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Leuprorelin acetate hormone therapy in the management of ovarian endometriosis: A case report

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Abstract

Background: Endometriosis is a condition characterized by the growth of endometrial tissue outside the uterus, which can cause pelvic pain and problems in the reproductive system. Endometriosis usually occurs during reproductive age. The symptoms of endometriosis depend on the location of the endometrial cells. The main complaint that often appears is pelvic pain, so about 71-87% of cases are diagnosed due to severe chronic pain during menstruation, while only 38% are detected due to infertility problems. Proper treatment of endometriosis is necessary, as many women are often diagnosed too late, leading to suffering and decreased quality of life. One of the medical approaches used is hormone therapy.

Purpose: To prove Leuprorelin acetate hormone therapy in helping the treatment of Ovarian Endometriosis.

Method: This descriptive analytic research used a case study approach involving a 37-year-old female patient with ovarian endometriosis at the Obstetrics and Gynecology Polyclinic of Dompu General Hospital. The study followed ethical principles and obtained informed consent. Data were collected through interviews, observation, physical examinations, medical records, and diagnostic documentation, using a head-to-toe assessment format. Data analysis was conducted concurrently with data collection, comparing findings with existing theories to support discussion and intervention recommendations. The analysis was narrative and observational, aiming to interpret the patient's condition in relation to theoretical knowledge.

Results: Hormone therapy with Leuprorelin acetate was administered in this case at a dose of 3.75 mg per injection for three months. The results of the ultrasound examination showed a reduction in the size of the ovarian mass, and the patient's pain significantly decreased.

Conclusion: Leuprorelin acetate hormone therapy can serve as an effective alternative to surgery in managing symptoms of ovarian endometriosis.

Keywords: Hormone Therapy; Leuprorelin Acetate; Ovarian Endometriosis.

INTRODUCTION

Endometriosis is a common non-cancerous gynecological disorder experienced by women in the reproductive period, characterized by the presence of glands and endometrial stromal tissue outside their normal location. Ovarian endometriosis is one of the most common forms of endometriosis, where endometrial tissue develops in the ovaries, forming cysts known as endometriomas. In addition to chronic pelvic pain, ovarian endometriosis can lead

to hormone disruption, inflammation, and ovarian tissue damage (Lizhen, Lifen, Chunyan, & Ruihong, 2025).

The prevalence of ovarian endometriosis reaches about 5-10% in women in general, and more than 50% is found in perimenopausal women. Endometriosis is commonly found in women of reproductive age. Although rare, this condition can also occur in adolescence and post-menopause

(Suwantono, Kaput, Astijani, & Saranga, 2022). Ovarian endometriosis significantly affects women's quality of life due to symptoms such as chronic pelvic pain, dysmenorrhea, dyspareunia, and infertility. The exact cause remains unclear, but it is believed to involve hormonal, genetic, and immunological factors. Diagnosis is often delayed due to the non-specific nature of symptoms and the need for imaging or laparoscopy to confirm. Hormonal therapy, such as Leuporelin Acetate (a GnRH agonist), is commonly used to suppress ovarian function and reduce endometrial tissue growth (Yu, Sun, & Fang, 2022).

The incidence of endometriosis is difficult to measure because symptoms are often not apparent, and the examinations used for diagnosis have low sensitivity. Women with endometriosis may experience no symptoms, experience subfertility, or feel pain in the pelvic area, especially during menstruation. Delays in diagnosing endometriosis in women can cause suffering and reduce quality of life (Othman, Al-Hendy, Mostafa, Lambalk, & Mijatovic, 2024).

This diagnostic challenge often leads to a significant delay sometimes up to several years between the onset of symptoms and confirmed diagnosis, which can result in disease progression and complications such as chronic pelvic pain, infertility, and psychological distress (Buggio, Dridi, Barbara, Merli, Cetera, & Varcelini, 2022). The lack of non-invasive, highly sensitive diagnostic tools further complicates early detection. As a result, many women endure unnecessary suffering and undergo repeated consultations before receiving appropriate management. Early recognition and intervention are crucial to improving patient outcomes, preserving fertility, and enhancing quality of life in affected individuals (Osuga, Seki, Tanimoto, Kusumoto, Kudou, & Terakawa, 2021).

Treatment for ovarian endometriosis focuses on controlling symptoms, reducing cyst size, and preventing further damage to reproductive tissue. One therapeutic approach currently used is hormone therapy, which aims to regulate the body's hormonal balance to stop or reduce the growth of abnormal endometrial tissue (Mirfendereski, & Abadian, 2018). One of the potential drugs in hormone therapy is leuporelin acetate, which is a GnRH (gonadotropin-releasing hormone) agonist. This drug works by reducing the production of estrogen, a hormone that plays a role in the growth and development of

endometrial tissue (Paoletti, Neri, Piloni, Marotto, Giancane, Vallerino, & Mells, 2025).

Hormone therapy using leuporelin acetate can benefit ovarian endometriosis patients by reducing pain symptoms and shrinking endometriomas. However, although the use of leuporelin acetate has been recognized as an effective therapy in many cases, this case report aims to dig deeper into the effectiveness and safety of using leuporelin acetate in ovarian endometriosis therapy, as well as its impact on the patient's quality of life (Simanungkalit, 2016).

RESEARCH METHOD

This descriptive analytic research used a case study approach involving a 37-year-old female patient with ovarian endometriosis at the Obstetrics and Gynecology Polyclinic of Dompu General Hospital. The study followed ethical principles and obtained informed consent. Data were collected through interviews, observation, physical examinations, medical records, and diagnostic documentation, using a head-to-toe assessment format. Data analysis was conducted concurrently with data collection, comparing findings with existing theories to support discussion and intervention recommendations. The analysis was narrative and observational, aiming to interpret the patient's condition in relation to theoretical knowledge.

RESEARCH RESULTS

A 37-year-old woman with P1A0 came to the hospital with complaints of lower abdominal pain, where the cesarean scar hurts when pressed. The patient complained of feeling pain during menstruation, especially in the pelvis, since 2016. In 2019, she was examined by an obgyn doctor and only given painkillers. The pain subsided, but the patient said that when pressing the lower abdomen, there was a lump in the area of the cesarean section. In June 2024, the patient checked again with the ob-gyn, and the patient was recommended for surgery, but the patient did not want to.

On physical examination, the patient was found to be moderately ill, GCS: 15, pulse: 82x/min, RR: 18x/min, TTD: 112/70 mmHg. Abdominal examination inspection: there is a thin Pfannenstiel scar on the cesarean section, palpation: there is tenderness (+). On ultrasound examination, it was found that there was endometriosis in the ovary with a lump size of about $\pm$ 3 cm.

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Figure 1. Patient Ultrasound Examination Results

Based on the results of the above examination, the patient was diagnosed by the doctor as having ovarian endometriosis. The doctor provided alternative treatment using hormone therapy, namely using leuporelin acetate injection hormone therapy. The dose used was 3.75mg, with the frequency of therapy carried out once every 1 month for 3 times. Hormone therapy in patients has been given gradually 3 times, starting on July 27, 2024 (first dose), continued on August 30, 2024 (second dose), then continued on September 27, 2024 (last dose) then continued with an ultrasound examination to see the development of endometriosis in the patient.

TGL.	- JADWAL KONTROL - PENGOBATAN & PEMERIKSAAN LANJUTAN - OBAT
15-07-2024	15-07-2024 inj. leupor 3.75 mg I. (30/07/2024)
20/08-2024	20/08-2024 inj. leupor 3.75 mg II. (30/08/2024)
27/09-2024	27/09-2024 inj. leupor 3.75 mg III. (30/09/2024)
	Kontrol ke dr. Verp. Ginekologi
	Sedem. 1500 mg inj. leupor ke 3.

Figure 2. Patient Progress Record For Injection Leuporelin Acetate



Figure 3. Ultrasound Examination Results (After Performing Leuporelin Acetate Injection Therapy)

The results of the patient's ultrasound showed that the patient's endometriosis had visibly shrunk after 3 times of hormone injection therapy.

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DISCUSSION

Endometriosis is a medical condition that occurs when tissue similar to the inner lining of the uterus (endometrium) grows outside the uterus, often in the ovaries, fallopian tubes, or tissues around the pelvis (Masareka, Kiyaka, & Sikakulya, 2022). The disease can cause very disturbing symptoms such as chronic pelvic pain, menstrual disturbances, infertility, and gastrointestinal or urinary treatment (Akbar, Tjokropawiro, & Hendaro, 2020). These symptoms significantly impact a patient's quality of life, often leading to physical discomfort, emotional distress, and social limitations. Chronic pelvic pain can be persistent and debilitating, interfering with daily activities and work productivity. Menstrual disturbances, such as menorrhagia or dysmenorrhea, further exacerbate physical discomfort. Infertility associated with endometriosis can cause psychological stress and affect marital or reproductive planning (Zhang, Wang, Zhang, An, & Jia, 2021).

Treatment involves a combination of medical and surgical approaches, depending on the severity of the disease and the symptoms experienced by the patient (Khotimah, 2024). Treatment involves a combination of medical and surgical approaches, depending on the severity of the disease and the symptoms experienced by the patient. Medical therapy, such as the administration of Leuporelin Acetate, aims to suppress ovarian hormone production and reduce endometrial lesions, thereby alleviating pain and other symptoms. In more severe or refractory cases, surgical intervention may be necessary to remove endometriotic tissue, especially when fertility preservation is a concern (Wang, Zhang, & Ding, 2025). The choice of treatment must be individualized, taking into account the patient's age, reproductive goals, symptom severity, and response to previous therapies. An integrated approach often provides the most effective symptom control and improves quality of life (Thiel, Donders, Kobylanskii, Maheux, Matelski, Walsh, & Muri, 2024).

One of the medical approaches used is hormone therapy. In recent years, drugs that aim to control the body's hormone levels and suppress the growth of endometrial tissue have become an important part of endometriosis therapy (Carsote, Terzea, Valea, & Gheorghisan, 2020). The hormone therapy used in

this case is leuporelin acetate. Leuporelin acetate (trade name: Dienogest) is a progestin hormone medication used to treat various conditions associated with hormonal imbalances, including endometriosis. Leuporelin acetate works by suppressing ovulation and inhibiting endometrial growth, which in turn may help reduce symptoms of endometriosis (Donnez, & Dolmans, 2021).

Leuporelin acetate hormone therapy was given in this case for 3 months at a dose of 3.75mg per injection, and get results from ultrasound examination the results of the patient's lump began to shrink, and the patient's pain decreased. After 3 months of therapy, patients reported a significant decrease in the intensity of pelvic pain and changes in menstrual patterns. Menstrual pain, which was previously very disturbing, is now starting to decrease, and patients report less discomfort during the menstrual cycle. This shows that leuporelin acetate is effective in controlling endometriosis symptoms (Maharani, Yeni, & Sinaga, 2021).

Leuporelin acetate works by inhibiting ovulation and reducing the proliferation of endometrial tissue that grows outside the uterus. In addition, this progestin also has anti-inflammatory effects that help reduce endometriosis-related pelvic pain (Surrey, 2023). The benefits of leuporelin acetate hormonal therapy can often improve the patient's quality of life by reducing bothersome symptoms. The hormone leuporelin acetate, in addition to helping reduce the proliferation of endometrial tissue that grows outside the uterus, also significantly improved quality of life, with reduced anxiety and stress due to chronic pelvic pain. This is an indicator that hormone treatment is successful in achieving the goal of symptom management (Kim, Chapron, Romer, Aguilar, Chalermchockcharoenkit, Chatterjee, & Yen, 2022).

CONCLUSION

Leuporelin acetate hormone therapy is an effective alternative to surgery for managing ovarian endometriosis symptoms. Monitoring patient response and potential side effects is essential. Further research with more cases and long-term follow-up is needed to better understand its overall effectiveness and safety.

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