

HIFU Ablation is an Alternative Treatment for a Women Athlete Suffering from Uterine Fibroids - A Case Report

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Abstract

Uterine fibroid is a common gynecological benign tumor but can markedly deteriorate women's quality of life. Women with uterine fibroids may suffer from abdominal discomfort, pressure symptoms, menorrhagia, and severe anemia. Women athletes suffering from uterine fibroids are often not permitted to take any hormone or NSAID drugs to control their symptoms. This may interfere with the checking of urine samples after an international competition. This may disturb their tight training schedule and affect their sports performance if these happen. Sometimes, even though surgery can remove the fibroids, these young athletes do not welcome surgery as post-operative rest can be up to 6 weeks after (traditional) surgery. The efficacy and safety of focused ultrasound surgery (FUS) therapy for treating uterine fibroids has been increasingly recognized. This paper reports HIFU ablation treatment for a woman athlete with a uterine fibroid suffering from anemia, fibroid recurrence, and pressure symptoms. After HIFU treatment, she resumes her normal exercise and sports with a satisfactory result. This may be the first case report of the use of HIFU ablation in athletes to the best of our knowledge, thus highlighting the unique advantages of HIFU treatment for athletes.

Introduction

Fibroids are abnormal growths in the uterus. Although they are not cancerous or life threatening, they can cause complications and health problems. Up to 30-50% of women with fibroids can have symptoms and complications such as pain, heavy menstrual bleeding, constipation, and anemia. However, large uterine fibroids may cause more discomforts and pressure symptoms, affecting their quality of life daily due to bleeding, menstrual cramps, and severe pain. Hormone and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) are two commonly used medical treatments for uterine fibroids. It may not work satisfactorily or unable to control the growth of fibroid. Surgical treatments, including myomectomy or even hysterectomy, are often unwanted by these young patients because of surgical risks, long periods of rest, and recurrence. To them, surgery is the only last resort treatment. For women athletes, hormones and drugs can also be a major concern in sport because of the strict anti-doping rules and tight screening. Only a valid sports medicine physician can

prescribe any World Anti-Doping Agency (WADA) prohibited drugs for legitimate medical treatment. Severe anemia due to menorrhagia arising from fibroids can worsen athletes' sports performance. This paper reports the advantages of HIFU ablation treatment for a young athlete with fibroid. A literature review shows no reported cases highlighting this new treatment approach for athletes.

Case Report

The 31 years old patient is a female bowling athlete. She suffered from heavy vaginal bleeding and anemia in 2014. She was diagnosed by ultrasound imaging to have a large fibroid on the posterior wall of the uterus, measuring 6.9 x 7.6 cm. She had a mini-laparotomy myomectomy performed in April 2014. On her follow-up visit in 2017, a recurrent fibroid of 3.8 x 2.8 cm was found in the posterior uterine wall of the uterus, which was slowly increasing in size and suffered from menorrhagia and anemia. Her hemoglobin

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dropped to 9.7 g/dL despite oral iron therapy. MRI scan then confirmed a large uterine fibroid of 9.8 x 7.7 cm (**Figure 1A**). Being a sportswoman representing the Hong Kong team, she took iron tablets and Tranexamic acid to control her anemia and bleeding. However, she refused a repeat surgery. She requested the new alternative HIFU ablation treatment, which was done on 18/10/2019 as a day-only surgery. The HIFU ablation procedure was performed under Monitored Anesthesia Care with sedation and analgesics. It was completed with 95% ablation of the fibroid in two hours without any complication. She recovered from her HIFU treatment well and was discharged home after two hours stay

in the clinic [1]. She returned to her sports training and competition after three days of quick recovery from her treatment.

Since then, she did not suffer from any heavy menstrual bleeding. On her follow-up visits three months after her HIFU treatment, an MRI scan showed the fibroid had reduced to 6.0 x 5.7 cm (**Figure 1B**). On further ultrasound follow-up on 23/4/2021, the fibroid size was reduced to 4.5 cm x 2.5 cm. Clinically, she could not feel her abdominal mass anymore, and her periods had returned to normal. She enjoyed her sports activities and became a sports teacher.

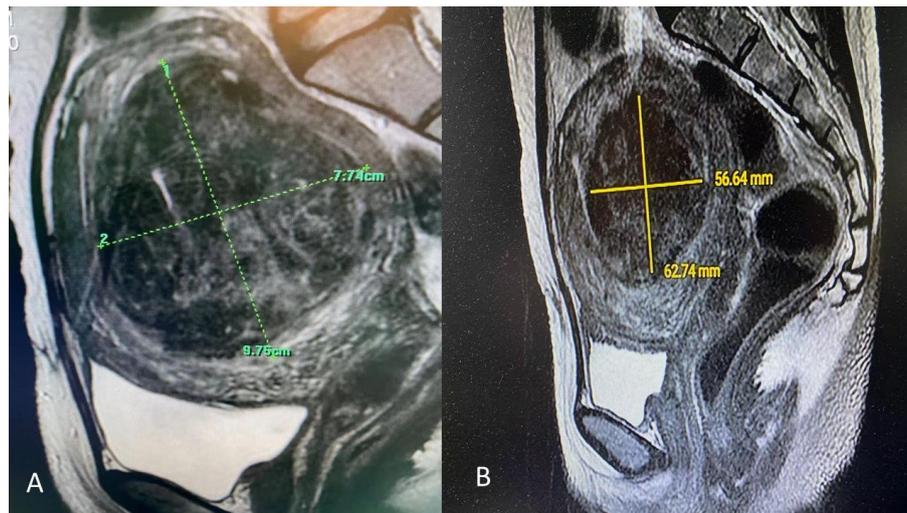


Figure 1: (A) MRI image of a recurrent fibroid before HIFU ablation in a young athlete. (B) MRI image of the fibroid at three months after HIFU ablation.

Discussion

Women athletes are commonly in their early 20 to 30. Thus, it is not uncommon for an elite women athlete to go for a health check and be revealed that she has severely anemic and a large fibroid. Athletes with uterine fibroids would consult appropriate sports medicine doctors for any medical treatment. Sports medicine doctors know the most appropriate medications for the athletes while not inflicting on the WADA inhibited list of drugs [2].

If an athlete has a large fibroid and increased bleeding and anemia, her sports performance will be affected without appropriate treatment. Surgery is the conventional treatment for symptomatic fibroid. However, not every young athlete will consider it as first-line treatment. On the other hand, athletes are not allowed to take hormones or many medications that may appear to enhance their sports performance. Therefore, the new HIFU ablation treatment should be an alternative for this group of patients.

Hysteroscopic myomectomy and endometrial ablation procedures are sometimes used but often ineffective or not applicable. They may reduce vaginal bleeding, but they are not a treatment for intramural or large submucous fibroids that cause menorrhagia. Endometrial ablation also impairs

fertility due to the removal of all normal endometrium. Uterine Artery Embolization (UAE) is another alternative used treatment. It is an option for a woman who may not be medically fit for surgery, plan not to have more children, and prefers to retain her uterus. However, UAE has a range of complications, including premature ovarian failure, chronic vaginal discharge, and pelvic sepsis, and may have limited efficacy when the fibroids are large [3]. Despite a reported failure rate of 30-40 %, myomectomy had been performed once for this young woman. She refused to have surgical removal of the large fibroid again due to the recurrence risk but requested HIFU treatment. HIFU ablation represents a non-invasive method for treating fibroids, and it causes ablation necrosis of fibroid by focusing a high-intensity sonication beam into the lesion. The focused beam generates coagulative necrosis at a focal spot that destroys the fibroid lesion. It is an emerging treatment for fibroids with efficacy and safety proven through research and practice [4-6]. After hearing the merits of this non-invasive HIFU treatment, she accepted this treatment and benefited from the safe, fast recovery and cessation of medication after treatment. HIFU ablation may play a unique role in women athletes suffering from uterine fibroids. Future research is needed, including the efficacy and the quality of life assessment after HIFU ablation for uterine fibroids among athletes.

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