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CASE REPORT

GnRH Agonist Therapy for Fertility Optimization in Women With Inaccessible Submucous Fibroids

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ABSTRACT

We present a 31-year-old patient who underwent hysteroscopic myomectomy following gonadotropin-releasing hormone agonist treatment due to inaccessible submucous myomas. At the first operation, 15 fibroids and one endometrioma in the right ovary were removed. Hysteroscopy was not performed to remove these submucous fibroids, as all of them covered the uterine cavity, and if they were removed, the walls of the uterine cavity would adhere, resulting in Asherman syndrome. Following laparoscopic myomectomy, the patient was started on leuprolide treatment, a gonadotropin-releasing hormone agonist, for two months. Then hysteroscopy was conducted, and it was observed that all submucous fibroids had undergone significant degeneration, with reduction in size, softening, and could be easily excised.

Keywords: Fibroid, hysteroscopy, myomectomy

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INTRODUCTION

Fibroids are benign tumors developing from the muscle tissue of the uterus. They are common, affecting approximately 80–90% of women by the age of 50, especially among those of reproductive age due to hormone-induced growth.[1] The exact cause of leiomyomas (fibroids) is not fully understood, but their development is believed to be influenced by a combination of genetic, hormonal, and environmental factors. A genetic mutation may trigger the onset of the condition, and different types of fibroids can arise through various molecular pathways. Hormones, particularly estrogen and progesterone, also play a crucial role in the growth and maintenance of these tumors, as fibroids tend to grow during the reproductive years when these hormones are active and shrink after menopause when hormone levels drop.[2]

Uterine leiomyomas, especially those that distort the endometrial cavity, are widely thought to negatively impact fertility and contribute to various reproductive issues such as miscarriage, preterm labor, and placental abruption. They are also linked to other pregnancy complications, including early bleeding, premature rupture of membranes (PROM), pelvic pain, and restricted fetal growth.[3] Other than their effect on fertility, they lead to symptoms such as irregular menstrual bleeding and dysmenorrhea.[4–6]

The primary treatment approaches include medical management, interventional radiology, and surgical procedures.[7] Medical management encompasses both nonhormonal medications, such as nonsteroidal anti-inflammatory drugs and tranexamic acid, as well as hormonal therapies, including combined oral contraceptives, levonorgestrel intrauterine

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systems, gonadotropin-releasing hormone (GnRH) agonists or oral antagonists, progesterone receptor modulators, and aromatase inhibitors. GnRH agonists are commonly used to reduce the size of fibroids by downregulating pituitary GnRH receptors, thereby inducing a hypoestrogenic state. These agents also represent a valuable option in the preoperative phase to decrease fibroid volume prior to myomectomy.[8]

Surgical intervention is the most commonly chosen approach for the treatment of uterine fibroids. The decision between conservative and nonconservative methods depends on the specific characteristics of the fibroids as well as the patient's preferences. Myomectomy is considered a conservative treatment option for managing symptoms of uterine fibroids, while hysterectomy is generally recommended as a definitive surgical solution for patients who do not wish to preserve their fertility.

CASE REPORT

A 31-year-old nulliparous woman presented to the infertility clinic with menstrual irregularity and a fertility wish for 2 years. Hysterosalpingography was performed to assess the patency of the Fallopian tubes, and no abnormalities were detected regarding the tubes. Multiple intramural and submucous fibroids indenting the uterine cavity were revealed by ultrasonography and hysterosalpingography. She underwent laparoscopic myomectomy, during which 15 fibroids and one endometrioma, located on the right ovary, were excised.

However, hysteroscopy was not performed to remove submucous fibroids, as all of them covered the uterine cavity, and if they were removed, the walls of the uterine cavity would adhere, resulting in Asherman syndrome. In the postoperative period, the patient was started on leuprolide treatment, a gonadotropin-releasing hormone (GnRH) agonist, for two months. Following this treatment, hysteroscopy was conducted, and it was observed that all submucous fibroids had undergone significant degeneration, with reduction in size, softening, and could be easily excised (Fig. 1). The patient was monitored for six months, and then frozen embryo transfer was planned.

Written informed consent for publication of her clinical details and images was obtained from the patient.

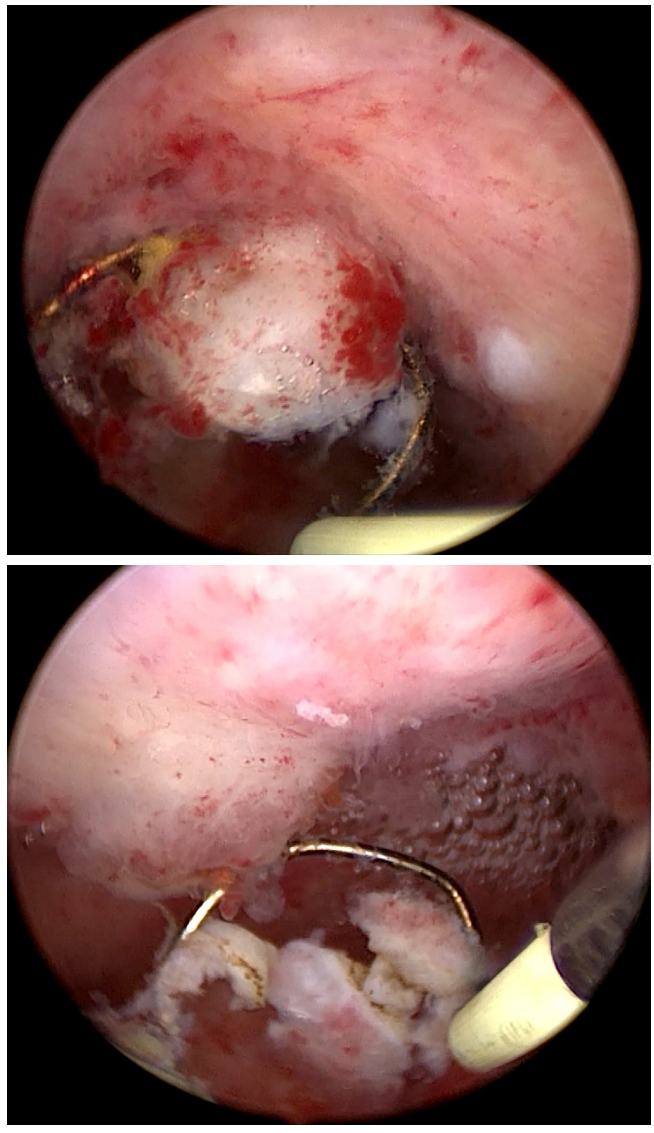

Figure 1. Hysteroscopic view of the fibroids that can be easily excised after GnRH agonist treatment

GnRH: Gonadotropin-releasing hormone

DISCUSSION

Fibroids are a significant cause of infertility in women. These benign tumors arise from the muscle tissue of the uterus and can be located in various layers of the uterine wall. The localization of fibroids influences their impact on fertility. While subserosal fibroids, located on the outer layer of the uterus, generally do not affect fertility, intramural and submucosal fibroids have been associated with infertility. Therefore, it is crucial to treat fibroids in women who want to become pregnant.[9]

In certain cases, fibroids cannot be surgically removed due to their size or location. In such situations, hormone therapy is utilized to reduce their size. GnRH agonists are commonly employed either postoperatively or as a primary treatment to shrink the size of fibroids. GnRH agonists, in particular, can reduce fibroid size by lowering estrogen levels in the blood.[10] Although these medications are preferred for perimenopausal women or as part of postoperative treatment,

GnRH agonists play an important role preoperatively in facilitating surgery and minimizing adverse outcomes associated with the operation, as demonstrated in this case.[11] The use of GnRH agonists prior to surgery can reduce the size of fibroids, which in turn minimizes blood loss and shortens the duration of the operation. Furthermore, in cases where a hysterectomy is required, GnRH agonists can facilitate a vaginal hysterectomy rather than an abdominal hysterectomy by reducing the size of the uterus.[12]

CONCLUSION

In our case, GnRH agonists were administered prior to hysteroscopy to remove submucosal fibroids. This approach was chosen because performing hysteroscopy on these fibroids without prior treatment may increase the risk of developing Asherman syndrome, a condition that can itself lead to infertility.[13]

By utilizing GnRH agonists, the size of the submucosal fibroids was reduced, thereby making the subsequent hysteroscopy safer and more effective. The use of GnRH agonists prior to hysteroscopy may be valuable in reducing potential complications and achieving better medical outcomes, as demonstrated in our case.

Disclosures

Informed Consent: Written informed consent for publication of her clinical details and images was obtained from the patient.

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