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Diagnosing and Unraveling a Rare Case Report of Asherman Syndrome: Exploring Diagnostic Techniques and Optimizing Treatment Outcomes

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Abstract: ***Background: Asherman Syndrome is a rare condition characterized by intrauterine adhesions, often stemming from dilatation and curettage (D&C) procedures. We present a case of a 25-year-old woman with a history of recurrent pregnancies, spontaneous miscarriage, and an unusual complication after D&C. Clinical History: The patient, G6P4 (all term babies), experienced amenorrhea for six months after her sixth pregnancy. This pregnancy was marked by high fever during an 11-week gestation D&C, followed by pelvic inflammatory disease (PID) treated with broad-spectrum antibiotics. Clinical Examination: Ultrasonography revealed an anteverted, bicornuate uterus with an evenly distributed 8.4mm endometrium. The ovaries appeared normal. Differential diagnosis included pregnancy, PCOD, medication-induced menstrual changes, thyroid disease, hyperprolactinemia, and androgen-secreting ovarian/adrenal tumors. Diagnosis and Management: Diagnostic hysteroscopy was undertaken, unveiling synechiae at the uterine cavity entrance, above the internal cervical os. Asherman Syndrome was confirmed and treated during hysteroscopy through synechiae excision using a Monopol electric knife. Outcome: The patient's recovery post-surgery was uneventful. Hormone therapy and antibiotics were administered to aid uterine healing and prevent infection. Follow-up revealed the resumption of normal menstruation and potential for conception. Conclusion: Asherman Syndrome, though rare, presents unique diagnostic and management challenges. Timely hysteroscopy-guided intervention is crucial for restoring uterine health and fertility in affected individuals.***

Keywords: Asherman Syndrome, hysteroscopy, synechiae, uterus

1. Case Summary

A 25-year-old woman, G6P4 (all term babies) presents with amenorrhea for 6 months. The patient said that on her fifth pregnancy, she spontaneously miscarried, and on her sixth pregnancy, at 11 weeks gestation, she underwent dilatation and curettage. High temperature made the dilatation and curettage more difficult, and PID was identified and further treated with broad-spectrum antibiotics. She never experienced menstruation again. Medications to stimulate the second stage of menstruation were given twice, and they failed both times. She was further referred to Gynecology Clinic.

2. Physical Examination

On inspection by ultrasound:

Uterus: anteverted, bicornuate, and 67cm3. Endometrium was evenly distributed and 8.4mm **Right Ovary**: 3cm x 2.5cm x 1.5cm, yellow body

Left Ovary: 2.8cm x 2.5cm x 1.3cm

Pouch of Douglas: Free of fluids
Further **hormonal tests** were done, which came out to be **normal.**
FSH (1.97), LH (1.66), TSH, T4, Anti-TPO, BHCG (0.1), Prolactin

3. Diagnosis and Management

Diagnostic hysteroscopy was planned with the intent of treatment. During hysteroscopy, synechiae were found at the entrance of the uterine cavity, above the internal cervical os.

Diagnosis of **Asherman syndrome** was confirmed.
Synechiae was cut with Monopol electric knife during hysteroscopy.

4. Differential Diagnosis

1) Pregnancy
2) PCOD
3) Medication-induced menstrual changes
4) Thyroid disease (hypothyroidism, hyperthyroidism)
5) Hyperprolactinemia
6) Androgen-secreting ovarian/adrenal tumors

5. Introduction

Asherman's syndrome is a rare condition which is mainly due to scar tissue present in the uterus. These scar tissues are also called as intrauterine adhesions and are majorly caused due to D and C procedures (dilatation and curettage). The scar tissue makes the fibrous bands that make the uterine wall thicker. The uterus shrinks as a result of the bands taking up more space than usual. Asherman syndrome can lead to irregular menstruation, infertility, and abnormal placenta. It is characterized by variable scarring in the uterine cavity. Hysteroscopy, which has revolutionized its diagnosis and

management, is regarded as the most useful diagnostic and management tool. The purpose of this review is to investigate the most recent evidence regarding the etiology, treatment, and follow-up strategies of this condition[1].

Epidemiology

Asherman's syndrome might happen in up to 13% of ladies going through an end of pregnancy during the initial 12 weeks of pregnancy, and 30% in ladies going through a D and C procedure after a late unconstrained early termination. As the placenta adheres to deeper layers within the uterus and becomes more difficult to remove, women with placental abnormalities (such as placenta increta) may be more likely to develop Asherman syndrome. The incidence may be as high as 23.4% in patients undergoing procedures two to four weeks after the initial procedure for a vaginal delivery or missed abortion. Patients who undergo numerous bleeding-related procedures or elective abortions increase their risk.

It is found in between 5 and 39% of women who have recurrent miscarriages and 1.5% of women who have a hysterosalpingogram (HSG) for infertility. After the first hysteroscopic resection of a leiomyoma, Asherman's Syndrome can occur in 31% of women and up to 46% after the second one[1][2].

Etiology

The most well-known reason for the ASherman syndrome is the D&C technique. Following an abortion or pregnancy loss, doctors frequently perform a D&C to help clear the uterine lining or treat heavy menstrual bleeding. Other potential causes or risk factors include:

Any procedure performed on the uterus conditions that cause inflammation of the uterus, like endometriosis abnormalities of the placenta, like placenta increta, repeated abortions [2].

There is a 25% chance of developing Asherman syndrome if the patient undergoes surgery to remove a retained placenta between two and four weeks after giving birth. When the placenta does not leave the body within 30 minutes of giving birth, this is known as a retained placenta. It can happen if it is stuck to the uterine wall or gets stuck behind the cervix. The likelihood of developing the condition increases with the number of procedures performed. Other pelvic surgeries, such as a cesarean section or the removal of fibroids, can also cause uterine adhesions. Endometrial infections like genital tuberculosis are another cause. There is a variant of Asherman syndrome in which the uterine walls do not stick together, and it should be determined using a case-based approach. The cases of Asherman syndrome vary from person to person. The endometrium, on the other hand, is exposed due to either the destruction or removal of the basal layer. Asherman syndrome could also result from radiation therapy.

There is always the possibility of infection and the formation of scar tissue when an Intrauterine device is inserted into the body. However, there is no established link between this and Asherman's syndrome, and IUDs are not typically associated with the condition[3].

6. Signs and Symptoms

These are the signs and symptoms a woman would experience with Asherman syndrome but generally it might go unnoticed as well.

1) Hypomenorrhea
2) Amenorrhea
3) Crampy abdominal pain
4) Difficulty getting pregnant and infertility

At times, the intrauterine adhesion may block the passage of blood leading to retrograde mentsruation[3].

Differential diagnosis

It is necessary to distinguish Asherman Syndrome from other conditions that may result in amenorrhea and pregnancy loss, and may cause infertility.

It is necessary to distinguish Asherman's syndrome from:

- Polycystic ovarian disease
- Pelvic inflammatory disease
- Cervical stenosis (Narrowing of the cervix and blockage of the outlet)
- Premature menopause
- Thyroid disease Hypothyroidism Hyperthyroidism
- Hypothalamic dysfunction
- Pituitary gland dysfunction Androgen-secreting ovarian/adrenal tumors

7. Diagnosis

Imaging the uterus's size and shape is usually used to diagnose Asherman's syndrome. A **hysteroscope**, a scope and camera instrument that is inserted into the uterus to provide a view of the uterine cavity, is the gold standard for diagnosis. Unfortunately, most gynecologist offices do not have access to hysteroscopes. As a consequence of this, Asherman syndrome may be underdiagnosed because it cannot be effectively detected by standard diagnostic scans like ultrasound or by routine examinations.

Hysterosalpingography, in which a contrast fluid is injected into the uterus to produce an X-ray image, is another common method of diagnosing Asherman's syndrome. In the event that there are adhesions within the uterus, hysterosalpingography makes it possible to image the shape of the uterine cavity, which may be abnormal. Asherman's syndrome is typically not detected by other common imaging techniques, such as ultrasound and magnetic resonance imaging (MRI)[4].

Three-dimensional sonohysterography, or 3D-SHG, is a new method for diagnosing intrauterine lesions that combines 3D ultrasound with intrauterine saline infusion. When combined with 3-D power Doppler (3-DPD), 3D-SHG was found to be 91.1 percent sensitive and 98.8 percent specific for all kinds of intrauterine lesions, including synechiae.

When adhesions involve the endocervix, **magnetic resonance imaging (MRI)** can be helpful as a complement to other diagnostic methods. On the T2 weighed-image of the uterus, IUA is depicted as having a low signal intensity [5]

Hysteroscopy continues to be the most reliable method for diagnosing AS, despite the aforementioned developments [4].

Hysterosalpingraphy Classification Toaff and Ballas 1978 [5]

Type 1	Atresia of the internal ostium, without concomitant corporal adhesions
Type 2	Stenosis of internal ostium, causing almost complete occlusion without concomitant corporal adhesions
Type 3	Multiple small adhesions in the internal ostium isthmic region
Type 4	Supra isthmic diaphragm causing complete separation of the main cavity form its lower segment
Type 5	Atresia of the internal ostium with concomitant corporeal adhesions.

8. Management and Treatment

Typically, surgery is used to treat Asherman syndrome. The adhesions or scar tissue will be cut out by the surgeon. A hysteroscopy is used for the non-invasive surgery. In order to improve the quality of the uterine lining following surgery, estrogen may be prescribed and general anesthesia might be required. Before attempting to conceive, allow the scar to heal for approximately one year.

The primary objective of treatment is to restore the uterus to its original size and shape by removing the scar tissue. Asherman's syndrome treatment can help alleviate pain, restore normal period (menstrual cycle) and if the patient is pre-menopausal, then she should account for the possibility of pregnancy [4].

Preventing Re-Adhesion Following Hysteroscopic Surgery

A number of procedures have been developed to stop the scar tissue from adhering to the uterine wall again. One of the first devices to separate the uterine walls to prevent recurrent adhesions was the Foley catheter. A Foley catheter with a bag for removing uterine drainage can be inserted into the uterine cavity for five to seven days. A uterine balloon stent made of silicon and shaped to fill the uterine cavity is another way to prevent adhesion reoccurrence. Lastly, it has been demonstrated that applying chemicals like hyaluronic acid can help prevent uterine re-adhesion. Hyaluronic acid is thought to act as a temporary barrier to prevent re-adhesion and may also promote tissue repair, although the mechanism is not completely understood [5].

Hormone Therapy to Improve Tissue Repair and Restore the Uterus' Lining

Hormone therapy, such as estrogen supplements, has been proposed. More clinical studies are being conducted to confirm the value of estrogen therapy for the treatment of Asherman's syndrome, despite the fact that some studies have suggested that estrogen therapy may enhance the repair and growth of cells in the uterine wall. Additionally, antibiotics are frequently prescribed after hysteroscopic surgery. Antibiotics help prevent infections and inflammation that can harm the uterus and cause re-adhesion of the uterine walls, but they do not directly prevent re-adhesion [5].

The Future of management of Asherman Syndrome

Stem cell therapy is currently the subject of clinical trials to see if it can assist in the reconstruction of the uterine wall, particularly following severe cases of Asherman's syndrome. Basic, undifferentiated stem cells can be programmed to transform into virtually any cell in the body, including uterine cells. Rebuilding the endometrial lining that has been damaged by adhesions and surgery is the primary goal of stem cell therapies. Stem cell therapy has been shown in early clinical trials to be safe and may help improve fertility, assist in the return of menstruation, and help regenerate the uterine walls. Stem therapy for Asherman's syndrome is currently the subject of clinical trials [7].

9. Conclusion

In conclusion, Asherman syndrome is a rare and challenging condition marked by intrauterine adhesions that can have a significant impact on a woman's reproductive health. Effective management and minimizing potential complications depend on a prompt and precise diagnosis. Hysteroscopy and imaging procedures assume a fundamental part in assessing the severity and classification. The removal of adhesions and the restoration of normal uterine anatomy and function are the goals of treatment strategies that include surgical intervention, primarily hysteroscopic adhesiolysis. Adhesion reformation can be prevented with the help of adjuvant therapies like hormonal therapy and the placement of intrauterine devices. However, despite advancements in diagnosis and treatment, there are still obstacles, such as the possibility of adhesion recurrence, infertility, and patients' psychological distress. To improve treatment outcomes and investigate alternative therapies for women with Asherman syndrome, ongoing research and innovation are required.

Advances in regenerative medicine, such as the use of stem cells or techniques for tissue engineering, have the potential to improve endometrial regeneration and lessen adhesion formation in the future. To investigate these novel methods and bring them into clinical practice, gynecologists, researchers, and bioengineers must work in a multidisciplinary approach to overcome this challenging condition.

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