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Case report

Endometrial cavity-myoma fistula after uterine artery embolization diagnosed by pelvic MRI: case report [☆]

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ABSTRACT

Uterine cavity-myoma fistula is a rare entity which has scarcely been reported in the literature. They are mainly secondary to a treatment and intervention. The reported options for patient evaluation and treatment are mainly invasive such as hysteroscopy. The case, described here, is a 26-year-old woman who had significant symptoms for myoma and went through uterine artery embolization. After few months of being asymptomatic, she complained of continuous spotting with minimal pain; subsequently, pelvic MRI was performed and a clear connection between endometrial cavity and myoma was shown resulting in the final treatment by radio-frequency ablation and the complete relief of the symptoms. The case highlights the importance of the necessity of the proper case selection in terms of size and the site of myoma and also the significance of imaging, mainly MRI, for rare complications corresponding to myoma treatments.

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Introduction

This is a presentation of a uterine cavity-myoma fistula case following a uterine artery embolization performed in response to significant myoma symptoms. The diagnosis was finalized after the suspicious finding in ultrasound was post-evaluated by MRI and a definite connection was detected.

Following is a brief review of this unusual but interesting complication.

Case

The patient, which is going to be discussed, was evaluated at our clinic and interventional center and has consented for her case to be reported in a medical journal.

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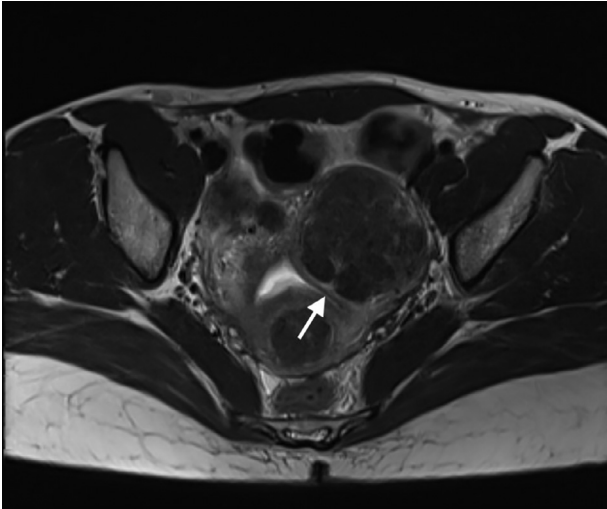


Fig. 1 – Pre-embolization state (2017) T2-weighted MRI axial view shows multiple myoma and pressure on endometrium (arrow).

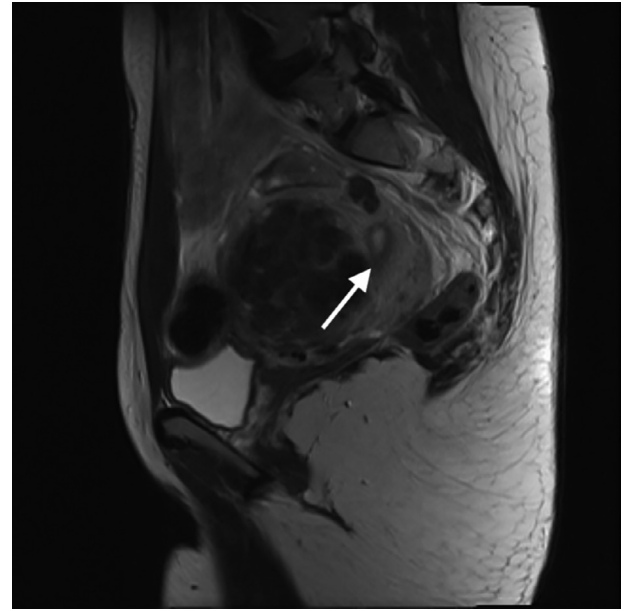


Fig. 2 – Pre-embolization state (2017) T2-weighted MRI sagittal view shows multiple myoma and pressure on endometrium (arrow).

A 26-year-old woman was initially presented with dysmenorrhea and abnormal vaginal bleeding in 2015. Ultrasonography revealed myomatous large uterus and her physician prescribed OCP, specifically progesterone containing medications, for her symptoms.

Two years later (July 2017), her symptoms exacerbated and she developed signs of mild anemia (hemoglobin 11 g/dL); consequently, pelvic MRI was performed for a complete evaluation of the uterus including size, myomas, and cavities. MRI sequences included the T1- and T2-weighted images in different planes for complete mapping of myomas as well as additional T2 fat saturated coronal and T1 fat saturated axial images. This MRI revealed multiple varying size myomas: a 6 cm (the largest) one in left lateral wall FIGO(3-5) as well as 3 pedunculate myomas (up to 3 cm). Additionally, there was another FIGO(3-5) myoma (about 3 cm) in posterofundal region (Figures 1–3)

Since she was virgin and still symptomatic despite the medications, uterine artery embolization (UAE) was performed as a minimally invasive procedure. Except for 4-5 days of severe pain and 10 days of mild pain she didn't complain of any problem and an ultrasound follow up after 3 months showed acceptable decrease of uterus and myomas size.

However, 6 months after the intervention (February 2018), she became symptomatic with continuous spotting. Ultrasound showed suspicious and not conclusive findings in which the endometrial line seemed to be disrupted; subsequently, she underwent another round of MRI study repeating the same exact settings of the aforementioned previous study. The study showed a large connection between the largest myoma and endometrial cavity with a disruption of endometrial line of about 1 cm (endometrial-myxoma fistula). This time this myoma was about 4.7 cm and the fundal myoma was less than 1cm and the largest pedunculate myoma was 2.5 cm (Figures 4–6). RF ablation was performed for her 2 weeks later and she has been asymptomatic since then.

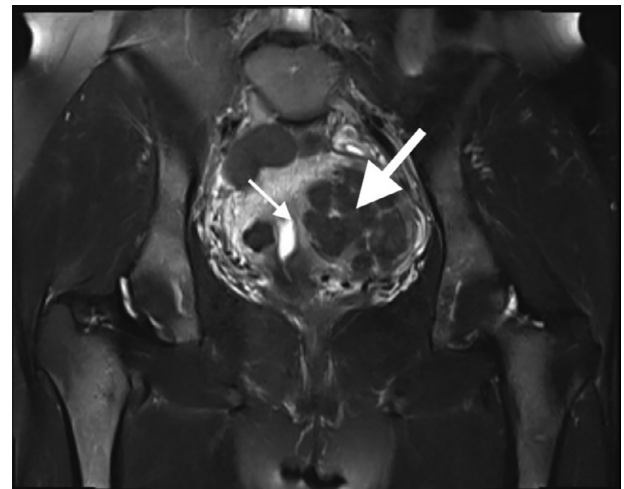


Fig. 3 – Pre-embolization state (2017) T2-weighted MRI coronal fat saturated view shows heterogeneous myoma (thick arrow) and intact endometrium and myoma interface (thin arrow).

Discussion

Myoma of the uterus is a relatively common disease which affects 10% of woman population [1]. Most of myomas are small and asymptomatic, and pain and abnormal vaginal bleeding are the most common symptoms in the symptomatic patients. They can be one of the main causes of infertility depending on to size and site of myomas. Depending on the patient's symptoms, age and conditions, various treatments including hysterectomy, myomectomy, uterine artery emboliza-

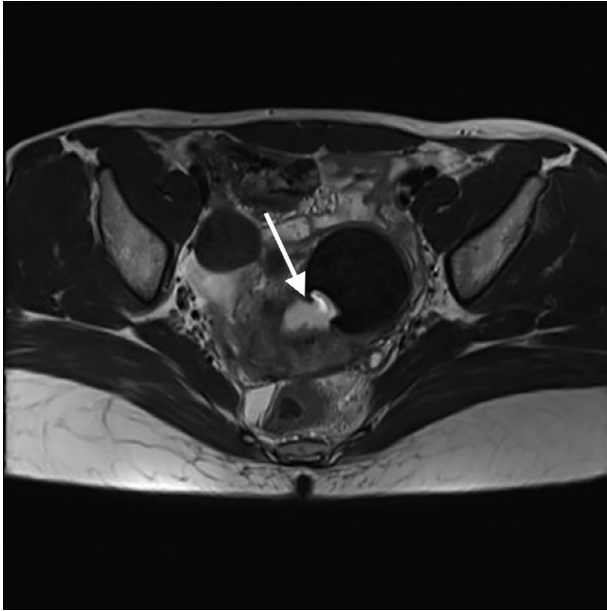


Fig. 4 – Postembolization state (2018) T2-weighted MRI axial view shows decreased size of myoma and connection to endometrium (arrow) compare to Figure 1.

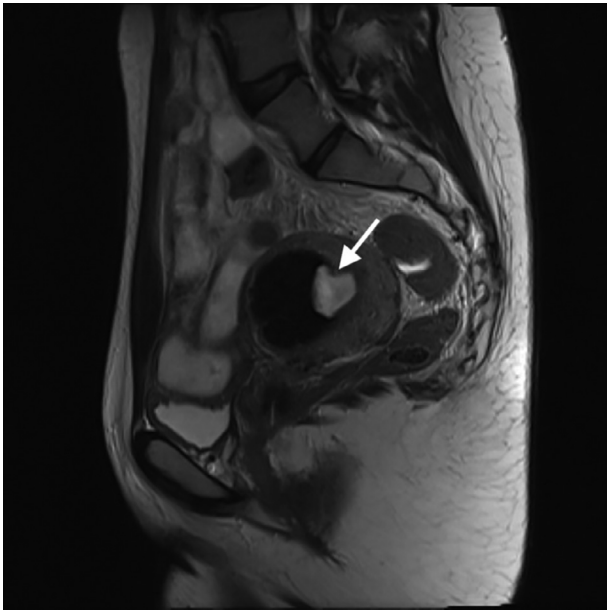


Fig. 5 – Postembolization state (2018) T2-weighted MRI sagittal view shows decreased size of myoma and connection to endometrium compare to Figure 2.

tion and medication can be used [2]. Each one of these treatments has its own benefits and drawbacks. One of the accepted methods of treatment is uterine artery embolization (UAE) which can cause complications such as myoma passage, infectious disease, Pelvic Inflammatory Disease–Tubo-ovarian Abscess, pyomyoma, deep vein thrombosis, pulmonary embolism, ovarian dysfunction, and Myoma necrosis [3].

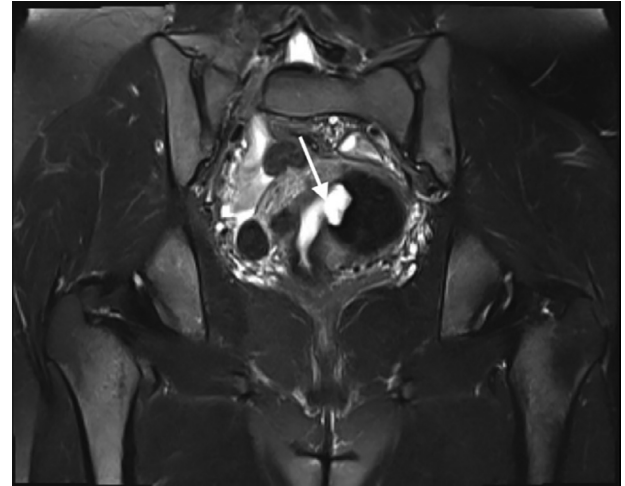


Fig. 6 – Postembolization state (2018) T2-weighted MRI coronal fat saturated view shows decreased size of myoma and connection to endometrium compare to Figure 3.

MRI could be utilized pre and post embolization for myoma localization and mapping, symptom evaluation and the treatment response monitoring [4]. Since UAE could cause necrosis, the rare possibility of fistula formation should be considered mainly due to central rather than peripheral necrosis.

Limited number of cases of fistula has been reported in literature and they have been mainly with adjacent organs like bladder, ileum and colon [5–7]; nevertheless, connection with endometrial cavity is so rare with only few cases reported [8]. These cases have been found mostly in myomectomy [9] and specifically fistula to cavity hysteroscopy has been used as a means of diagnosis [8,9].

Fistula associated with uterus is a rare problem. It could have been caused by cancer in adjacent organ or uterus or cervix themselves [10]; conversely, it could be developed as a complication of surgery, radiation necrosis, or pregnancy [11]. These problems are mainly seen in serosal surface and body of uterus and rarely fistulas between segments and parts of uterus itself are observed.

Uterine artery embolization nowadays is accepted as one of the myoma treatment options, though it could cause significant necrosis and related problems. Rate of necrosis is related to the size of myoma and a large myoma will increase the chance of necrosis.

Likelihood of fistula to endometrial cavity seems to be correlated to the location of myoma, since subendometrial and transmural myomas are potent for this complication especially if they are large. The few reported cases of endometrial cavity-myoma fistula have been diagnosed by invasive methods such as hysteroscopy, but T2-weighted MRI can be used as an accepted non-invasive method for evaluation of myoma pre and post various treatments.

Conclusion

Fistulas between uterine cavity and myoma have been rarely reported, yet these cases could be increased due to the emerg-

ing uterine preserving treatments for myomas. They should be kept in mind for treatment of subendometrial located myomas and large myomas after uterine artery embolization. State of the art MR imaging can be utilized as a noninvasive modality for evaluation of myoma treatment complications. The case reported in this paper clearly shows this rare complication of UAE and its noninvasive diagnosis by MRI.

Patient consent statement

Informed consent was given for all part of imaging and interventions and also for publication.

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