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Research Article

A case series report- Our experience on the role of emergency uterine artery embolization in the management of acute severe pelvic hemorrhage in non-pregnant females.

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A Toor SK, Singla S. A case series report: our experience on the role of emergency uterine artery embolization in the management of acute severe pelvic hemorrhage in non-pregnant females. J Surg Radiol, V5(7) 503-508

Abstract: ***Introduction:*** Abnormal uterine bleeding in a non-pregnant woman may be classified by presentation as acute or chronic. It is defined as bleeding from the uterine corpus that is abnormal in frequency, quantity or regularity (1, 2). The aetiologies differ between acute and chronic presentations. The most common presentation in non-pregnant women is uterine bleeding, often as an acute episode of severe bleeding on a background of prolonged menstrual irregularity. Acute abnormal uterine bleeding (AUB) is defined as bleeding that needs urgent management, whether medical, surgical or radiological (3). The causes of bleeding fall into two groups. Structural causes must be ruled out first; these follow the PALM acronym: endometrial polyps, adenomyosis, leiomyomas, and endometrial hyperplasia or malignancy. The non-structural causes follow the COEIN acronym: coagulopathies, ovulatory dysfunction, endometrial pathologies, iatrogenic causes, and causes not otherwise classified (3). The present case series included patients with the latter (non-structural) causes of bleeding, in whom a non-surgical treatment, uterine artery embolisation (UAE), was considered the first treatment of choice. For uterine arteriovenous malformation (AVM) causing AUB, UAE is the treatment of choice. Arteriovenous malformations may be primary or secondary. Secondary AVMs may result from post-partum hypertrophy of the uterine arteries, post-procedural complications, underlying neoplasia such as endometrial or cervical malignancy, gestational trophoblastic disease, or prenatal exposure to diethylstilbestrol (4, 5).

Keywords: Uterine artery embolization Acute pelvic hemorrhage Non-pregnant females Emergency embolization Interventional radiology

INTRODUCTION

Abnormal uterine bleeding in a non-pregnant woman may be classified by presentation as acute or chronic. It is defined as bleeding from the uterine corpus that is abnormal in frequency, quantity or regularity (1, 2). The aetiologies differ between acute and chronic presentations.

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The present case series included patients with the latter (non-structural) causes of bleeding, in whom a non-surgical treatment, uterine artery embolisation (UAE), was considered the first treatment of choice. For uterine arteriovenous malformation (AVM) causing AUB, UAE is the treatment of choice.

Arteriovenous malformations may be primary or secondary. Secondary AVMs may result from post-partum hypertrophy of the uterine arteries, post-procedural complications, underlying neoplasia such as endometrial or cervical malignancy, gestational trophoblastic disease, or prenatal exposure to diethylstilbestrol (4, 5).

REPRESENTATIVE CASES

Case 1. A 47-year-old woman, a known case of adenocarcinoma of the stomach, presented with abdominal pain, backache, and heavy per vaginal bleeding with clots. She was haemodynamically stable at presentation. Her endometrial biopsy was unremarkable, and the bleeding did not stop despite a high dose of oral progesterone. Bilateral uterine artery embolisation was therefore recommended. The post-procedure period was uneventful and she was discharged.

Case 2. A 34-year-old woman presented with severe per vaginal bleeding for the previous two months. Doppler

examination showed a right-sided uterine arteriovenous malformation. Digital subtraction angiography was then performed, followed by bilateral uterine artery embolisation. She improved by day 1 after the procedure and was discharged in satisfactory condition.

Case 3. A 53-year-old woman, a known case of placenta accreta, presented on the day of a subtotal hysterectomy (post-operative day zero) in hypovolaemic shock with haemoperitoneum. An immediate CT angiogram showed active bleeding from the right internal iliac artery. Digital subtraction angiography was performed and the right internal iliac artery was embolised. However, she could not be stabilised and had to undergo a total hysterectomy.

Patient Characteristics

Twenty patients who presented to Fortis Hospital, Ludhiana, with severe acute bleeding and were managed with uterine artery embolisation were evaluated. The main presenting age group was 30–40 years, comprising 9 patients (45%).

Past and present history was reviewed for details relevant to AVM formation and acute uterine bleeding, such as recent childbirth (vaginal or caesarean) and malignancy. At least four patients had a history of malignancy (carcinoma of the ovary, breast, stomach); three of these were aged 40–50 years and two were aged 50–60 years. At least four patients had undergone a caesarean section within the preceding 2 months, and two had a recent normal vaginal delivery. One patient had placenta accreta, for which a subtotal hysterectomy was done.

Angiographic Findings and Procedure

After initial management and haemodynamic stabilisation, angiography was performed through the femoral route. The uterine arteries were accessed through the femoral artery using a superselective technique, with a coaxial 2–3 French catheter placed in each uterine artery in turn. A spectrum of findings was seen, including hypertrophied uterine arteries, multiple dilated tortuous pelvic venous channels, early filling of pelvic veins, and vascular blush.

All cases were embolised using Cook Hilal embolisation coils, and the endpoint was cessation of blood flow within the tortuous vessel. The uterine artery was embolised in 19 cases (95%), and the internal iliac artery in one (5%). Irrespective of the side of bleeding, bilateral uterine arteries were embolised, to avoid recurrence or persistence of bleeding from contralateral flow.

DISCUSSION

This case series supports the efficacy of uterine artery embolisation in non-pregnant patients presenting with acute uterine bleeding. Embolisation is usually performed in the interventional suite, but surgical backup is kept ready in emergencies. Management of acute uterine bleeding depends on the clinical profile of the patient; it is more conservative if the patient is young and wishes to preserve fertility. The patient's clinical stability and any underlying medical conditions also determine the line of management (6).

Where fertility preservation is of utmost importance, or where medical conditions warrant the least invasive intervention, UAE is considered a safe and effective treatment (7, 8). If haemostasis is not achieved with UAE, surgical management remains available (9).

The American College of Obstetricians and Gynecologists' 2017 guidance on postpartum haemorrhage describes uterine artery embolisation as a treatment of choice in haemodynamically stable patients in whom all other non-surgical measures have failed.

In the arteriovenous malformations seen in acute AUB, whether the aetiology was the post-partum state or gestational trophoblastic disease, the predominant feeding supply was mostly the uterine artery, or rarely the internal iliac arteries directly. The likely pathology is failure of the normal regression of vessels that proliferated physiologically, whether due to pregnancy or another cause.

The access route usually depends on the operator's ease and preference, and the procedure can be performed through either the femoral or the radial artery. There is no prognostic difference in results depending on the vessel accessed. At our institute, bilateral uterine artery embolisation was performed regardless of the location of the haemorrhage, abolishing any chance of rebleeding from flow through the contralateral artery. Permanent embolic agents such as coils were used rather than temporary agents such as gelfoam.

The advantages of UAE have been documented in a number of previous studies. The major benefit is preservation of fertility, along with a short recovery time, a short hospital stay and early discharge. It is also a simpler, lifesaving alternative for patients who are unfit for surgery.

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Figures

Figure 1. Tortuous vessels arising from the left uterine artery, consistent with arteriovenous malformation, in a 28-year-old woman with acute pelvic haemorrhage.

Figure 2. Post-embolisation image in the same patient.

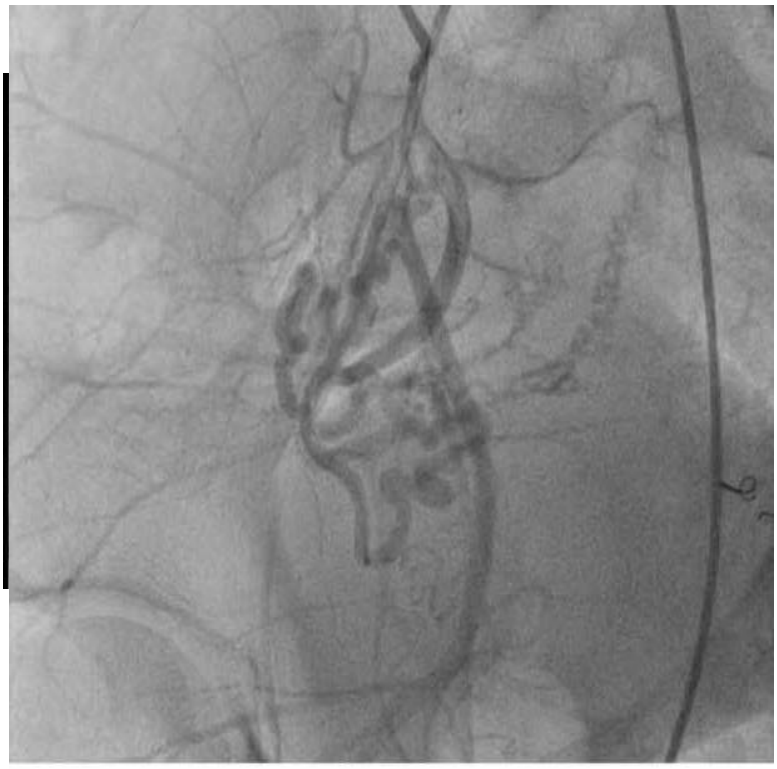


Figure 3. Arteriovenous malformation on the right side in the same patient.

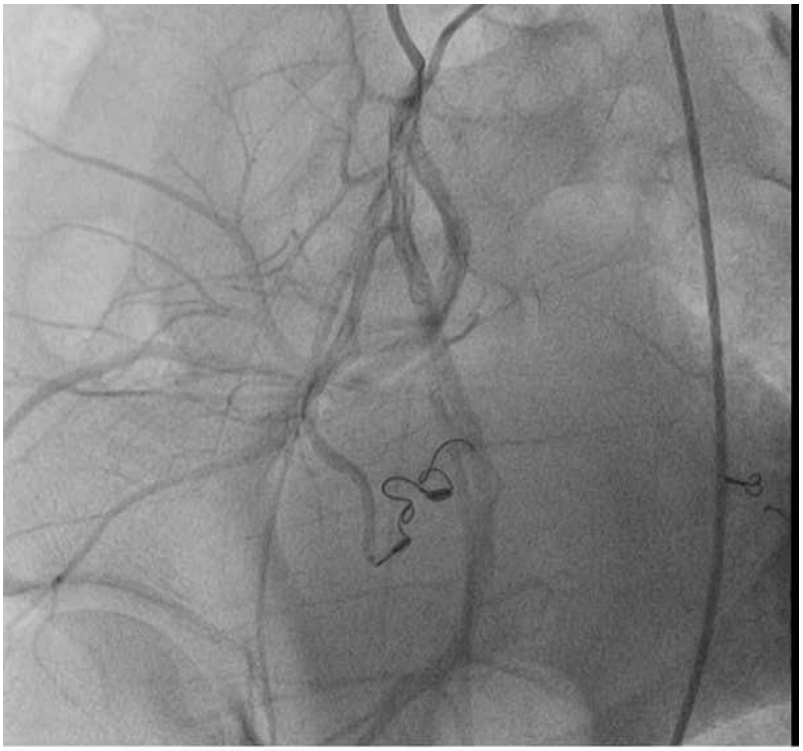


Figure 4. Post-embolisation image on the right side in the same patient.

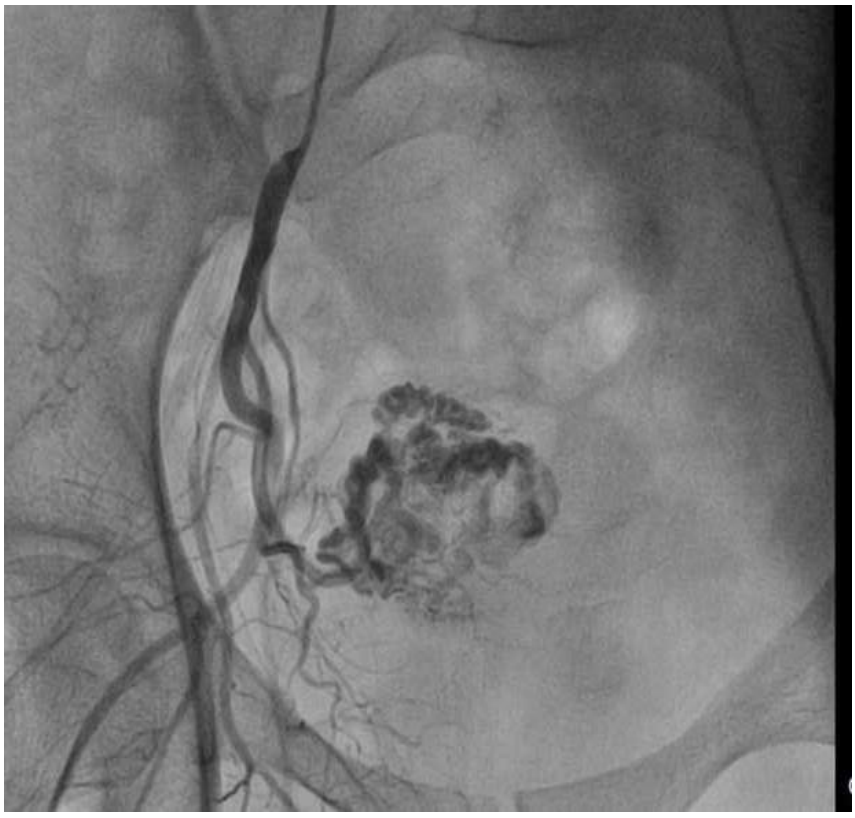


Figure 5. Tortuous vessels arising from the right uterine artery, consistent with arteriovenous malformation, in a 35-year-old woman with acute pelvic haemorrhage.



Figure 6. Post-embolisation image in the same patient.



Figure 7. Arteriovenous malformation on the contralateral side in the same patient.

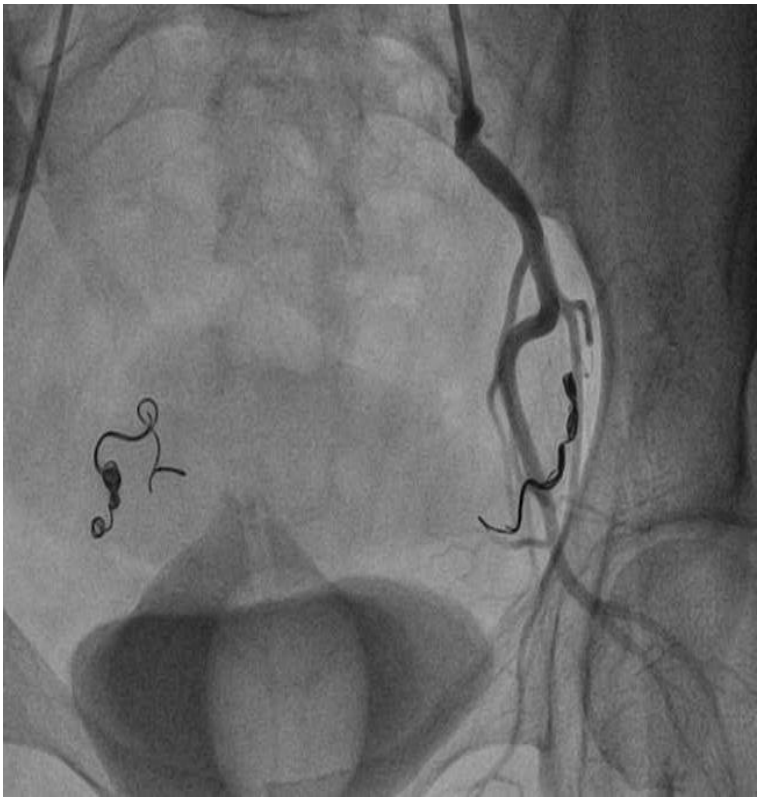


Figure 8. Post-embolisation image on the left side in the same patient.

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