

# **Non-Invasive Imaging Modalities for Early Diagnosis and Treatment of Endometriosis**

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## **ABSTRACT**

Endometriosis is a condition where endometrial tissue of the uterus grows outside of the uterus and inside the uterine cavity, causing severe chronic pain and inflammation. Diagnosis of endometriosis is commonly delayed 7-8 years in the clinical setting due to the variety in presentations of endometrial growths, the invasive surgical standard of identification, and the accessibility of resources. This literature review compares the surgical standard of diagnosis to non-invasive imaging modalities based on past research and argues for an updated diagnostic standard. It was found that when multiple methods of non-invasive imaging modalities were combined, accuracy in identification of endometriosis increased significantly. Elastasonography paired with transvaginal ultrasound or MRI provides information on depth, size, lesional stiffness, and stage of endometrial growth in patients, providing everything except histological confirmation of endometriotic cells that would have to be obtained through an invasive laparoscopic procedure. Non-invasive imaging methods would allow patients suffering from endometriosis to have a “working diagnosis” where their clinicians would be able to treat and provide preventative care without the histological confirmation. By ultimately adapting the accepted standard of diagnosis for endometriosis to non-invasive imaging, diagnosis, treatment, and preventative care become accessible to larger populations. However, further research should focus on the accuracy of endometriosis identification in less severe presentations and examine marginalized populations to ensure replicability across populations.