

Imaging Modalities Used for Uterine Fibroid Embolization Treatment

Introduction

“Uterine fibroids affect millions of women and may account for 60 percent of the 600,000 hysterectomies performed in the United States each year.”⁷ Two imaging modalities, ultrasound, and magnetic resonance imaging (MRI), play an important role in the diagnosis and treatment of uterine fibroids. The imaging is utilized for both pre-and post-procedural evaluations. Complications and contraindications within the imaging modalities may also occur.

MRI

Magnetic resonance imaging (MRI) is used for both pre- and post-procedural evaluation. It is used to see the different tissues of the uterus, the volume of fibroids, and pathology. Activity of the fibroids can be determined using MRI imaging; this activity includes blood flow of the vessels and the surrounding tissue.² MRI is more reliable than ultrasound due to contrast resolution and larger field of view.⁶

Ultrasound

Ultrasound is used for pre-procedural evaluation for a uterine fibroid embolization. It plays an important role in diagnosis. Ultrasound is used to accurately localize and characterize fibroids.⁶

Localization and characterization is important in helping to determine the route of treatment the patient will undergo.⁶ By localizing the fibroid prior to embolization, postoperative complications are reduced. Ultrasound is also used to depict blood flow to and from the fibroid.⁶

Complications/Contraindications

MRI is a huge magnet; therefore, some patients cannot utilize this modality as a part of their treatment process. Objects such as pacemakers or any metal could cause a patient to be unable to use this modality.⁶ If a fibroid is very large, it may be harder to visualize important anatomy while undergoing an ultrasound, making it inadequate.

Conclusion

Ultrasound and magnetic resonance imaging (MRI) are the two imaging modalities utilized for a uterine fibroid embolization procedure. If imaging modalities were not used during these procedures, it would be difficult to know the characteristics of fibroids. It is important to know the characteristics of the fibroid in order to undergo treatment. Ultrasound and MRI are both essential for pre-and post-procedural imaging of uterine fibroids. While one may be superior to the other, they both play an important role.

References

1. Binkurian, N., Linnane, M., & Browne, F. (2015). Journal article review ‘Nursing care of a patient undergoing uterine fibroid embolization in the radiology department’. *Journal of Radiology Nursing*, 34(3), 143-149. doi:10.1016/j.jradnu.2015.06.005
2. Chapiro, J., Duran, R., Lin, M., Werner, J. D., Wang, Z., Scherthaner, R., ... Hong, K. (2015). Three-Dimensional quantitative assessment of uterine fibroid response after uterine artery embolization using contrast-enhanced MR Imaging. *Journal of Vascular & Interventional Radiology*, 26(5), 670-678.e2. doi:10.1016/j.jvir.2014.11.020
3. Kirby, J., Burrows, D., Haider, E., Maizlin, Z., & Midia, M. (2011). Utility of MRI before and after uterine fibroid embolization: Why to do it and what to look for. *Cardiovascular & Interventional Radiology*, 34(4), 705-716. doi:10.1007/s00270-010-0029-2
4. Lam, P. (2017, January 4). "MRI scans: All you need to know." *Medical News Today*. Retrieved from <https://www.medicalnewstoday.com/articles/146309.php>.
5. Nordqvist, C. (2017, June 23). "Ultrasound scans: How do they work?." *Medical News Today*. Retrieved from <https://www.medicalnewstoday.com/articles/245491.php>.
6. Vaidya, S., & Dighe, M. (2009). Uterine fibroid embolization imaging: Interventionalist's perspective. *Ultrasound Quarterly*, 25(4), 185-194. doi:10.1097/RUQ.0b013e3181c47de4
7. Smith, S. (2000). Uterine fibroid embolization. *American Family Physician*, 61(12), 3601-3550.