Complex Anatomy In A Uterine Fibroid Embolization
D Vishwanath, M Hennessy, A Christie
Department of Interventional Radiology, Queen Elizabeth University Hospital, Glasgow, UK

Introduction: We describe an unusual case of multiple uterine fibroids in a young woman, whose uterus measured approximately 24 week size, had developed pseudo-meig’s syndrome and had not responded to uterine artery embolisation. Subsequent angiography demonstrated arterial supply of the fibroids not only via uterine artery but also from left ovarian artery and interestingly from the inferior mesenteric artery. Symptoms and uterine size did not improve by uterine and left ovarian artery embolisation. Hysterec- tomy was performed due to suspected leiomyosarcoma. The case highlights non-conventional arterial supply to uterine fibroid.

Clinical History: A 28 year old woman presented with menorrhagia and was found to have many uterine fibroids. The uterus measured approximately 24 week size. She was initially treated medically with gonadotropin releasing hormone analogues. These controlled the menorrhagia but did not reduce the size of the fibroids.

The patient was considered high risk for surgery and hence was enrolled on to FEMME study (Fibroid Embolisation vs Myomectomy to Measure the Effect on quality of life), and was randomly assigned to the embolisation arm.

1st Embolisation, 18/07/2013: Bilateral uterine arteries were embolised using 500 - 700 micron PVA particles. Follow up MRI demonstrated infarction of the smaller pelvic fibroids, but the larger fibroids did not decrease and in fact the uterus gradually increased in size and the patient eventually developed pseudo-Meigs syndrome.

2nd Embolisation, 03/02/2015: The patient did not want a hysterectomy at this stage. Hence a repeat embolisation was considered. Considering collateral blood supply to the uterus, an initial angiogram was planned to demonstrate the arterial supply of the uterus. This demonstrated blood supply to the uterus by a large tortuous left ovarian artery, but also from the inferior mesenteric artery. This was clearly the case because the marginal artery of Drummond was demonstrated arising from the first branch of IMA (Fig 2). The left ovarian artery was embolised using PVA particles. It was not considered safe to embolise the marginal artery of Drummond and hence not embolised.

Follow up: Despite the repeat embolisation, uterine size continued to increase. The symptoms of large fibroids and of pseudo-Meig’s syndrome worsened. Leiomyosarcoma was suspected due to the severity of the symptoms. Hence hysterectomy and salpingo-oophorectomy was performed on 12/06/2015. The patient nearly died on table, lost approximately 6.5 litres of blood and required appropriate blood transfusion. Fortunately, pathology of the uterus came back as leiomyomata only. Currently patient is well and back to work.

Discussion: Approximately 20%–30% of women older than 35 years have uterine leiomyomas which are the most common gynaecologic and uterine neoplasms. Uterine leiomyoma is only rarely associated with ascites and hydrothorax. Multiple vascular supply as seen in our case has been thought to be one of the causes for development pseudo-meig’s syndrome.

Apart from uterine arteries, Collateral supply from ovarian artery is known in 5%–10% of cases. Other sources of supply are IMA in 1.3%, the round ligament artery and the lumbar artery.

Our case is unusual since the fibroid received its blood supply from not only uterine and ovarian arteries, but also from inferior mesenteric artery.

This case highlights non-conventional arterial supply to the uterine fibroid.

Conclusion: A thorough knowledge of the pelvic arterial anatomy and identifying the main variations in fibroid vascular supply is required to perform embolisation of uterine fibroids and is also key to the safety and success of the procedure.

References:
1. Pseudo-Meigs Syndrome: Uterine Leiomyoma with Bladder Attachment Associated with Ascites and Hydrothorax – a Rare Case of a Rare Syndrome, Weise M et al, Oncologie, 2002 October; 25(5); 443-446

Fig 1: (A)MRI demonstrating large uterine fibroid. (B & C) CT demonstrating right pleural effusion, right lower lobe collapse and ascites

Fig 2: Angiogram demonstrates IMA supplying multiple fibroids, 1st branch being marginal artery of Drummond

Fig 3: Angiogram demonstrates left ovarian artery supplying the uterine fibroids

Fig 2: Angiogram demonstrates IMA supplying multiple fibroids, 1st branch being marginal artery of Drummond