

# Embolization Of The Anterior Division Of The Internal Iliac Artery As First Line Treatment For A Case Of Pelvic Hemorrhage Complicating Sacrospinous Fixation

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## Abstract

In the immediate postoperative period after sacrospinous fixation internal hemorrhage can be encountered. As often patients are elderly with pre-existing co morbidities a second laparotomy for controlling intraperitoneal bleed is challenging. With fast depleting blood volume in spite with adequate resuscitation coagulopathy sets in early. Along with the altered anatomical landmarks due to recent surgery and postoperative bleed it may not be possible to identify the exact vessel which has been injured, giving rise to the hematoma, either intraperitoneal or less often retroperitoneal. The need for alternative measures to control the internal hemorrhage has made chemoembolization a possible approach. This is feasible in units with imaging facilities and the availability of an interventional radiologist.

## INTRODUCTION

In the immediate postoperative period after sacrospinous fixation internal hemorrhage can be encountered. As often patients are elderly with pre-existing co morbidities a second laparotomy for controlling intraperitoneal bleed is challenging. With fast depleting blood volume in spite with adequate resuscitation coagulopathy sets in early. We describe a case that encountered a hemorrhagic complication.

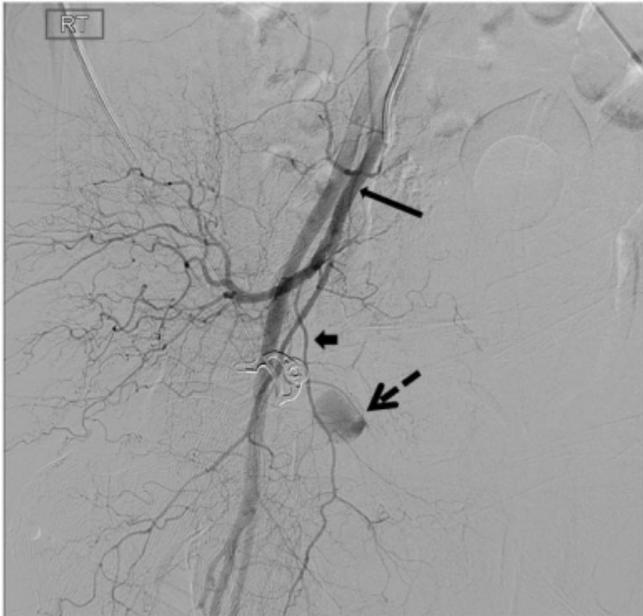
## CASE REPORT

A 66-year-old woman was diagnosed to have second-degree cystocele and rectocele and first degree uterine prolapse. Urodynamic investigation revealed stable detrusor without urodynamic stress incontinence. Decision was made for anterior colporrhaphy and posterior colpoproctorrhaphy. However intraoperatively the cervix was 1cm outside the hymen. As the patient had not been consented for vaginal hysterectomy, sacrospinous ligament fixation (SSLF) was added to above procedures. SSLF was performed with Miya hook using a loop of Prolene-1 suture. The latter was divided and secured to the lateral and posterior surface of the cervix through the posterior vaginal epithelium using a Mayo needle. The surgery was uneventful.

Two hours postoperative, the patient appeared pale, hypotensive and tachycardic. A 20-week mass was palpable in the suprapubic region. Hemoglobin was 8g/dl and platelets 28,000 (from preoperative 14 and 206,000 respectively). Contrast enhanced CT showed extravasation of contrast from the pudendal branch of the anterior division of right internal iliac artery. The management options were either performing a laparotomy or other intervention to arrest the bleeding. Decision was made for embolization. A right internal iliac angiogram was performed with a 5F catheter introduced through the left femoral artery under local anaesthesia. Super selective catheterization of the pudendal artery was done with a micro catheter and embolized initially with gel foam slurry followed by metallic coils to achieve haemostasis (Figure 1). Postembolization angiogram showed no contrast extravasation indicating successful embolization of the bleeding vessel. The patient's condition rapidly stabilized. The patient was discharged well after completion of a week of antibiotics. The haematoma resolved spontaneously after 4 months and patient remained well with no uteroavaginal prolapse at 12 months review.

**Figure 1**

Right internal iliac artery angiogram showing catheter in the internal iliac artery (straight arrow) and contrast extravasation (broken arrow) from the internal pudendal artery (arrow head)



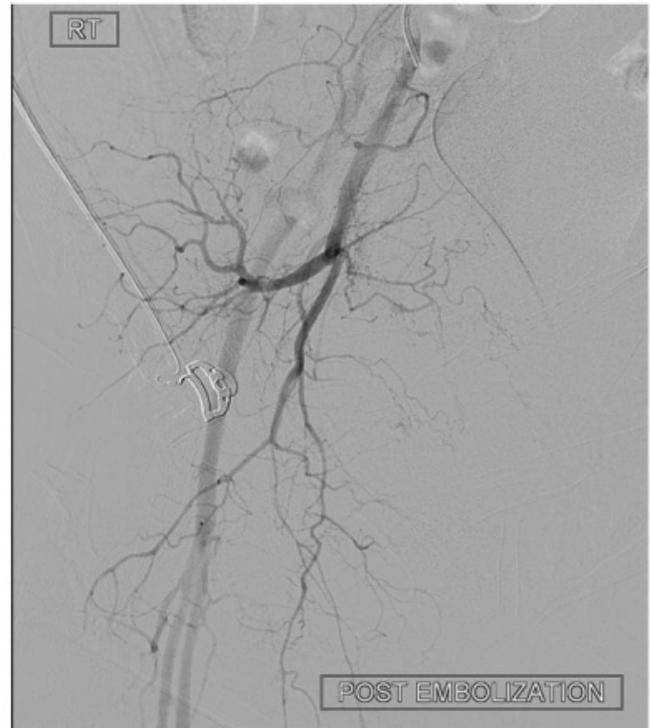
**Figure 2**

Superselective catheterization of the right internal pudendal artery with a microcatheter and its tip at the site of extravasation (arrow head). Note the pooling of the contrast (broken arrow).



**Figure 3**

Post embolization angiogram showing successful block of the contrast extravasation from the pudendal artery site and no other site of bleeding demonstrated.



## DISCUSSION

Complications encountered after SSLF include bleeding, rectal or bowel, ureteric and sciatic or pudendal nerve injury. Significant hemorrhage with depleting blood volume and consumptive coagulopathy makes the second surgery hazardous. With the distortion of anatomy due to recent surgery and bleeding, it is difficult to identify the bleeding vessel. In such situations, an alternative measure such as embolization of vessel is useful for postoperative bleeding (Vedantham et al, 1997).

In this patient the Miya hook was used to insert the suture through the SSL, the needle tip being passed inferiorly from above downwards with the surgeon's index and middle fingers on the ischial spine to protect the pudendal vessels and nerves. However the inferior gluteal artery which lies medial to the pudendal vessels can still be injured. A safer alternative would be to use a Nichols-Veronikis or Deschamps ligature carrier or even a blunt needle which is inserted by direct palpation with tip directed from below upwards to avoid injury to above mentioned vessels. Pollack et al concluded after comparative study between Miya hook, Deschamp's ligature carrier and

standard needle driver that complications were less when SSLF is by direct visualization rather than by blind palpation (Pollak et al,2007). However, the former requires more dissection which can cause more bleeding. In Hysteropexy, as in our case, a loop of Prolene-1 suture anchored through the SSL is then sutured to the posterior and lateral part of the cervix; this may injure the vaginal branches of the uterine artery. Knowledge and identification of anatomical landmarks, placing the stitch more superficially from below upwards and avoiding the lateral one third of the SSL can prevent postoperative bleeding.

The first report of the use of arterial embolization in a patient who had undergone gynecologic surgery was from Oliver and Lance in 1979, who described a case of persistent severe vaginal bleeding refractory to three surgical procedures including hysterectomy, in which gelfoam embolization was successful. Araco et al stated that with the availability of an experienced interventional radiology team, selective embolization should be first line of treatment for pelvic hemorrhage after sacrospinous colpopexy (Araco et al, 2008).

## **CONCLUSION**

Sacrospinous fixation is rarely complicated by life threatening pelvic hemorrhage. Thus it demands high

suspicion index, early confirmation, aggressive resuscitation and early intervention. Treatment for post operative bleeding was surgical until recently, however now chemoembolization is fast becoming a more suitable option. Selective transarterial embolization represents an alternative method of treat any kind of pelvic hemorrhage. It is has become possible to save the patient life with percutaneous embolization of the concerned vessel within an hour of the diagnosis without subjecting patient to a second surgery under more extenuating circumstances. Patients with persistent hemodynamic instability are candidates for embolization. Thus chemoembolization should be part of the management algorithm for any acute hemorrhage.

## **References**

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