

Case of Uterine Artery Injury in a Patient Undergoing Prophylactic Uterine Artery Balloon Placement Prior to a Planned Cesarean Hysterectomy in the Setting of PAS

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Background

- Placenta Accreta is defined as abnormal placentation into the myometrium caused by abnormal invasion of placental trophoblasts and is diagnosed as a spectrum of disease.
- PAS can lead to major maternal morbidity and mortality due to hemorrhage at the time of delivery.
- Prophylactic placement of intravascular balloon placement prior to cesarean hysterectomies, while utilized frequently to decrease blood loss, is thought to be controversial and studies have shown varying results ranging from beneficial outcomes to uncertain or no benefit.

Objective

This case report describes a patient with suspected PAS who underwent planned delivery who had prophylactic intravascular balloons placed prior to delivery and sustained a uterine artery injury.

Case

- A 36 yo G5P3013 at 31 weeks and 6 days for scheduled cesarean section secondary to fetal growth restriction < 1%, multiple fetal anomalies and suspected **Placenta Accreta Spectrum**
- History of two dilation and curettage procedures. No other pertinent medical history
- During **preoperative prophylactic intrauterine artery balloon placement** on the left side, **arterial injury** occurred and the patient developed a suspected pseudoaneurysm with extravasation noted during the procedure.
- The procedure was stopped at that time and the patient was transferred to L&D for emergent delivery.
- Placenta Accreta was not diagnosed at the time of delivery as the placenta delivered without difficulty.
- Intraoperative assessment revealed a 2x2 cm hematoma which remained stable in size. There were no other areas of bleeding noted.
- The patient remained hemodynamically stable throughout transport and delivery. **Total estimated blood loss at that time was 500 cc.**

Postoperative course

- Due to inadequate pain control, CT angiogram was performed POD1 and a **left pelvic hematoma measuring 10.1 x 9.5 cm** was noted with a **presumed left uterine artery pseudoaneurysm measuring 2.8 cm in diameter**
- She underwent emergent angiogram with coil embolization of the left uterine artery and left internal pudendal artery that same day.
- Total length in hospital day was 5 day and she received a total of **2 units of packed red blood cells**. Hemoglobin was stable at 8 g/dL upon discharge.
- Patient then presented to the emergency department on POD 13 with complaints of right lower extremity pain and redness.
- Ultrasound revealed an **occlusive superficial venous thrombosis of the greater saphenous vein**. Hematology was consulted and anticoagulation therapy was recommended at that time.

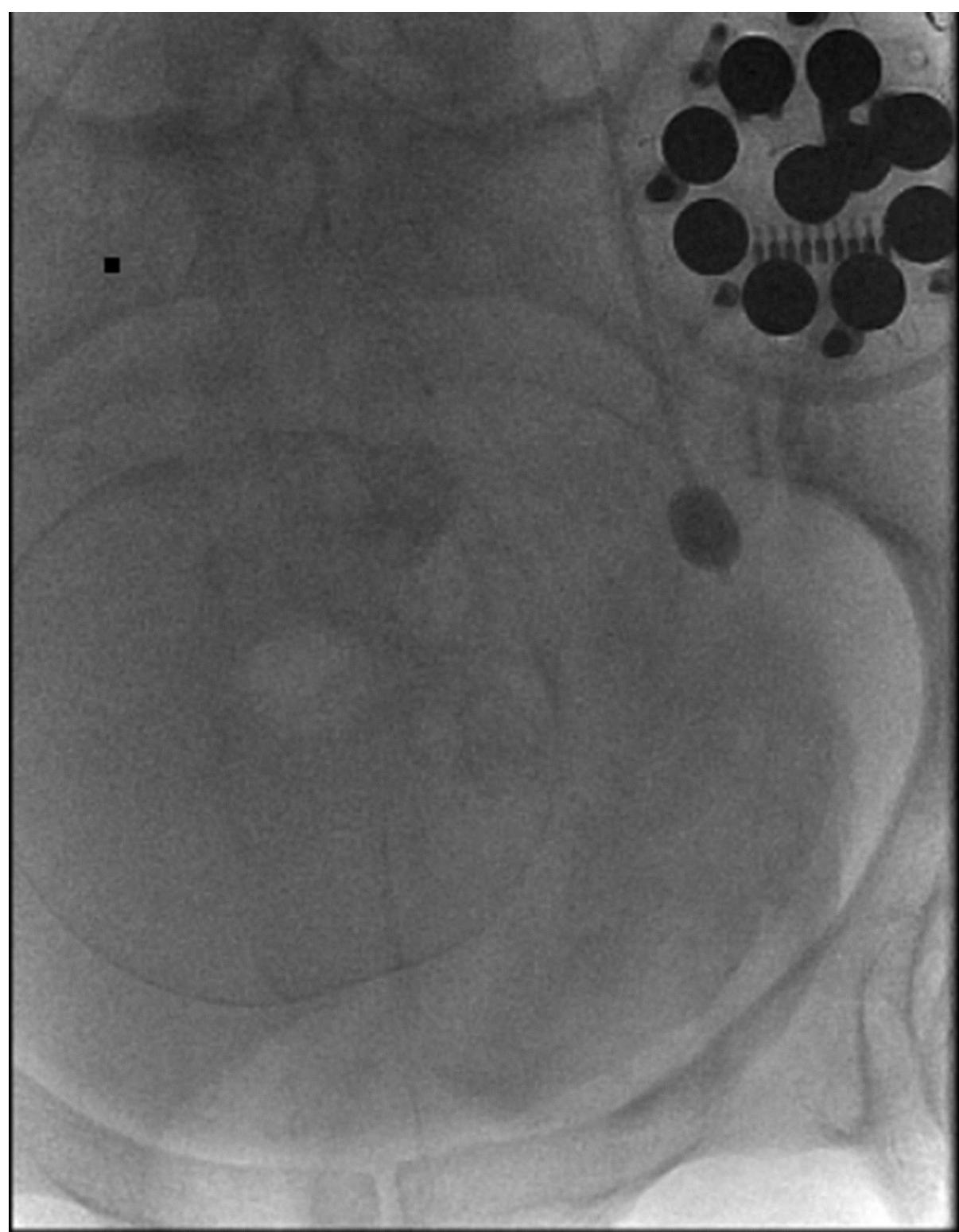


Figure 1

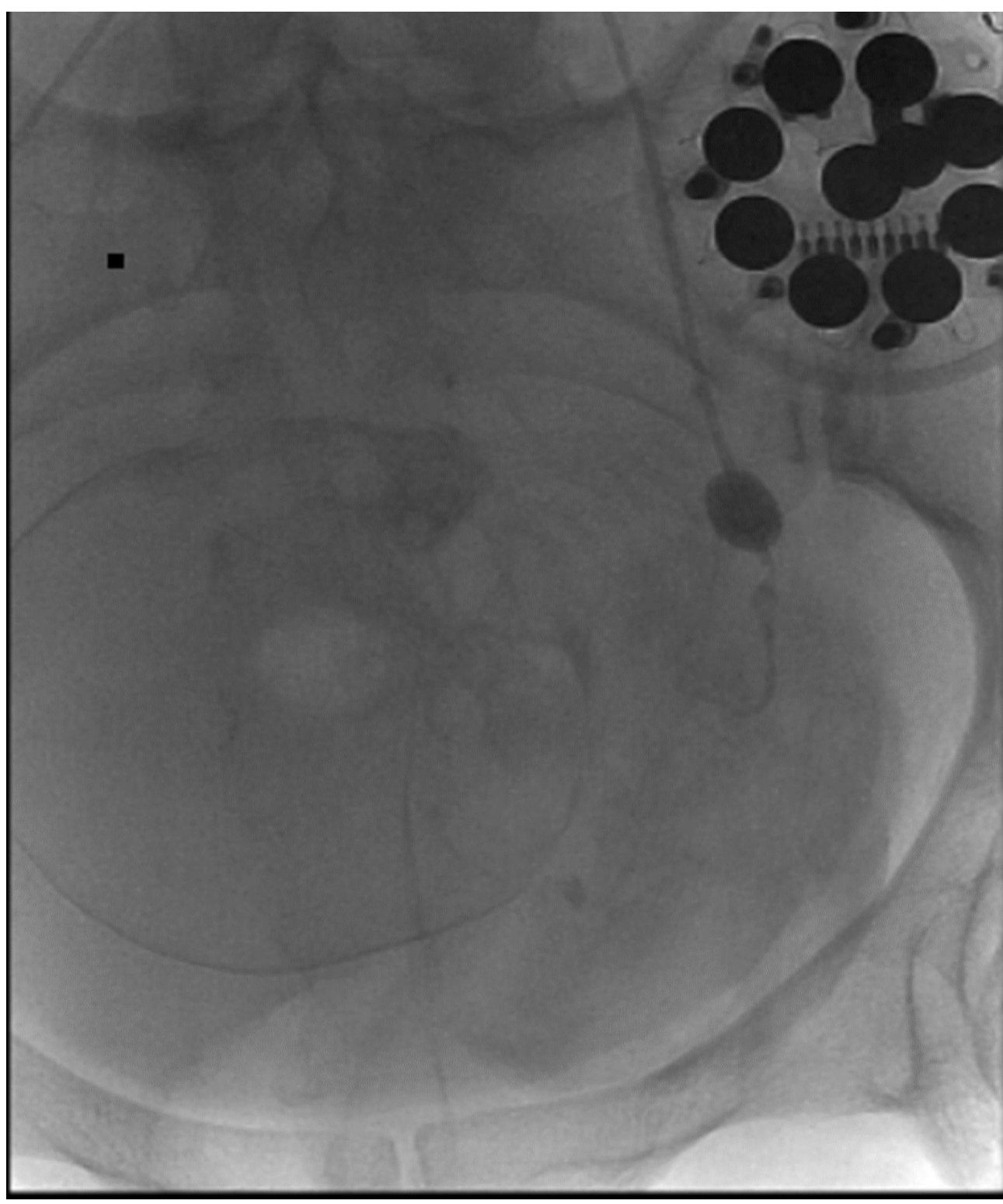


Figure 2

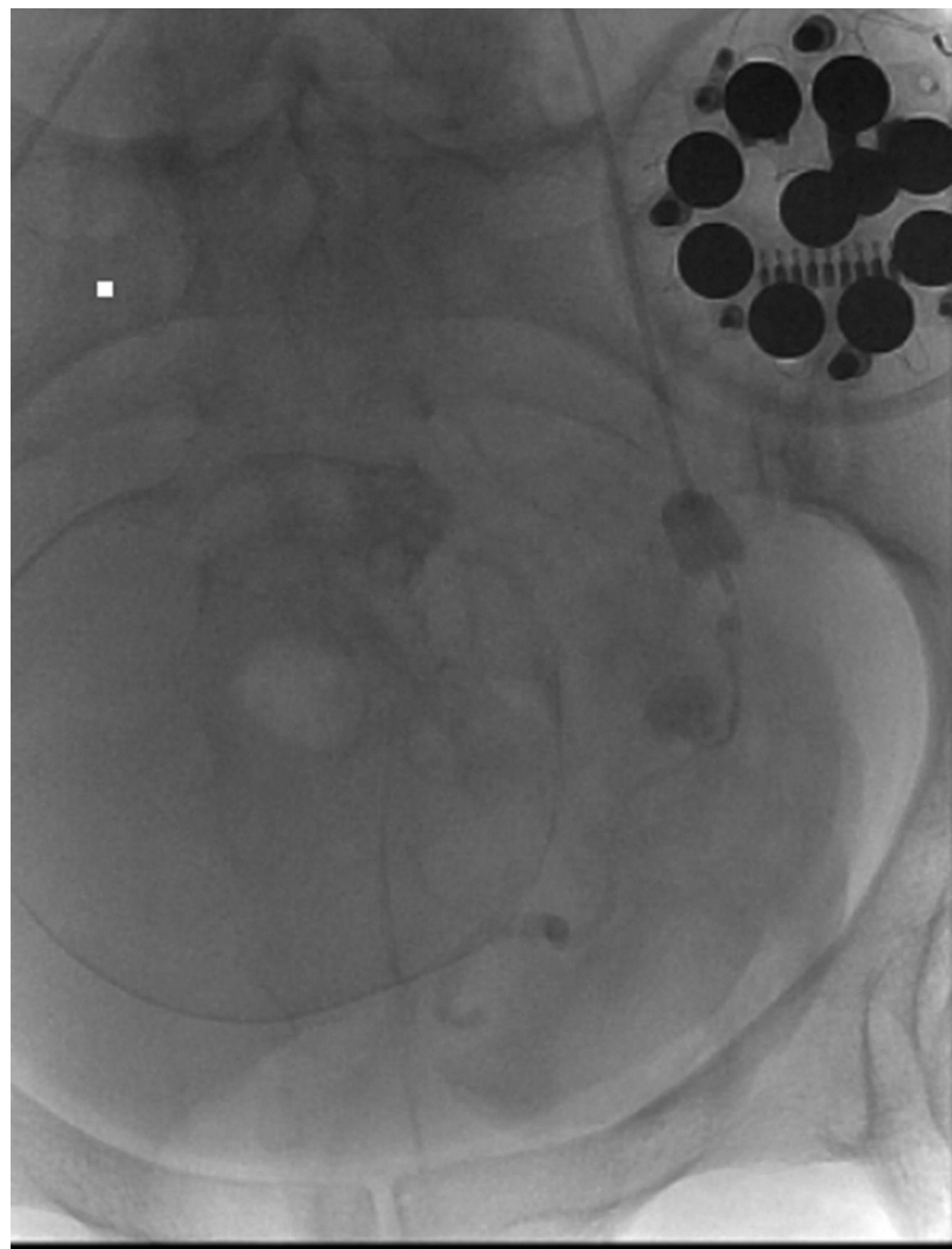


Figure 3

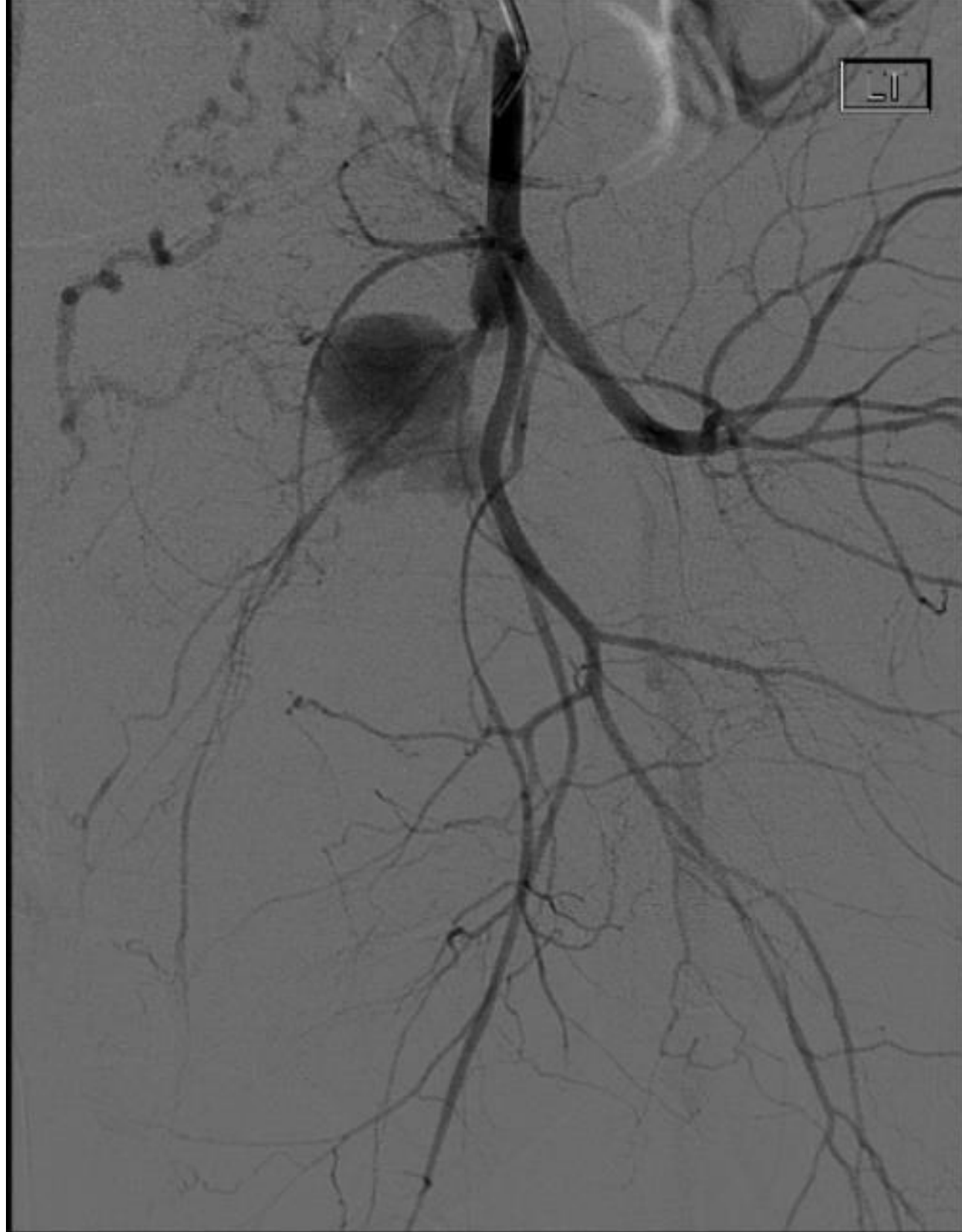


Figure 4

Figure 1-3: Images from left uterine artery angiogram during placement of intravascular balloon on the left side via right femoral artery access which shows inflation of intravascular occlusion balloon with pseudoaneurysm and extravasation.

Figure 4: Pelvic angiogram from POD1 depicting large pseudoaneurysm arising from the proximal portion of the uterine artery prior to embolization procedure to repair injury.

Discussion

- One aspect of management that has been a subject of controversy in the management of PAS is the placement of prophylactic intraarterial balloons in order to decrease the overall blood loss and need for transfusion in patients undergoing cesarean delivery in the setting of PAS (1).
- One prospective observational study that looked at differences in EBL and transfused blood products and analyzed separately based on the diagnosis of placenta accreta, increta and percreta, a significant difference was noted only in the percreta group. Authors noted that based on these results, placement of prophylactic intraarterial balloons may not need to be part of the management in PAS “when prenatal diagnosis excludes placenta percreta with a high level of accuracy” (2)
- However, one small randomized control trial that came out of Emek Medical Center in Israel, showed that there were no significant differences in the mean number of units of packed red blood cells or calculated blood loss (3).
- It is clear that more randomized control trials are needed in order to provide a consensus on the use of prophylactic balloon placement in the setting of PAS
- Clinicians must be aware of the risks this procedure possesses.
- Risks of balloon placement can include intraoperative damage during the introduction of balloons, as seen in this case, occlusion, thrombosis and infection (4). The risk of vessel rupture in the nonpregnant patient requiring intervention is 0.6% (5)

Conclusion

- Due to the risks mentioned above, it is necessary for clinicians to thoroughly counsel patients on the risks of prophylactic balloon placement in these cases of scheduled cesarean deliveries in the setting of PAS and partner with their patients in order to make individualized operative plans prior to undergoing the procedure.
- In our case, balloon placement resulted in arterial injury, expedited delivery, postoperative hematoma formation that required additional embolization

References

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