Spontaneous Expulsion of a Large Fibroid after Bilateral Internal Iliac Artery Ligation in Postpartum Hemorrhage

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Uterine fibroids are benign growths of the uterus which may be symptomatic or asymptomatic. In pregnancy and puerperium, it poses risks.

A thirty-eight-year-old female who was a known case of fibroid uterus presented antenatally at 17 weeks of gestation and was followed up regularly. She delivered an alive baby spontaneously at 39 weeks with good Apgar scores and birth weight of 2.890 kg. However, she underwent bilateral internal iliac artery ligation after the failure of medical treatment for atonic postpartum hemorrhage (PPH) due to a large fibroid. On the 3rd postoperative day, spontaneous expulsion of the fibroid occurred and she had relief of the abdominal pain. Bilateral internal iliac artery ligation resulted in the control of atonic postpartum hemorrhage and prevented maternal mortality and also salvaged the uterus. Timely intervention by this method can be used as a safety measure for atonic postpartum hemorrhage due to fibroids.

INTRODUCTION

Postpartum hemorrhage is a major cause of worldwide maternal mortality. PPH mortality is more in the developing world than in the developed world[1]. The estimation of blood loss can be inaccurate and therefore the American College of Obstetrics and Gynecology has defined it as a drop of more than 10% in the hematocrit value compared to pre-delivery levels. PPH is classified as primary if the bleeding occurs within the first 24 hours following the delivery of the fetus. Secondary PPH occurs between 24 hours and 12 weeks post-delivery[2]. Population-based surveillance data from 1994-2006 in the United States concluded that an increase in PPH was caused by uterine atony[3]. An analysis of 14 cases by Ozgun et al revealed that uterine atony is the main indication for postpartum hysterectomy and/or IIAL[4]. One of the known risk factors for the occurrence of atonic postpartum hemorrhage is uterine fibroids. Uterine fibroids during pregnancy are difficult to be differentiated from physiological myometrial thickening[5]. Rosati et al have shown that the maximum increase in the volume of myomas occurs before the 10th week of pregnancy. Myoma volume concerning complications during pregnancy and delivery showed statistical significance[6].

There have been reported cases of uncomplicated spontaneous expulsion of fibroids postpartum[7]. There are reported cases of spontaneous postpartum expulsion of an intramural fibroid six weeks after an emergency cesarean section[8]. Spontaneous expulsion of a huge cervical leiomyoma from the vagina after the cesarean section has also been reported[9].

Our case is unique in that there was spontaneous expulsion of a fibroid following bilateral internal iliac artery ligation.

The aim of this presentation is to report a case of spontaneous expulsion of a fibroid following bilateral internal iliac artery ligation.

THE CASE

A thirty-eight-year-old female who was a known case of fibroid uterus had three previous full-term normal vaginal deliveries. Ultrasound assessment revealed a fundo-posterior intramural fibroid measuring 9cm × 9cm at 17 gestational weeks. The fibroid was more or less the same size throughout the pregnancy. Regular scans revealed adequate growth of the fetus. During the antenatal period, her hemoglobin level dropped to 8.5 g/dl; therefore, she was admitted for Ferrosac infusions. At 39 gestational weeks, she went into spontaneous labor and delivered an alive infant with good Apgar scores. Active management of the 3rd stage of labor was undertaken. Syntocinon infusion (Novartis) 20 units in 1 L ringer lactate was transfused at a rate of 125 ml/hour, Intramuscular Methergine 0.2 mg was given at the delivery of the anterior shoulder, and Cytotec 800 mcg per rectum was given. Two hours following the delivery, she had excessive vaginal bleeding with passage of large clots. The uterus was relaxed and the myoma was palpable through the cervix. Intramuscular Carboprost 250 mcg, intravenous Tranexamic acid 1g and Syntocinon 40 units in 500ml ringer lactate at the rate of 125ml/hour were given immediately to control the bleeding and one unit of blood was transfused. Ultrasound showed a posterior uterine wall fibroid of 7cm×8cm distorting the uterine cavity. The patient became hemodynamically unstable to be taken for uterine artery embolization. Laparotomy and bilateral internal iliac artery ligation with the possibility of hysterectomy were performed. Following bilateral internal iliac artery ligation, the femoral artery and dorsalis pedis artery pulsations were palpable. The procedure succeeded in controlling the vaginal bleeding and the patient recovered after receiving 4 units of packed red blood cells and 2 units of fresh frozen plasma.

On the 3rd postoperative day, she experienced severe abdominal pain for which analgesics were given. She spontaneously expelled a myoma-

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like mass measuring 8cm x 9cm through the vagina. The severe pain experienced by the patient could be caused by reduced blood supply, ischemia, and necrosis following the internal iliac artery ligation with possible post-partum red degeneration of the fibroid. Ultrasound confirmed the absence of fundo-posterior uterine myoma. There was no dimpling in the fundus. There was a posterior intramural fibroid measuring 3cm x 2cm.

This case highlights bilateral internal iliac artery ligation as a possible first-line intervention for cases of postpartum hemorrhage secondary to fibroid uterus if medical treatment fails to rescue the uterus.

DISCUSSION

Bilateral internal iliac artery ligation has been advocated as an effective means of controlling intractable postpartum hemorrhage to prevent maternal death. Reluctance to resort to surgical techniques once conservative measures fail is considered a fatal error of judgment. Bilateral internal iliac artery ligation is underutilized in the management of postpartum hemorrhage due to fear of injuring the internal iliac veins[10]. Burschell showed that internal iliac artery ligation could reduce pelvic blood flow and permit the coagulation mechanisms of the body to arrest the hemorrhage[11]. Bilateral internal iliac artery ligation is preferred to achieve greater success and has stood the test of time as an effective means to control life-threatening hemorrhage.

Failure to restore uterine tone and arrest blood loss by medical measures led to the timely decision of bilateral internal iliac artery ligation in our case. Uterine artery embolization was deferred in our patient as she was unstable. The choice of procedure depends on parity, the desire for childbearing, the extent of hemorrhage, and the experience and judgment of the surgeon[10]. Internal iliac artery ligation did not affect the activity of the pelvic organs or fertility and late complications rarely occur[12,13]. Changes in ovarian blood flow and the loss of ovarian reserve could be complications of internal iliac artery ligation[14].

Internal iliac artery ligation is effective in severe obstetric retroperitoneal hematoma[12]. Furthermore, fertility was not affected even when combined with other uterus sparing techniques like Bakri balloon and B-Lynch suture[15]. Sarkar et al found that bilateral internal iliac artery ligation is a valuable procedure for controlling intractable PPH and for preservation and maintenance of fertility[16]. In emergency situations, hysterectomy is preferred to arrest blood loss. However, it may not be appropriate for women who want to preserve their reproductive potential.

Procedures such as uterine artery embolization, uterine cavity tamponade, B-Lynch sutures, and uterine artery ligation preserve the uterus. Singh et al found that uterine perfusion was well maintained though there was a decrease in ovarian perfusion. Resumption of menstruation and presence of distal flow in the internal iliac artery within 6 months of its ligation suggests fertility preservation[17]. Internal iliac artery ligation success varies from 40-100 % in PPH, but hysterectomy is avoided in only 50% of the cases[18,19]. Banoo et al found that there was no mortality in cases of PPH and bilateral internal iliac artery ligation[20]. In our patient, the fibroid was the cause of atonic PPH, the reduction in blood supply resulted in the ischemia and necrosis of the fibroid leading to its expulsion.

Our patient did not experience any pain during the antenatal period, however, she experienced excruciating pain on the 3rd day of the bilateral internal iliac artery ligation. This is due to the reduced blood supply to the fibroid and also the possibility of red degeneration, leading to necrosis. She was relieved of the pain once the fibroid was expelled. Fibroid ultrasound assessment before pregnancy and during antenatal period confirmed intramural position. However, when the patient had PPH, the ultrasound scan showed a fibroid that was distorting the uterine cavity. This discovery raised the possibility of incorrect findings in the pre-delivery scans. Thinning of the uterine cavity is a possible explanation for an intramural fibroid becoming sub-mucosal on imaging.

Fear of vascular injury deters an obstetrician from resorting to internal iliac artery ligation. Joshi et al found that uterine atony was the common indication for therapeutic internal iliac artery ligation which constituted about 32.7% of PPH cases. It was found that in women with PPH, whether internal iliac artery ligation was performed primarily at the cesarean section or an interval after delivery, hemorrhage did not recur. After successful control of hemorrhage with internal iliac artery ligation, no patient had delayed hemorrhage requiring re-laparotomy[10]. Despite advances in obstetric and anesthetic care, the treatment of PPH remains a challenge[21].

CONCLUSION

Internal iliac artery ligation is a valuable procedure in the treatment of PPH and its prevention in high-risk women. Resorting to early internal iliac artery ligation is the key to prevent hysterectomy in women with uterine atony. Women with large fibroids (more than 5 cm) tend to have atonic PPH.

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