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Case Report

Morphological modulation of ovarian endometrioma with elagolix: a case report

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ABSTRACT

Ovarian endometrioma is a common manifestation of endometriosis, an estrogen-dependent inflammatory disorder associated with chronic pelvic pain and dysmenorrhea in women of reproductive age. Although surgical cystectomy is often effective, it may compromise ovarian reserve which is a significant concern, particularly in young women, highlighting the need for effective medical alternatives. We report a rare case of non-surgical management of a large ovarian endometrioma using the oral gonadotropin-releasing hormone (GnRH) antagonist, Elagolix. A 21-year-old unmarried woman presented with severe dysmenorrhea and lower abdominal pain, and ultrasonography revealed a right ovarian endometrioma. She was initiated treatment with Elagolix 150 mg once daily. The patient experienced significant symptomatic relief with marked reduction in pain scores and no notable hypoestrogenic adverse effects. Follow-up imaging at week 10 demonstrated morphological changes within the cyst suggestive of necrotic transformation and reduced endometrial cell viability indicating inhibition of disease progression. This case highlights the role of individualized, dose-dependent hormonal modulation with Elagolix as a non-surgical option for managing ovarian endometriomas, achieving both clinical and radiological improvement with fertility-preservation.

Keywords: Ovarian endometrioma, Elagolix, Morphology, Endometriosis

INTRODUCTION

Endometriosis is a multifactorial disease driven by aberrant hormonal, immunologic and inflammatory processes. The condition affects approximately 10% of women of reproductive age and up to 50% of women with infertility.[1] It is characterized by the presence of endometrium-like tissue outside the uterine cavity. The ectopic implantation of endometrial glands and stroma leads to a chronic inflammatory response. The ovaries are the most common site of involvement, with *ovarian endometriomas* also known as “chocolate cysts” forming due to repeated cyclic haemorrhage.[2] Clinical manifestations typically include progressive dysmenorrhea, dyspareunia, chronic pelvic pain and infertility, significantly impacting quality of life.[3]

Estrogen acts as the primary promoter of lesion growth and inflammation, while progesterone resistance contributes to persistence of disease activity. The therapeutic goal is to alleviate symptoms, suppress endometrial activity, preserve fertility and improve quality of life. Surgical cystectomy in case of ovarian endometrioma, though effective, may compromise ovarian reserve and there are high recurrence rates as well. Therefore, medical options such as hormonal suppression using combined oral contraceptive pills (COCs), progestins or GnRH modulators are increasingly preferred as first-line therapy.[3]

Recent introduction has been Elagolix, a non-peptide oral gonadotropin-releasing hormone (GnRH) antagonist. It offers a novel medical approach by modulating estradiol levels, thus reducing endometriotic lesion activity. Elagolix offers the advantage of dose-dependent, reversible suppression of estrogen production without inducing a full hypoestrogenic state. It avoids the initial flare associated with GnRH agonists and allows titration of hormonal suppression to balance efficacy and safety.[4]

Phase III trials (EM-I and EM-II) demonstrated that Elagolix significantly reduced dysmenorrhea and non-menstrual pelvic pain in women with moderate-to-severe endometriosis. The 150 mg once-daily regimen provides effective symptom control with fewer hypoestrogenic effects compared to the higher 200 mg twice-daily regimen.[4] Here, we report a case of a young woman with a large ovarian endometrioma which was successfully managed medically with Elagolix, highlighting its effectiveness and tolerability. To the best of our knowledge, this is the first documented case demonstrating Elagolix-induced suppression of endometrial cell activity accompanied by morphological alterations such as necrotic transformation within the ovarian endometriotic lesion.

CASE REPORT

Patient demographics

A 21-year-old unmarried female presented with complaints of severe dysmenorrhea and lower abdominal pain that profoundly hampered her quality of life.

Menstrual history

Menarche occurred at 15 years of age; cycles were regular (28–30 days) but progressively became more painful over the past year.

Clinical findings

Physical examination revealed lower abdominal tenderness without palpable masses.

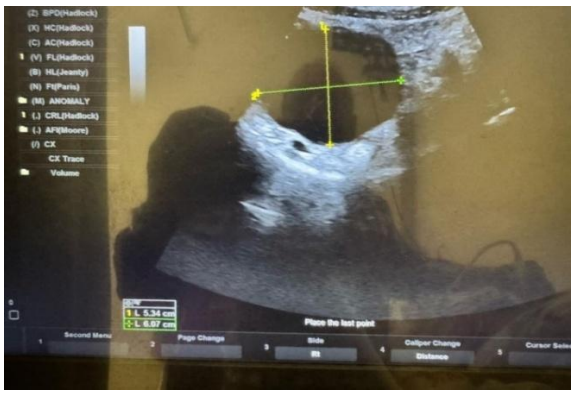

Figure 1: Pelvic USG before treatment.

Pelvic ultrasonography (USG) findings

The baseline scan is given in Figure 1. The uterus was anteverted and anteflexed bulky. The right ovary contained a unilocular cystic lesion measuring approximately 6.0×6.0 cm, with homogenous low-level internal echoes and posterior acoustic enhancement, a characteristic of an endometriotic cyst. The left ovary appeared normal and there was no evidence of cyst.

Diagnosis

Right ovarian endometrioma secondary to endometriosis.

Treatment initiated

The patient was prescribed Elagolix 150 mg (Femgolix™ 150 mg) orally once a day. Depending upon the response to treatment, the dose was increased to 200 mg once daily after 10 weeks. She was regularly counselled about lifestyle modifications and the importance of adherence to therapy.

Follow-up

The patient was reviewed regularly and after commencement of Elagolix therapy, significant clinical improvement was noted in pain intensity and menstrual symptoms. She reported progressive reduction in dysmenorrhea and abdominal pain over the subsequent weeks. There was significant reduction in visual analog scale (VAS) score of pain from 9 at baseline to 6 at 10 weeks of Elagolix therapy. The treatment was very well tolerated by the patient and no significant hypoestrogenic side effects such as hot flushes, mood changes, or irregular bleeding were noted.

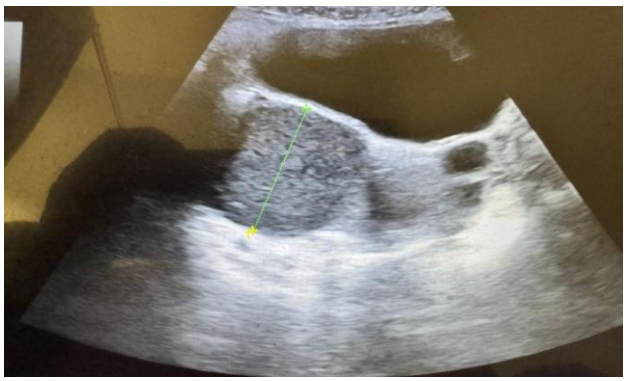

Figure 2: Pelvic USG after treatment.

Repeat ultrasonography

The follow-up imaging after 10 weeks of therapy demonstrated notable changes in histopathology of the right ovarian cyst. The mixed echogenicity within the cyst corresponds to necrotic endometrial cells and debris suggestive of minimal to absence of on-going endometrial cell viability. This finding implies effective estrogen

suppression and disease control with Elagolix treatment. (Figure 2).

Outcome

The patient experienced substantial symptomatic relief consistent with radiological evidence of cellular changes within the cyst. This outcome aligns with the known dose-dependent action of Elagolix and its capacity to induce regression of endometrioma without the need of surgical intervention.

DISCUSSION

The management of ovarian endometrioma (OE) remains a clinically challenging aspect, especially in women where preserving ovarian reserve is a key priority.[5] For patients with advanced OE, surgical management using laparoscopic procedure would be preferred. In cases of patients who experience intense discomfort or in whom preserving fertility is not a concern, conservative surgical options including hysterectomy with bilateral salpingo-oophorectomy may be considered. As these procedures may involve thermal or mechanical damage to ovarian tissue and may not always achieve complete eradication of disease, they are associated with a potential decline in ovarian reserve and an increased risk of recurrence.[6,7] These concerns have brought a paradigm shift in treatment approach towards fertility preserving medical therapies.[8]

Medical management of OE has the potential to reduce the size of cyst and additionally the major aim is management of pain and slow-down the progression of endometriosis.[9] Traditional hormonal therapies like progestins, oral contraceptives, aromatase inhibitors, GnRH agonists, etc. have demonstrated efficacy in reducing estrogen levels and painful symptom control.[10] Progestins (e.g., dienogest), have shown to reduce endometrioma size gradually with improvement in pain symptoms in several studies, but responses are often slow and one-third of patients show resistance to the treatment. GnRH agonists, although effective in suppressing disease activity, are associated with an initial flare effect and significant hypoestrogenic adverse events, limiting long-term use.[11-13] Compared to these agents, the newer option of oral GnRH antagonist, Elagolix pose an advantage of oral administration, rapid onset of action as well as adjustable dosing regimen, allowing individualized hormonal suppression.[14]

The present case exhibits successful medical management of a large ovarian endometrioma using Elagolix. The results indicate reduced endometriotic cellular viability, secondary to suppression of estrogen-dependent proliferation of endometriotic lesions. The notable symptomatic improvement aligns with the pharmacologic mechanism of Elagolix, which acts by competitive inhibition of GnRH receptors in the pituitary gland. By inhibiting GnRH signalling pathway, Elagolix shows rapid suppression of LH and FSH, thereby resulting in reduced ovarian estrogen production.[15] This reduction in circulating estrogen limits stimulation of ectopic endometrial tissue and consequently reduces inflammatory activity and pain associated with endometriosis. Unlike GnRH agonists, Elagolix does not cause an initial hormone flare and allows dose-dependent modulation of estrogen levels, thereby minimizing severe hypoestrogenic adverse effects.[16]

Efficacy of Elagolix has been established based on large randomized clinical trials conducted in women with endometriosis-associated pain. In Phase III trials like EM-I and EM-II and extended further to EM-III and EM-IV involving more than 1600 women, Elagolix showed significant improvement in painful symptoms like dysmenorrhea, non-menstrual pelvic pain and dyspareunia.[17,18] The dose of 150 mg once-daily of Elagolix illustrated significant pain reduction while maintaining a favourable safety profile with respect to hypoestrogenic effects such as hot flushes, vaginal dryness and bone mineral density loss.[16] The clinical outcomes observed in the aforementioned patient are consistent with the findings of Elagolix trials, demonstrating significant pain relief without notable adverse effects.

Additionally, the present case report reveals radiologic evidence indicating structural changes within the endometriotic cyst. Although current database of Elagolix provides substantial evidence on symptomatic relief, limited data exists related to changes in ovarian endometrioma morphology. The ultrasonographic results of mixed echogenicity as well as necrotic transformation within the cyst suggest regression of endometriotic cell activity. Suppression of estrogen levels may impair cellular proliferation, angiogenesis, and inflammatory signalling pathways within ectopic lesions, ultimately leading to regression of endometriotic tissue.[19]

Another highlighting aspect of this case report is the fertility-preservation potential. Surgical excision of ovarian endometriomas may decrease ovarian reserve, especially when cysts are bilateral or large. Studies have shown significant decline in anti-Müllerian hormone (AMH) levels post-cystectomy, reflecting poor ovarian follicular reserve.[20] In young patients where preserving ovarian function is highly desirable for future conception, medical therapy like Elagolix can be a suitable option. The reversible mechanism of Elagolix and its favourable safety profile makes it an attractive option in such conditions. This case report also proposes a potential role for Elagolix as a bridge prior to surgical intervention or assisted reproductive technologies (ART). By controlling painful symptoms and reducing endometriotic lesion activity, pre-treatment with Elagolix may improvise surgical conditions or enhancing receptivity of endometrium before fertility treatments.

Overall, the present case contributes to the emerging evidence supporting the role of oral GnRH antagonists in endometriosis management. It demonstrates that

individualized estrogen suppression using Elagolix can achieve meaningful clinical improvement and possible regression of endometriotic lesion activity while avoiding surgery and preserving fertility potential in young women.

Clinical implications

Effective non-surgical option

This case demonstrates that Elagolix can serve as an effective therapeutic alternative to surgery in the management of ovarian endometriomas, achieving both symptomatic and radiologic improvement.

Bridge therapy before surgery or ART

Elagolix is a valuable transitional treatment prior to surgical intervention or assisted reproductive techniques. By altering lesion morphology and controlling pain, it can help to create favourable pre-operative or pre-ART conditions for better clinical outcomes.

Personalized hormonal modulation

The case underscores the importance of individualized endocrine regulation in managing chronic gynaecologic pain disorders, allowing clinicians to balance efficacy and safety through dose-dependent estrogen suppression.

Fertility preservation

Given its reversible mechanism and favourable tolerability profile, Elagolix offers a fertility conserving option for young women where maintaining ovarian reserve is a key consideration.

CONCLUSION

This case highlights the successful use of Elagolix in the medical management of a large right ovarian endometrioma in a young woman. The therapy resulted in significant clinical improvement and favourable imaging alterations over a 10-week period, reinforcing its role as an effective treatment option for endometriosis-related ovarian cysts.

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REFERENCES

1. Macer ML, Taylor HS. Endometriosis and Infertility. Obstet Gynecol Clin North Am. 2012;39(4):535-49.
2. Lamceva J, Uljanovs R, Strumfa I. The Main Theories on the Pathogenesis of Endometriosis. Int J Mol Sci. 2023;24(5):4254.
3. Zondervan KT, Becker CM, Missmer SA. Endometriosis. Longo DL, editor. N Engl J Med. 2020;382(13):1244-56.
4. Archer DF, Soliman AM, Agarwal SK, Taylor HS. Elagolix in the treatment of endometriosis: impact beyond pain symptoms. Clin Med Insights Reprod Health. 2020;14:2633494120964517.
5. Alborzi S, Zahiri Sorouri Z, Askari E, Poordast T, Chamanara K. The success of various endometrioma treatments in infertility: A systematic review and meta-analysis of prospective studies. Reprod Med Biol. 2019;18(4):312-22.
6. Working group of ESGE, ESHRE, and WES; Saridogan E, Becker CM, Feki A, Grimbizis GF, Hummelshoj L, Keckstein J, et al. Recommendations for the surgical treatment of endometriosis-part 1: ovarian endometrioma. Gynecol Surg. 2017;14(1):27.
7. Ünlü C, Yıldırım G. Ovarian cystectomy in endometriomas: Combined approach. J Turk Ger Gynecol Assoc. 2014;15(3):177-89.
8. Miller C. The Endometrioma Treatment Paradigm When Fertility Is Desired: A Systematic Review. J Minim Invasive Gynecol. 2020;28.
9. Văduva CC, Dîră L, Boldeanu L, Șerbănescu MS, Carp-Velișcu A. A Narrative Review Regarding Implication of Ovarian Endometriomas in Infertility. Life (Basel). 2025;15(2):161.
10. Hoffman BL. Williams Gynecology. McGraw-Hill. 2017.
11. Vercellini P, Buggio L, Frattaruolo MP, Borghi A, Dridi D, Somigliana E. Medical treatment of endometriosis-related pain. Best Pract Res Clin Obstet Gynaecol. 2018;51:68-91.
12. Lee J, Park HJ, Yi KW. Dienogest in endometriosis treatment: A narrative literature review. Clin Exp Reprod Med. 2023;50(4):223-9.
13. Surrey ES. GnRH agonists in the treatment of symptomatic endometriosis: a review. F S Rep. 2022;4(2 Suppl):40-5.
14. Lamb YN. Elagolix: First Global Approval. Drugs. 2018;78(14):1501-8.
15. Wang JY, Zhang Y, Ding J. Oral Gonadotropin-Releasing Hormone Antagonists in the Treatment of Endometriosis: Advances in Research. J Clin Med Res. 2025;17(6):299-308.
16. Leyland N, Estes SJ, Lessey BA, Advincula AP, Taylor HS. A Clinician's Guide to the Treatment of Endometriosis with Elagolix. J Women's Health. 2021;30(4):569-78.
17. Taylor HS, Giudice LC, Lessey BA, Abrao MS, Kotarski J, Archer DF, et al. Treatment of Endometriosis-Associated Pain with Elagolix, an Oral GnRH Antagonist. N Engl J Med. 2017;377(1):28-40.
18. Surrey E, Taylor HS, Giudice L, Lessey BA, Abrao MS, Archer DF, et al. Long-Term Outcomes of Elagolix in Women With Endometriosis: Results From Two Extension Studies. Obstet Gyneco. 2018;132(1):147-60.
19. Zhao Y, Gong P, Chen Y, Nwachukwu JC, Srinivasan S, Ko C, et al. Dual suppression of estrogenic and inflammatory activities for targeting of endometriosis. Sci Transl Med. 2015;7(271):271-9.

20. Yılmaz Hanege B, Güler Çekıç S, Ata B. Endometrioma and ovarian reserve: effects of endometriomata per se and its surgical treatment on the ovarian reserve. Facts Views Vis Obgyn. 11(2):151-7.

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