Diagnostic Utility of MRI in Thoracic Endometriosis Syndrome

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Aims & Objectives

- Thoracic endometriosis syndrome (TES) is the commonest form of extra-pelvic endometriosis, affecting up to 12% with pelvic endometriosis, and is usually a feature of severe, progressive disease.
- TES presents a diagnostic challenge as symptoms, where present, are variable, and a temporal relationship with menses is not always perceived.
- This retrospective study evaluates diagnostic accuracy of thoracic MRI compared with thoracic surgery and histopathology.

Methods

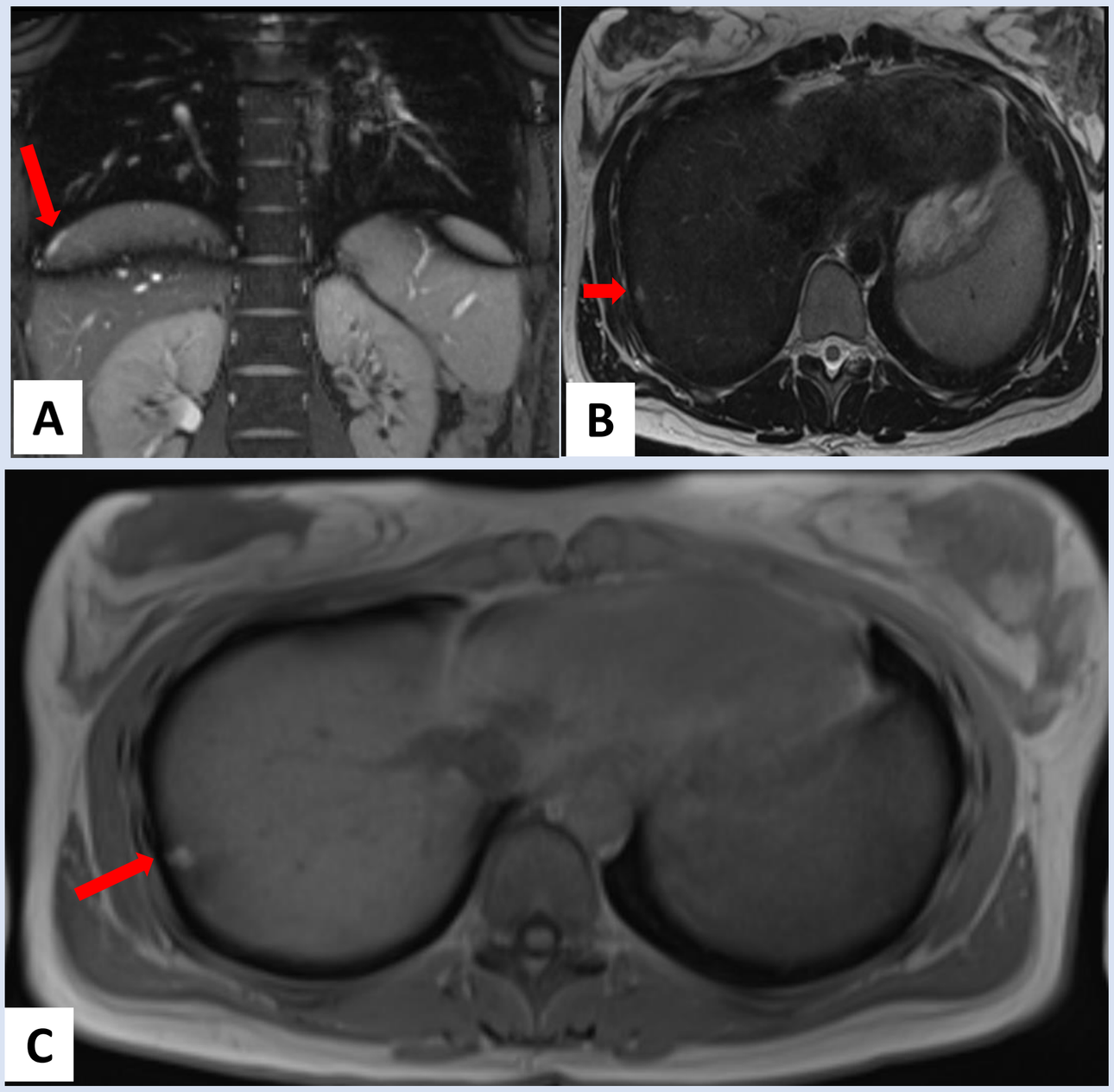
- Consecutive patients referred to our tertiary endometriosis centre with suspected TES and MRI thorax (December 2021 - September 2024) were included.
- MRI thorax protocol included coronal and axial T1-Dixon, T2 HASTE and T2-fat saturated BLADE sequences.
- Radiology reports, operative records and histopathology were reviewed.
- Sensitivity and specificity of MRI thorax for disease detection was calculated, with positive histopathology as the reference test.

Results

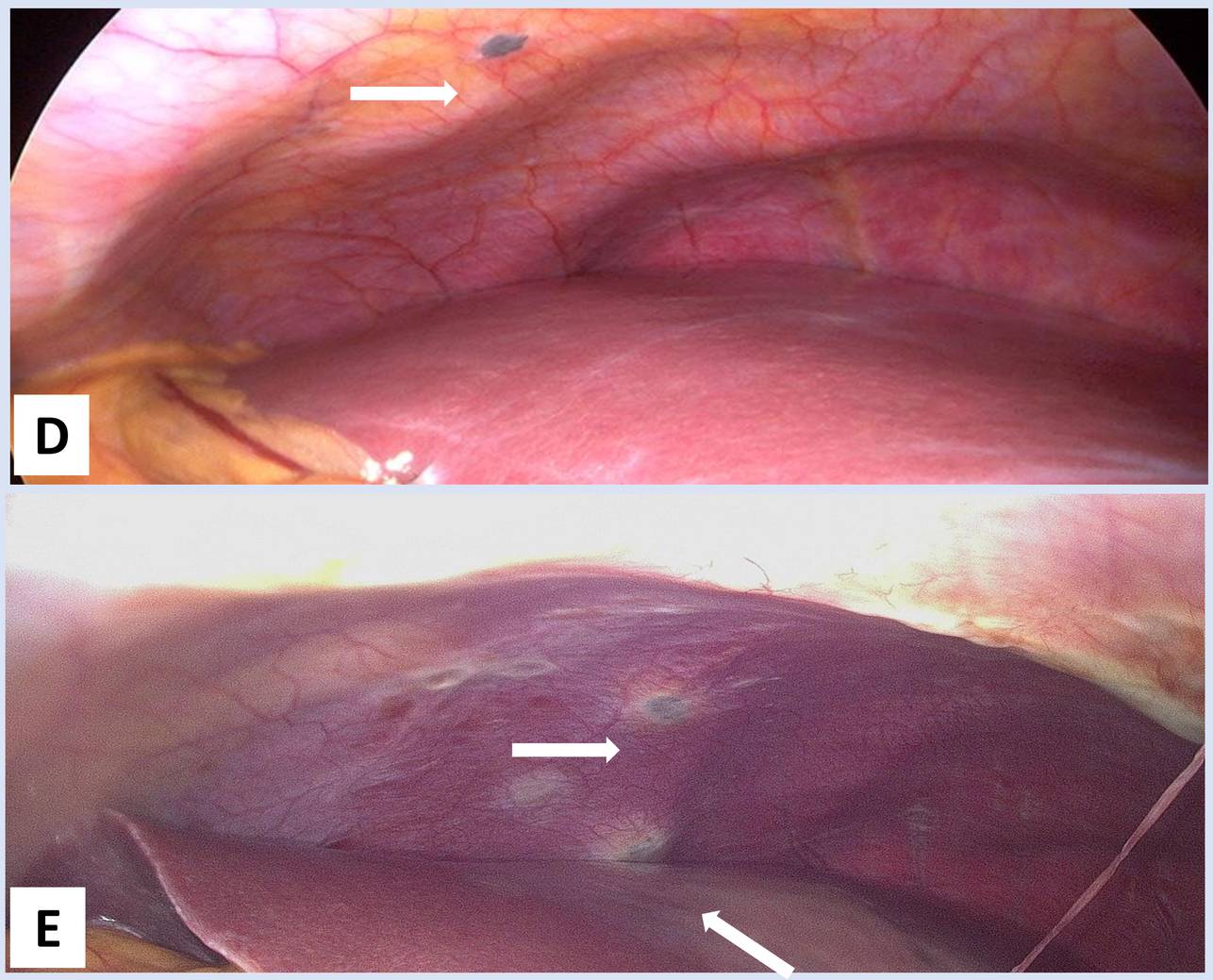
- 29 patients with MRIs acquired for suspicion of TES were included. 24 (83%) with known pelvic endometriosis.
- 10/29 (34%) underwent surgery,: (8/10 (80%) robotic-assisted thoracic surgery (RATS), 1/10 (10%) video-assisted thoracic surgery (VATS), 1/10 (10%) exploratory thoracoscopy).
- 5/10 patients (50%) had pleural and diaphragmatic nodules, and 3 (30%) positive histology for endometriosis.
- MRI thorax was reported as suspicious for thoracic endometriosis in 3/10 (30%) surgical patients, 2 of whom had positive histopathology (sensitivity =66%, specificity = 71%).
- 1 patient with positive histopathology had a normal MRI.

Conclusion

- In this small patient cohort, MRI had moderate specificity and sensitivity for detection of thoracic endometriosis. Limitations include time interval between imaging and surgery and timing of imaging with respect to menstrual cycle.
- The decision to proceed to surgery is influenced by many factors, including symptom severity and degree of clinical suspicion, and MR is useful in guiding surgical approach.



*Images **A** (Coronal T2W FS trufi), **B** (axial T2W) , and **C** (axial T1W) demonstrating small diaphragmatic foci of increased signal on both T1 and T2 weighted imaging in keeping with thoracic endometriotic deposits*



*Images **D** & **E**- Video thoracoscopic images demonstrating diaphragmatic endometriotic deposits*

References

1. Rousset P, Rousset-Jablonski C, Alifano M, Mansuet-Lupo A, Buy JN, Revel MP. Thoracic endometriosis syndrome: CT and MRI features. Clin Radiol. 2014 Mar;69(3):323-30. doi: 10.1016/j.crad.2013.10.014. Epub 2013 Dec 11.
2. Montoriol PF, Da Ines D, Bourdel N, Garcier JM, Canis M. Re: Thoracic endometriosis syndrome: CT and MRI features. Clin Radiol. 2014 May;69(5):549-50. doi: 10.1016/j.crad.2014.01.023. Epub 2014 Mar 4.
3. Xiao L, White D, Kruger LF, Alwatari Y, Blackmon S, Burnett T, Khan Z, Chamié LP, Feldman M, VanBuren W. Thoracic endometriosis syndrome: imaging findings and the value of a dedicated MRI protocol. Abdom Radiol (NY). 2025 Feb 18. doi: 10.1007/s00261-025-04835-w. Epub ahead of print.
4. McKee DC, Mansour T, Wasson MN. Thoracic and diaphragmatic endometriosis: an overview of diagnosis and surgical treatment. Curr Opin Obstet Gynecol. 2022 Aug 1;34(4):204-209.