



## Radiofrequency ablation, A new paradigm for the treatment of adenomyosis: Case series

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### Abstract

Adenomyosis is a challenging clinical condition that is commonly being diagnosed in women of reproductive age. To date, many aspects of the disease have not been fully understood, making management increasingly difficult. Heavy menstrual bleeding and dysmenorrhea are the typical symptoms of adenomyosis, occurring in approximately 60 and 25 percent of women, respectively. The diagnosis of adenomyosis is based mainly on transvaginal ultrasonography and magnetic resonance imaging (MRI). A thickness of the junctional zone of at least 12 mm is the most frequent MRI criterion in establishing the presence of adenomyosis. Adenomyosis can appear as a diffuse or focal form. Although hysterectomy is a definitive treatment option, minimally invasive treatment methods have been developed as more women desire uterine preservation for future fertility or to avoid major surgery. Several uterine-sparing treatment options are now available, including medication, hysteroscopic resection or ablation, conservative surgical methods, high-intensity focused ultrasound, uterine artery embolization and radiofrequency ablation each with its own risks and benefits.

**Keywords:** Adenomyosis, Pelvic pain, Dysmenorrhea, Radiofrequency

### Introduction:

Adenomyosis is a heterogeneous gynecological condition commonly encountered in our clinical practice. It is caused by the benign invasion of ectopic endometrial glands and stroma in the myometrium. Patients with adenomyosis can have a wide range of clinical presentations. The most common presenting features of adenomyosis include heavy menstrual bleeding, secondary dysmenorrhoea and an enlarged uterus (which may produce pressure symptoms on the bladder or the bowel). However, patients can also be asymptomatic (1).

Adenomyosis can be diffuse, where islands of adenomyosis may be found throughout the myometrium, or it can be localized which is subdivided into

adenomyoma (more or less clear borders with mainly solid characteristics) or cystic adenomyosis (2).

Transvaginal ultrasonography (TVUS) and magnetic resonance imaging (MRI) are the main radiologic tools for the diagnosis of adenomyosis. MRI has a diagnostic accuracy of 85 %, with additional value in confirming the diagnosis and determining disease characteristics and extent and other uterine lesions (3).

Radiofrequency ablation (RFA) of tumors results from the heat that is generated from the medium frequency alternating current. The heat causes coagulation necrosis in targeted tumors and obliteration of interstitial vessels. It was first used *via* a laparoscopic

approach for treating uterine fibroids and subsequently with ultrasound guidance. Ultrasound-guided RFA can be performed as an outpatient procedure under sedation and many studies have reported it as a safe and effective treatment for uterine fibroids (4).

**Case (1):**

A 35 years old patient , nulligravida married since 10 years , before and after marriage the patient gave a history of severe and worsening dysmenorrhea with cramps and irregular menstrual cycles (oligomenorrhea) which were insufficiently relieved by NSAIDs, one year after regular marital life she sought medical advice and all infertility workup was done and all were normal.

Two years after marriage the patient starts to complaining of menorrhagia (period 8 days with blood clots), After 5 years here husband marry again and now He has two kids.

At the same time, she also sought medical advice and D & C was done for marked bleeding which was relieved for one year and then returned back for which she sought medical advice many times and many gynecologists told here that she has a fibroid uterus (wrong diagnosis) and advice here to do a hysterectomy. Nine months ago 3D transvaginal ultrasound was done It reveals anterior uterine wall localized adenomyosis about 5 x5 cm.

Routine investigations were done which revealed that Hb was 7.5 mg/d, cross-matched blood (3 units) was received, then ultrasound-guided Radiofrequency ablation was done in Sohage University Hospital after agreement of department committee, Three and Six months follow up with ultrasound and MRI respectively revealed decrease in size of adenomyoma to be 3x3.3 cm then 2.87x3 cm. Six months Follow up by

MRI revealed ill-defined hypointense lesion about 3.5x2.8x3 cm in continuity with junctional zone and showing multi minor cystic changes and focal bulge within the endometrial cavity for follow up. Bleeding was relieved completely and patient resuming normal cycles, partial relieving of pain was noticed.



Pre-RFA 2D TVS

Pre-RFA 3D TVS



Post\_RFA 3 M.

Post\_RFA 6 M.



MRI pelvis showing ant. Wall localized adenomyosis

**Case (2):**

Thirty-seven years old, unmarried patient with a history of dysmenorrhea 6 months after menarche, which was increased gradually in strength in the

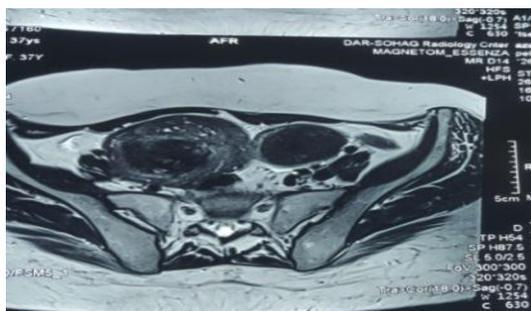
following years and was relieved partially by analgesics.

Two years ago the patient starts complaining of heavy menstrual bleeding (12 days with blood clots) besides the worsening dysmenorrhea. Abdominal ultrasound was done which revealed abnormally enlarged and distorted contour of the uterus with lateral subserous 5x5.5 cm leiomyoma and a suspicious posterior uterine wall ill-defined lesion which necessitate the need for MRI pelvis which was done and revealed that the lesions were localized adenomyosis about 53x58 mm with multiple cystic changes of adjacent myometrial tissue and a subserous leiomyoma 52x55 mm.

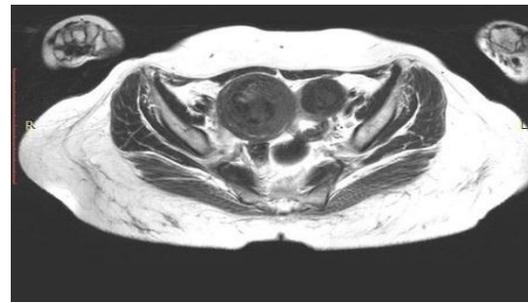
Two months ago ultrasound-guided Radiofrequency ablation was done for both lesions.

Follow up MRI was done, It revealed that the size and extension were decreased, looks more heterogenous signal with cystic changes impressive of degeneration as well as reduced the associated microcystic area of localized adenomyosis which was decreased to 2.1x3.7 cm and the size of leiomyoma was reduced to 3.8x4.3 cm.bleeding was completely resolved and the patient resuming her normal cycles. Pain is relieved partially.

Follow up is needed for that case to know the effect of the procedure on pain.



Pre-RFA MRI



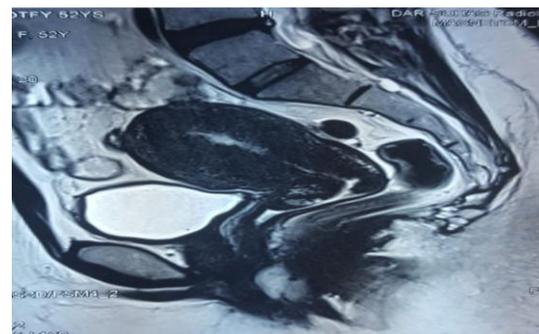
Post-RFA MRI

### Case(3):

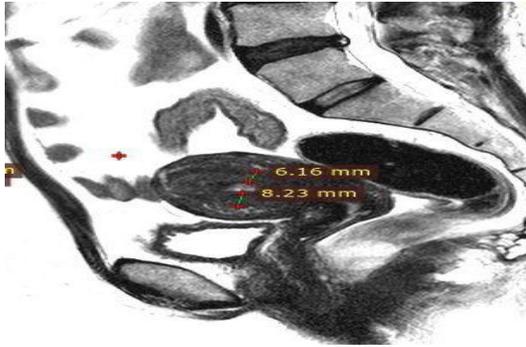
A 53 years old patient, Grandmultipara, complaining of heavy menstrual bleeding for 2 years. pelvic and ultrasound examination revealed a uterus  $\pm$  10 wks.MRI was done and revealed enlarged uterus with ill-defined diffuse thickening of the inner myometrium with few foci and thickened junctional zone 2.5 cm.

Six months ago ultrasound-guided Radiofrequency ablation was done for fundus, anterior and posterior uterine walls(5 deployments of the radiofrequency needle).

Vaginal bleeding occurs once 7 days after the procedures and there is no vaginal bleeding till now suggesting that diffuse adenomyosis was the cause for continuing menses till that age of 53 years. Follow up MRI was done 6 months after the procedure, It reveals diffuse heterogeneous hypointense thickening of the junctional zone with maximum transverse thickness 14 mm.



Pre-RFA MRI



### *Post-RFA MRI*

### **Conclusion:**

Ultrasound-guided RFA might be a safe and effective minimally invasive alternative in the treatment of symptomatic adenomyosis in which there is reduced uterine adenomyosis-related volume, and significant relief of symptoms. However large studies and longer follow-ups with large data to confirm the exact recurrence rate, long term complications, and effect on pregnancy are needed.

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