

CASE REPORT

LACERATION OF INTERNAL ILIAC VEIN DURING INTERNAL ILIAC ARTERY LIGATION

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ABSTRACT

Bilateral internal iliac artery ligation is an invaluable tool in the management of massive obstetric hemorrhage. However complications could occur and if not properly managed it could result in morbidity or even mortality. We report a case of accidental injury to the internal iliac vein during internal iliac artery ligation for severe post partum hemorrhage with broad ligament and retroperitoneal hematoma due to rupture of uterus, which was successfully managed and the patient did well postoperatively.

Key Words: Post partum hemorrhage, internal iliac artery ligation, internal iliac vein injury.

INTRODUCTION

Pelvic hemorrhage, whether postpartum or related to surgery, is associated with a great degree of morbidity and mortality and has to be controlled immediately without compromising the rest of the pelvic blood supply.¹ Ligation of the internal iliac arteries, a time tested easy method achieves the goal as seen by extensive radiographic studies.² Uterine rupture is one of the causes of life threatening obstetric hemorrhage. If rupture occurs in the lower uterine segment and extends cephalad, the uterine artery and its branches may tear. Although hysterectomy often is necessary, it sometimes fails to control bleeding from the branches of the uterine artery, which may have retracted.³ Bilateral internal iliac artery ligation is an alternative operation which preserves reproductive capacity.⁴ Bilateral internal iliac artery ligation is mainly indicated in postpartum hemorrhage due to uterine atony rather than obstetric trauma.⁴ However, some report its successful use in patients with ruptured uterus and placenta accrete.⁵ Bilateral internal iliac artery ligation is rarely associated with complications. Complications which can occur include damage to the ureter, iliac veins and accidental ligation of the external iliac artery. These complications can be avoided by appreciation of important surgical anatomy and meticulous dissection. Venous bleeding can occasionally be very troublesome.⁴ The aim of this case report is to highlight one of these complications, its severity and how it was effectively managed.

CASE REPORT

Patient was a 28 year old Gravida3Para3Abortion0Live1 (G3P3A0L1) referred from a Trust Hospital on account of postpartum hemorrhage. She was admitted with

labor pains and induction with vaginal tablets done followed by instrumental vaginal delivery. She delivered a full term female child of 3 kilograms (Kg.) with severe birth asphyxia. She developed severe postpartum hemorrhage and shock. Resuscitation measures were done and 3 units of Red Cell Concentrate (RCC) transfused in trust hospital. She was referred and accompanied by treating gynecologist. At time of admission patient is conscious, delayed response to verbal command, Temperature-decreased, Pulse-160/minute, Respiration-28/minute, Blood Pressure-90/60mmof Hg., Pallor-+++ , Oedema-absent, Icterus-absent. On examination Per abdomen-uterus was of 20-22 weeks size, Per speculum-three swab holders applied at bleeding site along with vaginal packing in situ. Immediately patient was shifted to operation theatre. Call was sent to anesthetist. Blood samples sent for cross-match and investigations. On Exploration Pervaginal -vaginal packs and swab holders removed, profuse bleeding noted, rent of about 8-10 cm felt along right lateral side of lower uterine segment extending cephalad. An impression of severe post partum hemorrhage due to rupture of uterus was made. Emergency laparotomy was decided. Her Pack Cell Volume was 25%, Hemoglobin-4.5gm%, Total Count/Differential Count-normal, Renal Function Test (RFT), and Liver Function Test (LFT), Serum Electrolytes and urinalysis were normal. Her Blood Group was B Rhesus Positive and 4 units of Red Cell Concentrate (RCC) were cross matched for her.

She was resuscitated with a liter of Normal Saline and prepared for an emergency laparotomy. Induction was done under General anesthesia. Abdomen was opened by infra umbilical midline incision. The findings at surgery were a rent of about 10 centimeters (cm) at right

lateral wall of uterus with 8 cm*10 cm size broad ligament and retroperitoneal hematoma. Bleeding was present. Total abdominal hysterectomy with right sided oophorectomy (as it was necrosed) was performed. Hematoma was drained. There was bleeding from hematoma site and uterine artery on right side was retracted. Decision for ligation of internal iliac artery was taken. The ureter was identified where it crossed the common iliac artery at the point of its bifurcation. The peritoneum was opened and the ureter lifted off its bed, a haemostatic suture, Vicryl Number-1 was used to ligate the internal iliac artery on the right but during the process of ligating the artery, we accidentally traumatized the internal iliac vein resulted in linear laceration of 5mm. This provoked torrential bleeding. Surgeon on emergency was called. Pressure was immediately applied to the vein. This only reduced the bleeding temporarily and the bleeding continued. A clamp was applied to the distal part of the vein and this completely arrested the bleeding. The vein was first applied haemostatic clips but not successful then repaired with Mersilk Number-4 suture under magnification by vascular surgeon. Haemostatic was secured and bleeding was absent. Drain was kept in retroperitoneal space and abdomen was closed layer wise. The estimated blood loss from this operation was 2.5 liters. The patient had a total of 13 units of Red Cell Concentrate (RCC) of which 3 units preoperatively, 6 units intra operatively and 4 units postoperatively. We completed operation in two and half hours. Postoperatively she went in Disseminated intravascular coagulation(DIC). Her investigations show Hemoglobin-8 gm%, Total Count-13000/cumm, D-Dimer-2698.43ng/ml, plasma fibrinogen-107.8mg/dl, Platelet count-1lac/cu mm, Prothrombin Time-25.9 seconds (INR-2.36), Activated Partial Thromboplastin Time-44.8 seconds, RFT and LFT were normal. She was transfused 8 units of Fresh Frozen Plasma(FFP), 6 units of Platelet Concentrate(PC). Postoperatively she was shifted in Critical Care Unit. She was put on antibiotics and intravenous fluids with continuous monitoring. She was discharged on the 11th postoperative day. She had three clinic appointments in the last five months and mother doing well. Baby was admitted in Neonatal Intensive Care Unit (NICU) due to severe birth asphyxia and expired on second day.

DISCUSSION

Howard Kelly¹ of Baltimore in 1894 was the first to ligate the internal iliac arteries along with the ovarian arteries for bleeding cervical carcinoma with extensive broad ligament involvement. Bilateral internal iliac artery ligation minimizes the pulse pressure of the arterial system, converting it to a venous-like system, this reduces bleeding appreciably by facilitating clot formation distal to the site of ligation.² Branching pattern of the internal iliac arteries and veins is extremely variable. Moreover, the anatomic arrangement of these vessels places the patients at risk for multiple vascular and combined arteriovenous injuries.⁶⁻⁷ Their difficult exposure and vascular control

often taxes the skills of even the most experienced trauma surgeons.⁶⁻⁷ These veins form a large and complex plexus in the pelvis. Technique is difficult especially with a large uterus, a small transverse incision, a pelvis full of blood and a surgeon who rarely operates in the retroperitoneal space. Trauma to these hidden vessels should be avoided during internal iliac artery ligation as the suture is passed around behind the vessels. Damage to these vessels result in brisk hemorrhage, sources of which could be difficult to see and control. It can threaten the life, particularly in the context of pre-existing major blood loss from post partum hemorrhage. Great care should be taken while dissecting in the area behind the origin of the internal iliac artery and when separating the artery from the veins. Incidence of injury is .93% during laparoscopy, .76% during laparotomy, and .9-2.3/1lac population.⁸ Injuries are likely to occur while operating on patients of extensive endometriosis, drainage of ovarian abscess, cancer of cervix, cancer of rectum.

The severe postpartum hemorrhage which our patient suffered was controlled by hysterectomy with internal iliac artery ligation. The alternative management of venous injury depends on site and size of injury. It includes venography, vein patch angiography, reanastomosis, and balloon induced thrombosis in combination with thrombin injection. Complex injuries with segmental loss require interposition autogenous vein grafting. Bilateral internal iliac artery ligation is not without complications as we show in this case. In a review of 46 ligations, Nandanwar¹ and others had one case of ureteric injury and one of superficial injury to the internal iliac vein. Wagaarachchi⁴ in his series of 12 cases reported only one case of venous bleeding which responded to direct pressure. One report to the contrary is by Taj⁹ who cited a case of his own in which this operation resulted in necrosis of the buttocks. Taj also reviewed two previously reported cases in one case the bladder mucosa sloughed, in the other scrotal necrosis ensued.

CONCLUSION

Bilateral internal iliac artery ligation remains a safe, fast, effective and life saving salvage procedure which should be encouraged and used routinely by Obstetricians when faced with cases of severe obstetric hemorrhage, especially in young women of low parity. Complications such as injury to the internal iliac vein can occur and can be treated by sustained pressure, suturing, application of clips and/or ligation as was done in this case. There is need for Obstetricians to acquire skills to safely ligate the internal iliac artery and also successfully manage complications if they ever arise.

GO IN QUICKLY AND COME OUT FAST

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