the B-Lynch suture are associated with the other techniques [8,16].

As the thread is passed through the uterine cavity in Hayman's and Cho's procedure, there is a risk of blood trapping within it [8,21].

Generally, longitudinal sutures are safer than transverse sutures, but this may not always be the case. Alcides Pereira's technique does not involve suturing the anterior and posterior walls together and the needle does not penetrate the uterine cavity. Therefore, the risk of blood trapping, pyometra and uterine cavity synechiae and infections is reduced. Although it includes transverse sutures, given the small size of the bites, it is believed that the risk of bowel or omentum trapping in the suture is low [22].

Regarding the diagnosis of uterine necrosis, imaging exams play an important role. Ultrasound is the first line because it shows a large uterus with a wall redesigned and a heterogeneous image is associated with the presence of air in the uterus. The use of the CT scan is also often helpful because in our case, it revealed uterine necrosis with the presence of gas bubbles in the myometrium and the endometrium.

Conclusion

Uterine compression sutures are effective techniques to control uterine atony. However, as the overall experience with brace sutures increases, the reports of rare complications-such as uterine necrosis-will likely rise. This complication may well result from the placement of uterine compression sutures. It is important to promptly recognize signs and symptoms of a possible complication in order to act effectively.

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