

Terumo Scholarship 2015 - Case Study

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Clinical Presentation

A 41-year-old female presented with pelvic pain and menorrhagia. Pelvic ultrasound and laparoscopy confirmed pelvic endometriosis.

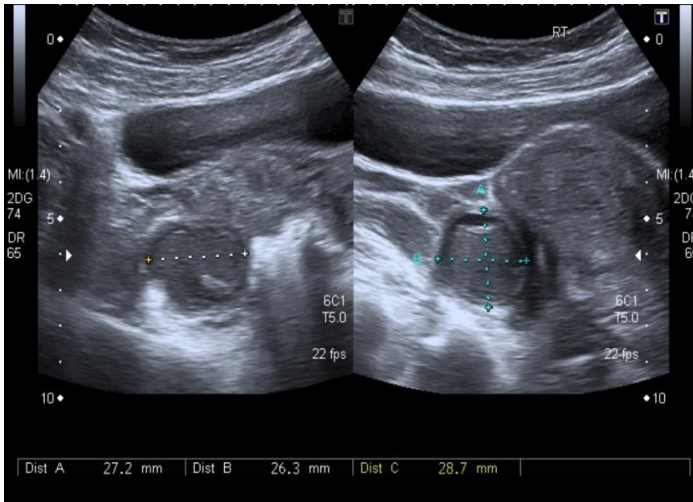


Figure 1: Pelvic Ultrasound

Right ovary lying posterior to the uterus containing a well-defined endometrioma.

The patient subsequently re-presented with haemoptysis and shortness of breath. A CTPA demonstrated no PE but identified a well-circumscribed soft tissue density at the base of the right lower lobe with similar density to the liver and no plane between the liver and lesion.

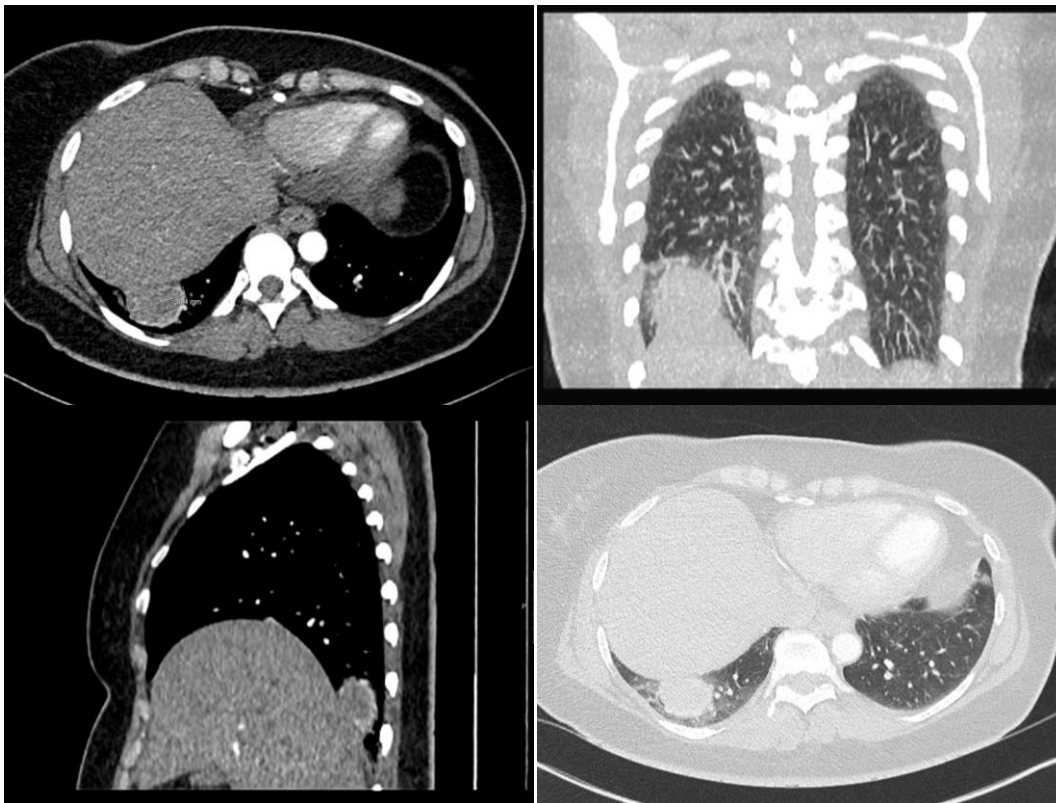


Figure 2: Axial, Coronal and Saggital reconstructions of CT Abdomen and Thorax

Further clinical history revealed that the haemoptysis was catamenial in nature.

An MRI scan confirmed that the pelvic endometriomas had significantly increased in size.

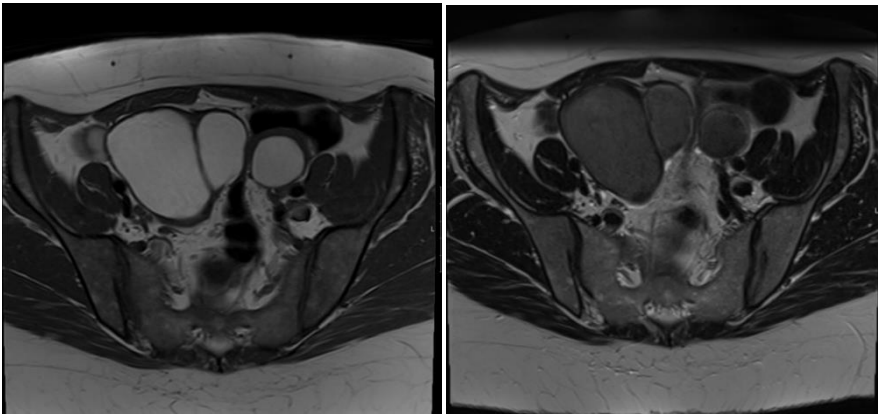


Figure 3: MRI Pelvis – (axial) T1 and T2 weighted images.

Well defined lesions within both ovaries are T1 hyperintense and T2 hypointense with no evidence of signal loss on fat suppression. The signal characteristics are consistent with endometriomas.

Abdominal MRI demonstrated soft tissue posterosuperior to the apex of the right hemidiaphragm, with further components impinging on the posterior apex of the liver and extending into the subdiaphragmatic space. The signal characteristics and appearances are consistent with endometriosis passing contiguously through a pleuroperitoneal defect.

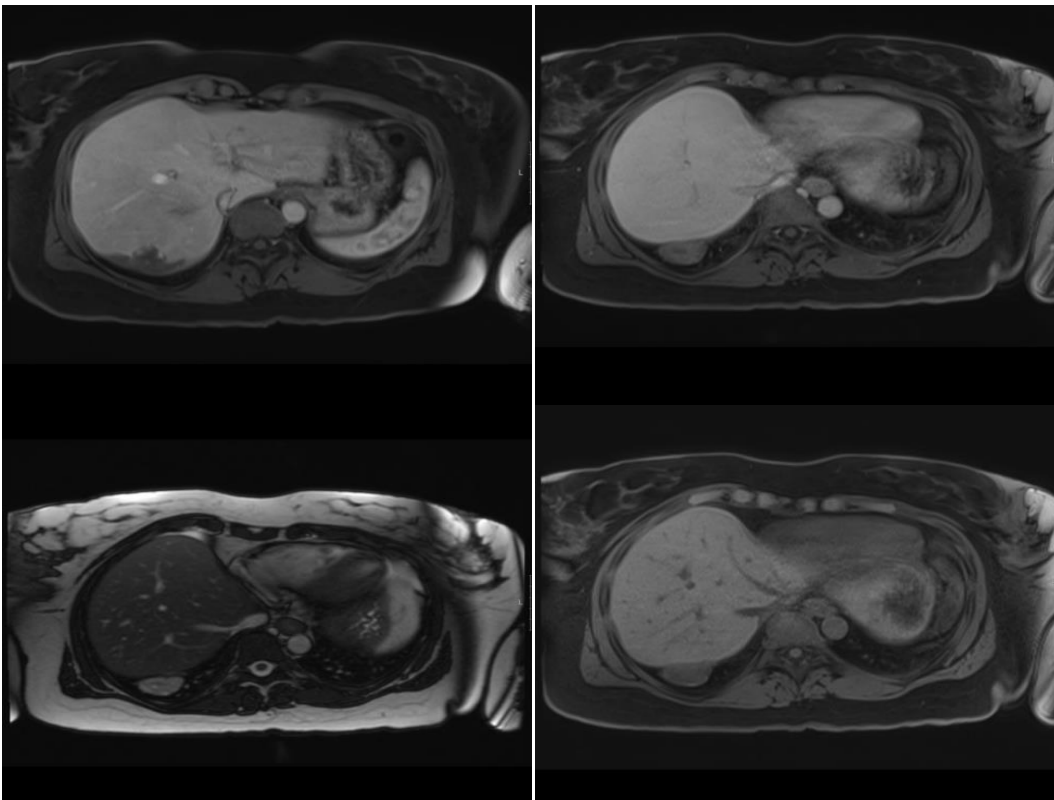


Figure 4: MRI liver and inferior thorax (axial sequences).

The patient underwent bronchoscopy and biopsy. Histology confirmed that the lesion was endometriosis.

Haemoptysis significantly increased and following MDT discussion, it was determined that IR and bronchial artery embolisation offered the optimum treatment approach, avoiding the inherent risks of thoracic surgery.

Bronchial Artery Embolisation

Under local anaesthetic, ultrasound guided right CFA puncture was performed and 4 French sheath inserted. Under fluoroscopic guidance, a 0.035 inch hydrophilic guide wire (Radiofocus, Terumo, Tokyo, Japan) and C2 catheter (Cook, Bloomington, IN, USA) were advanced into the right intercostobronchial trunk. Angiography demonstrated abnormal vascularity within the right lower lobe consistent with the known endometrioma.

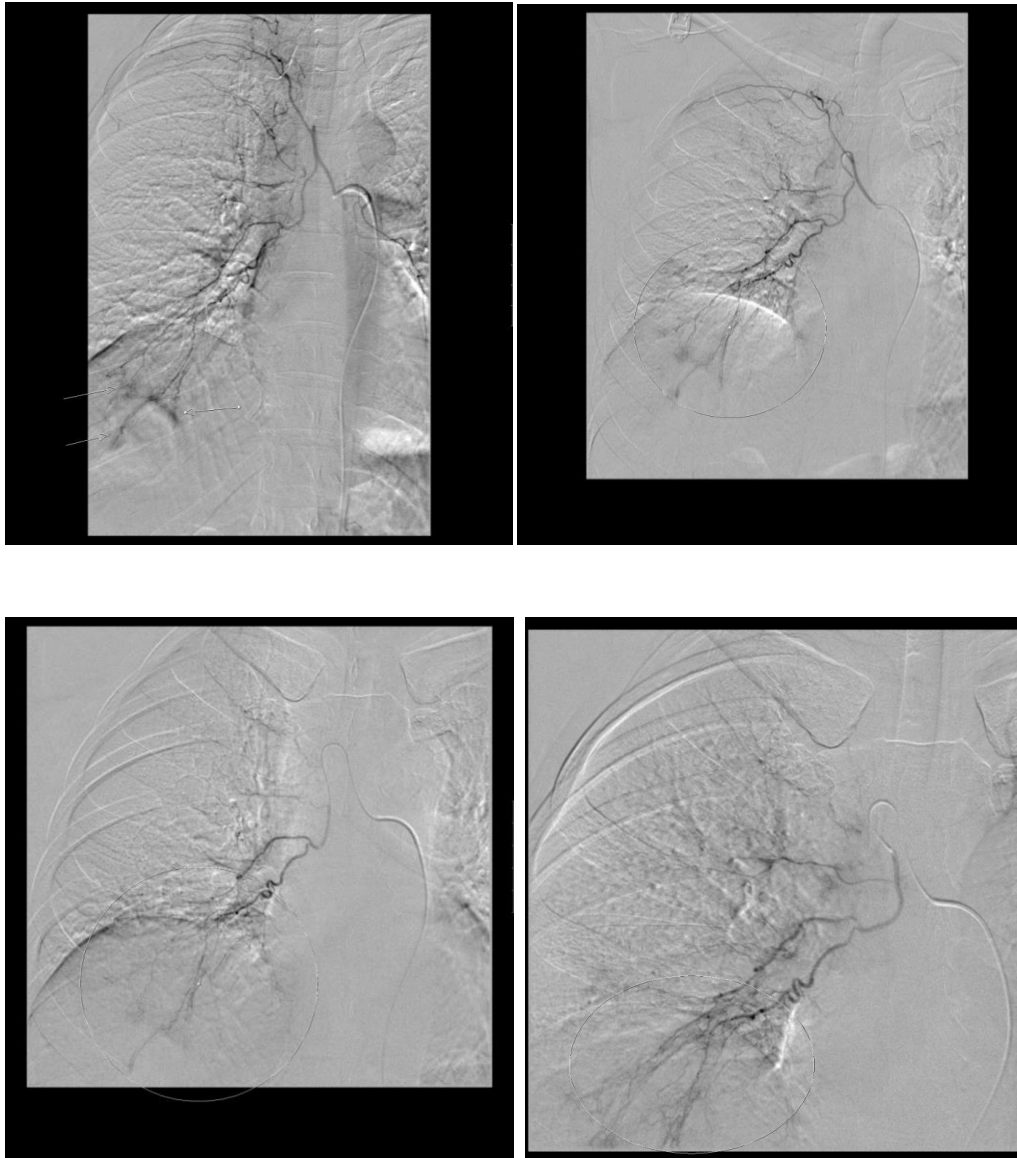


Figure 5: Angiography demonstrating abnormal tortuous vessels arising from the right lower lobe artery, consistent with the neovascularity at the site of endometriosis (circle and ellipse annotation).

A 2.7 French Progreat microcatheter (Terumo, Tokyo, Japan) was used to selectively catheterise the lower lobe artery supplying the abnormal vasculature. Using a small volume of 355-500 micron PVA, the artery was embolised to stasis.

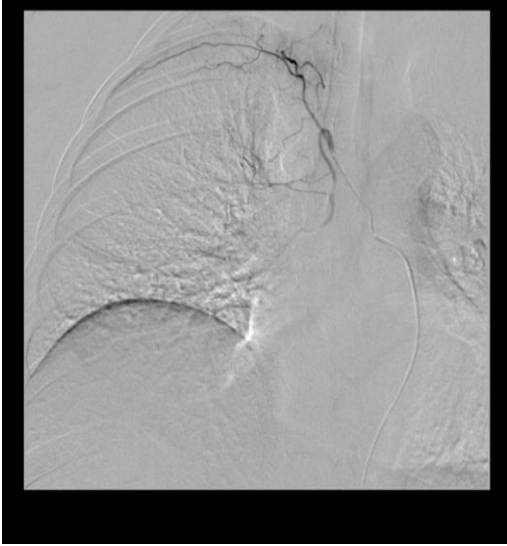


Figure 6: Completion angiography demonstrated satisfactory appearances with no evidence of residual abnormal vasculature. Normal right lower lobe branches were preserved.

Clinically, the patient improved rapidly with no further haemoptysis and was discharged the following day. Following discharge, the patient remained well with no symptom recurrence. She was reviewed in clinic and MRI was performed.

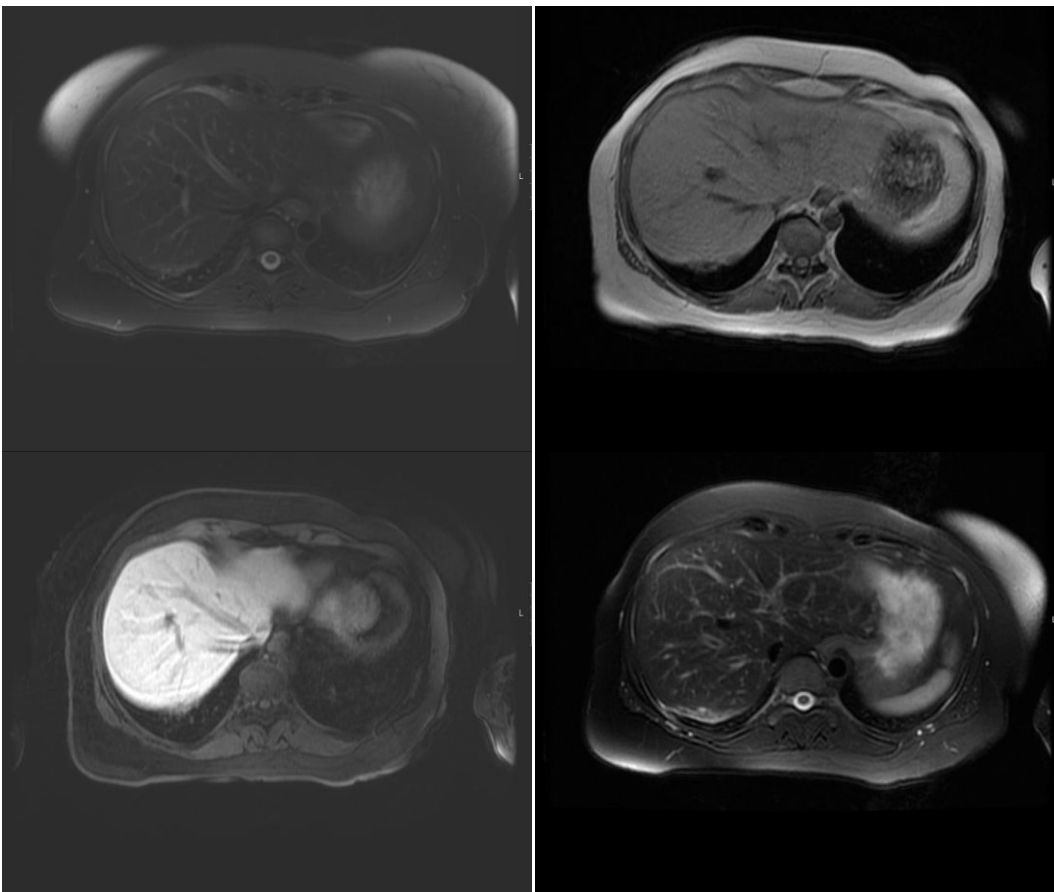


Figure 7: MRI liver and inferior thorax (axial sequences) at 3 months post embolisation.

The previously evident soft tissue abnormality superior to the right hemidiaphragm is no longer apparent. Minor residual crescentic signal abnormality within the right lower lobe is consistent with scarring. Similarly, minor soft tissue irregularity persists over the posterior liver surface at the site previous disease but appearances have significantly improved with no residual mass.

Pre embolisation



Post embolisation

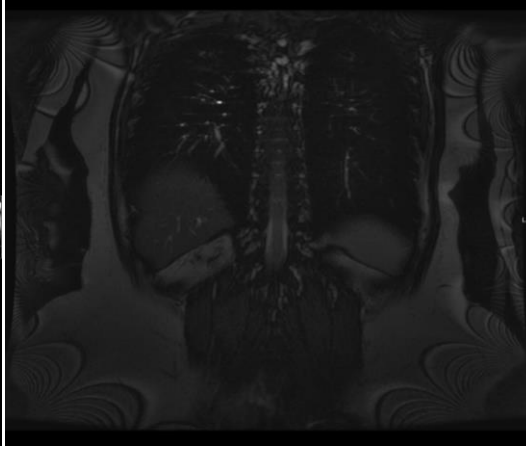


Figure 8: MRI Thorax (coronal sequences) demonstrating dramatic pre and post-embolisation appearances.

Discussion

Proposed theories explaining thoracic endometriosis include retrograde menstruation with subsequent transperitoneal-transdiaphragmatic migration of endometrial tissue, coelomic metaplasia and lymphatic or haematogenous embolisation from the uterus or pelvis.¹

Although hormonal control is often effective in controlling pelvic disease there is minimal evidence in cases of thoracic endometriosis and catamenial haemoptysis.

Bronchial artery embolisation is an established treatment in the management of haemoptysis, however only two cases have previously described its application in thoracic endometriosis.^{2,3} MRI evidence of disease resolution in the case presented highlights the benefit of IR as a powerful therapeutic tool in management of the disease.

References

1. Alifano M, Trisolini R, Cancellieri A, Regnard JF. Thoracic endometriosis: current knowledge. *Ann Thorac Surg* 2006; 81:761-769
2. Kervancioglu S, Andic C, Bayram N, Telli C, Sarica A, Sirikci A. Bronchial artery embolization in the management of pulmonary parenchymal endometriosis with hemoptysis. *Cardiovasc Intervent Radiol* 2008;31:824–827.
3. Shin SP, Park CY, Song JH, Kim HM, Min D, Lee SH, Kang SH, Jeon GS, Lee JH. A Case of Catamenial Hemoptysis Treated by Bronchial Artery Embolization. *Tuberc Respir Dis.* 2014 May;76(5):233-236.