



Case Report

Uterine artery embolization technique for treatment of a huge multi myomatous uterus in a virgin woman

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ABSTRACT

Introduction: Uterine artery embolization is a non-surgical method performed for large and numerous fibroids to preserve the fertility.

Case presentation: The patient is a 36-year-old virgin woman with menometrorrhagia, abdominal pressure, constipation, bilateral abdominal pain, frequent urination and a compressive effect on the intestines was reported to our center. She was diagnosed with uterine fibroids.

Discussion: Because the type of uterine masses and possibility of uncontrollable bleeding during myomectomy and hysterectomy, uterine vascular embolization by supra selective angiography to preserve the uterus was performed. Due to fever, pain and vaginal discharge, she was hospitalized again and hysterotomy was performed without any reported complications.

Conclusion: Uterine artery embolization is a safe method, however reduction and loss in ovarian function can be seen with the treatment. Measurement of follicle stimulating hormone and anti-Müllerian hormone before and after the treatment is important.

1. Introduction

Fibroids are very common, often asymptomatic and benign, and occur individually or in multiple myometrial smooth muscle cells [1–3]. Individuals with a positive family history are 2.5 times more likely to get leiomyoma and myoma, which are diagnosed by abdominal and vaginal ultrasound, magnetic resonance imaging (MRI) and hysteroscopy [4,5]. Clinical symptoms include pelvic pain, a feeling of pressure in the abdomen, urinary problems such as frequent urination, and digestive problems such as constipation, which are reduced by emptying the bowel. Patients are often presented with menorrhagia and menometrorrhagia. Treatment includes surgery such as abdominal or laparoscopic myomectomy, hysteroscopy, and abdominal or vaginal hysterectomy [6–8] (see Fig. 1).

Uterine artery embolization (UEA) is a non-surgical method of large and numerous fibroids that are associated with severe bleeding and clinical signs of gastrointestinal and abdominal pain and where preservation of fertility is important [9]. In this method, first through femoral

artery cannulation, embolization of uterine arteries with injection of gelatin sponges (PVA = polyvinyl alcohol particles) or trisacryl gelatin microspheres is performed [10]. Due to obstruction in blood flow and hypoxia, patient is only hospitalized for two to four days and non-steroidal anti-inflammatory drugs (NSAIDs) are administered for pain management for two weeks. It should be noted that in 5% of cases, tissue excretion takes more than 2 weeks, which in case of leukocytosis and persistent fever does not require hospitalization and drug treatment measures. In case of high fever and symptoms of sepsis and lethargy with vasopressin in young people, invasive hysterectomy should be considered. Contraindications to UAE treatment include active genital infection, genital malignancies, weakened immune system, and severe vascular disease associated with uterine arteries and renal dysfunction [11,12].

2. Case presentation

A 36-year-old unmarried woman with symptoms of sepsis,

Abbreviations: UEA, Uterine artery embolization; MRI, magnetic resonance imaging.

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abdominal pain, lethargy, and fever was presented to our emergency department in 2018. On initial examination by a gynecologist, tenderness and guarding in the hypogastric region, and severe brown vaginal discharge were evident. Uterine enlargement was suspected in physical examination. Her vesicular sounds were normal, and her vitals were: temperature: 38.7°, blood pressure: 80/122 mmHg, respiration rate: 18, pulse rate: 72. Ultrasound of abdomen and pelvis showed that the appearance of the fibroids in uterus and the total myomas in the fundus measured 10*14*10. A multi-lobed myoma was seen in the lateral part of the right cervix measuring 8*5.6. Inside the uterine cavity, there was a discharge of tissue and degenerative tissue as well as air, which was 25 mm thick. The total thickness of the endometrium was 9mm. Examination of the ovaries is not possible due to the presence of multiple myomas. The right kidney had mild-to-moderate hydronephrosis, and the right hydronephrosis was also seen, possibly due to the pressure effect on the ureter.

Pelvic MRI showed a large myoma measuring 17*16*11cm in posterior of uterus and body that caused severe compression of endometrium. There was also a conglomeration of multiple myomas with estimated size of 15*9 cm in right lateral of uterus body, also covering endocervix.

MRI of Abdominopelvic Cavity with and without contrast media was also performed that showed enlargement of the uterus measuring about 205*100*185 mm and containing myometrial mass of varying sizes. Extensive necrotic-mucoid degenerations were seen in multiple mass lesions. The largest one measured 95*94 mm and was located in left cornua. Enhancement of mentioned lesion was seen after contrast media administration. Pelvic Lymphadenopathies were visible in both iliac chains with largest measuring 21*12 mm in left internal iliac chain. Regarding extensive necrosis and presence of pelvic lymphadenopathies, the lesions were more likely to have malignant origin such as uterine leiomyosarcoma. The urinary bladder was almost empty and contains a Foley catheter.

After performing infectious consultation, the patient underwent hysteroscopy and washing with antibiotics, followed by and then the patient underwent supportive care such as body temperature management and fluid therapy. In the pathology report, the result of the examination of the samples taken during the operation showed necrotic tissue consistent with necrotic smooth muscle tumor (necrotic

leiomyoma). The patient was followed up to 4 weeks (once per two weeks) at the hospital clinics by an obstetrics and gynecology resident.

The methods were stated in accordance with the SCARE 2020 guidelines [13].

3. Discussion

Uterine artery embolization has been studied as surgical technique for uterine fibroids, however, earlier studies had shown numerous complication and only short-term symptomatic relief [14]. A study by The REST investigator showed that [15] UAE significantly more complications, however, shorter duration of hospitalization and faster recovery. The findings of our case study depicted no complications until 12-months of follow-up. A systematic review and meta-analysis showed that pregnancy rate after UAE is 50%, which is relatively lower than myomectomy. It also significantly greater rate of abortion [16]. A recent study Manyonda, Belli [17] conducted in the United Kingdom also reported that myomectomy, as compared to UAE, is associated with better fibroid-related quality of life in two years of the surgery. In a study of 555 patients between the ages of 18–59 years, showed that 83% of patients with severe bleeding, 75% had frequent urination, which after UAE menorrhagia improved by 83% and their urinary frequency It was eliminated in 86% of them. The mean decrease in dominant fibroid volume was 33% over 3 months, but the improvement in menorrhagia was not related to uterine volume before surgery and its reduction after surgery [18]. In subsequent studies, 3% of those under 40 years of age and 41% of those over 50 years of age developed amenorrhea. Hysterectomy due to complications was 1.5%. The UAE technique with previous prediction can be used successfully to control severe and uncontrollable bleeding during myomectomy or hysterectomy during surgery and after surgery. Hospitalization time was also significantly shorter in the UAE method than in hysterectomy (2 days vs. 5 days), but readmission rates were higher in the 6 weeks after surgery due to complaints of pain or fever in 9 patients. Equivalent to intravenous fluid therapy, NSAID use, and pain management usually reduce symptoms within 2–3 days [19–21].

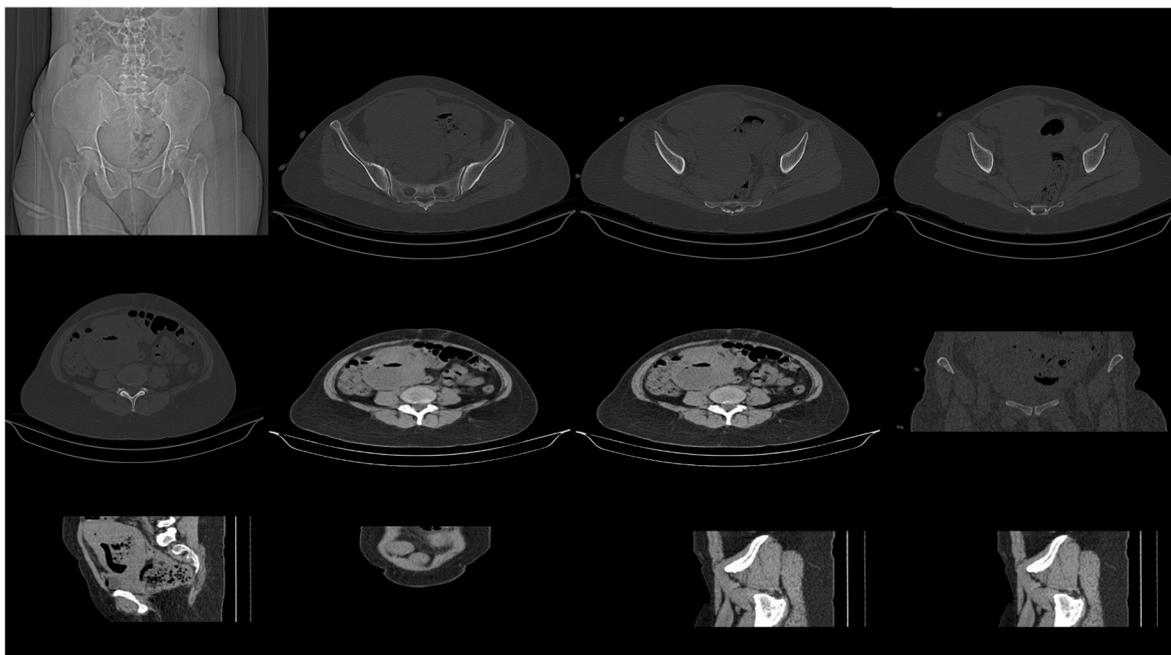


Fig. 1. Pelvic MRI and MRI of Abdominopelvic Cavity with and without contrast.

4. Conclusion

This case report highlights the importance of uterine artery embolization in a virgin woman, diagnosed with large uterine fibroid. However, we do not have the data regarding fertility in the patient. Some recommendations based on our experience are as follows:

- The incidence of leukocytosis and increased ESR, fever and lethargy are associated with readmission.
- It is recommended that hysteroscopy be performed even in virgin patients after consensual consultation. The possibility of secondary infertility to the patient and family should be explained.
- Studies have shown that pregnancy rates in the UAE have been lower than in surgeries and abortions, but there has been no difference between the fetal period and the midwifery period, so it seems that with future recanalization of embolized arteries, fertility is possible. There is a need for further studies in this area [22,23].
- Performing UAE in patients with immunodeficiency and disease associated with diabetes is limited due to increased infection rate [24].
- Reduction of fibroids and their necrosis improved urinary, gastrointestinal (constipation) symptoms and decreased abdominal wall volume in this patient.
- Choosing the UAE method had no side effects such as bladder, ureteral and intestinal injuries, ileus in this patient.
- In performing aggressive hysterectomy in the above cases, the use of vasopressin in young people and the use of a cell saver device is essential [5,25,26].
- Performing ultrasound and MRI simultaneously in different stages by a center to compare complications and results is essential [27–29].
- Candidates for UAE surgery should be evaluated by a treatment team consisting of an Interventionist radiologist, gynecological surgeon, general surgeon and infectious disease specialist and the final decision should be made taking into account all contraindications, indications and patient preferences [30].
- It is possible to benefit from the regrowth of fibroids and reduce the pain caused by making changes in the lifestyle of susceptible people, such as reducing the consumption of red meat and alcohol, increasing the consumption of fruits and vegetables, and having a regular exercise program [29,31].
- Although there is no accurate information about the ability of this method to maintain patient's fertility, it seems that for those patients for whom maintaining fertility is important, UAE is a safe method but due to the reduction (35%) or loss of ovarian function (55%), measurement of follicle stimulating hormone and anti-Müllerian hormone before and after UAE is necessary to assess the physiological capacity of the ovaries. It is also recommended to use egg storage with existing methods, if possible, to maintain future fertility [32].

Provenance and peer review

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Ethical approval

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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Author contributions

Dr. Saeid Marzban-Rad: conceptualized and designed the study, drafted the initial manuscript, and reviewed and revised the manuscript.

Dr. Masoumeh Ghafarzadeh Dr. Parastesh Sattari: Designed the data collection instruments, collected data, carried out the initial analyses, and reviewed and revised the manuscript.

Dr. Hamid Reza Taheri: Coordinated and supervised data collection, and critically reviewed the manuscript for important intellectual content.

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Consent

Not applicable.

Availability of data and material

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

Declaration of competing interest

The authors deny any conflict of interest in any terms or by any means during the study.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2022.103722>.

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