

Understanding Ovarian Cysts: A Comprehensive Review of Diagnosis, Management, and Complications

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Abstract

An ovarian cyst refers to a sac filled with fluid or solid material that forms either within or on the surface of an ovary. These cysts are commonly detected in women who have regular menstrual periods and frequently do not cause any noticeable symptoms. Generally, ovarian cysts are a natural occurrence and tend to resolve spontaneously within several months without necessitating medical intervention. In fact, many women generate cysts regularly as part of their menstrual cycle. Benign ovarian cysts can often be asymptomatic and spontaneously disappear, leading many women to be unaware of their presence. However, in some instances, cysts may grow excessively large or rupture, causing significant pain. Rarely, they may become cancerous. Ovarian cysts are less common following menopause. The impact of cysts depends on factors such as their type, size, and whether they are unilateral or bilateral. Large cysts have the potential to compress ovarian tissue and lead to torsion, which involves the twisting of the ovary and subsequent loss of blood supply, resulting in tissue damage. Some cysts may develop due to hormonal imbalances, which can often be managed through dietary adjustments.

Keywords: Ovarian cyst, follicle, torsion, ovary, corpus luteum

INTRODUCTION

Ovarian cysts are frequently observed in women of reproductive age, manifesting as the development of fluid-filled sacs or pouches within the ovaries or on their surface. Although the majority of ovarian cysts are non-cancerous and spontaneously resolve without exhibiting symptoms, they may occasionally result in issues such as discomfort, rupture, or potentially malignant changes. Understanding the various aspects of ovarian cysts, including their diagnosis, management, and potential complications, is crucial for healthcare providers to effectively care for women presenting with these conditions. This extensive review seeks to offer a comprehensive insight into ovarian cysts, encompassing an exploration of their underlying mechanisms, clinical manifestations, diagnostic methods, and treatment modalities. Additionally, the review will explore the potential complications associated with ovarian cysts and highlight important considerations for healthcare providers when

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assessing and managing patients with these conditions. By synthesizing the latest evidence-based information and guidelines, this review aims to equip healthcare professionals with the knowledge and tools necessary to effectively diagnose, manage, and monitor ovarian cysts in clinical practice. Furthermore, it seeks to raise awareness about the importance of early detection and appropriate management of ovarian cysts to optimize patient outcomes and quality of life. Through a multidisciplinary approach that integrates clinical expertise with current research findings, this review endeavors to contribute to the

advancement of knowledge and practice in the field of women's health, ultimately improving the care and management of women with ovarian cysts [1–5].

REVIEW OF LITERATURE

Ovarian cysts are a prevalent gynecological issue, impacting females across various age groups and reproductive stages. A comprehensive understanding of the diagnosis, management, and potential complications associated with ovarian cysts is essential for healthcare providers to effectively care for patients presenting with these conditions. This review aims to synthesize the current literature on ovarian cysts, focusing on key aspects such as pathophysiology, clinical presentation, diagnostic approaches, management strategies, and associated complications.

Pathophysiology of Ovarian Cysts

Ovarian cysts can develop as a result of various physiological processes, including follicular development, ovulation, and hormonal fluctuations. Follicular cysts, corpus luteum cysts, and dermoid cysts are prevalent varieties of ovarian cysts, each characterized by unique pathophysiological mechanisms. Understanding the underlying pathophysiology of ovarian cysts is crucial for accurate diagnosis and appropriate management.

Clinical Presentation and Diagnosis

The clinical presentation of ovarian cysts can vary widely, ranging from asymptomatic cases to severe pain or complications such as rupture or torsion. Clinical evaluation typically involves a thorough medical history, pelvic examination, and imaging studies such as ultrasonography or magnetic resonance imaging (MRI). Differential diagnosis is essential to distinguish ovarian cysts from other gynecological conditions with similar presentations.

Management Strategies

Treatment for ovarian cysts is determined by several factors, such as the cyst's type and size, the patient's age and reproductive condition, and the existence of symptoms or complications. Options may include observation without immediate intervention, using hormonal contraceptives for medical management, or resorting to surgical procedures. Shared decision-making between patients and healthcare providers is essential to determine the most appropriate management approach for each individual case.

Complications Associated with Ovarian Cysts

Although the majority of ovarian cysts are non-cancerous and often resolve on their own, they can occasionally result in complications like rupture, twisting, or becoming cancerous. Timely identification and treatment of these complications are crucial in averting negative consequences and maintaining ovarian health. Patients with complex or high-risk ovarian cysts should undergo careful monitoring and regular follow-up. By reviewing the current literature on ovarian cysts, this article aims to provide healthcare providers with a comprehensive overview of the diagnosis, management, and potential complications associated with this common gynecological condition. Through an evidence-based approach, it seeks to inform clinical practice and improve patient outcomes in the care of women with ovarian cysts [6–9].

INCIDENCE

Approximately 20–25% of women in India experience various types of ovarian cysts, with 8% of pre-menopausal women developing significant cysts requiring intervention. Post-menopausal women with ovarian cysts face an elevated risk of ovarian cancer.

TYPES OF OVARIAN CYSTS

- *Follicular Cysts*: These are the most common functional cysts. They are caused by hyperestrinism [10]. During a typical menstrual cycle, the graafian follicle ruptures to release the mature egg.

Follicular cysts form when the graafian follicle doesn't break down to release the egg which results that follicle to continue grow into a cyst. Follicular cysts may remain asymptomatic and go away in one to three months [2]. Sometimes it may produce vague pain. Graafian follicle which may be enlarged but usually not exceeding 5 cm [10].

- *Corpus Luteum Cysts:* Corpus luteum cysts typically arise from the hyperactivity of the corpus luteum, which forms after the graafian follicle releases the egg. Instead of shrinking as it normally does, the follicle sac may seal itself again and accumulate fluid, resulting in the formation of a corpus luteum cyst. While most of these cysts resolve within a few weeks, they can reach sizes of up to four inches and may cause pain, bleeding, or ovarian twisting. Prolonged or heavy bleeding may occur, often accompanied by a lengthened menstrual cycle. Certain medications used to induce ovulation can increase the risk of developing these cysts [10].
- *Endometriomas:* These are caused by endometriosis. Endometriosis happens when the lining of the uterus (womb) grows outside of the uterus. These cysts develop outside the uterus and attach to the ovaries.
- *Dermoids:* It comes from cells present from birth and do not usually cause symptoms. This type of cyst is a predominantly contains sebaceous material with hair.
- *Cystadenomas:* They are filled with watery fluid and can sometimes grow large. These growths can develop on the outer surface of the ovaries.

Endometriomas, Dermoids, Cystadenomas are the common benign ovarian cyst [2].

Certain women experience a medical condition known as polycystic ovarian syndrome (PCOS), characterized by the development of numerous small cysts on the ovaries. These cysts can lead to ovarian enlargement and, if not addressed, may result in infertility in the future [11].

SIGNS AND SYMPTOMS

Common Symptoms

- Feeling pelvic pressure
- Bloating
- Swelling
- Pain (sharp or dull) in the lower abdomen.

Most ovarian cysts are small and do not cause symptoms.

If a cyst ruptures, it can cause sudden, severe pain.

If a cyst causes twisting of an ovary, severe pain along with nausea and vomiting occurs.

Less Common Symptoms

- Pelvic pain
- Dull lower backache and thighs.
- Problems in emptying the bladder or bowel completely.
- Pain during sex.
- Unexplained weight gain.
- Pain during period.
- Unusual (not normal) vaginal bleeding.
- Breast tenderness.
- Urinating urge more often.

Diagnostic Tests and Treatment of Ovarian Cysts

Doctors may recommend ultrasonography to visualize the cyst's dimensions, configuration, and positioning, as well as to determine its composition, whether it is solid or contains fluid.

Other Tests

- A pregnancy examination to eliminate pregnancy as the potential origin of the cyst.
- Hormonal level assessments to detect any hormonal irregularities.
- A CA-125 blood examination to quantify the concentration of cancer antigen 125 in the bloodstream to assess the cyst's potential malignancy [3].

The management of ovarian cysts relies on several factors such as age, menstrual cycle, cyst size, morphology, and symptomatic presentation. In cases where women develop functional cysts, physicians may recommend the use of birth control pills or other hormonal contraceptives to regulate ovulation. Functional cysts typically regress spontaneously within a period of approximately 1 to 3 months.

Surgery is necessary if the cyst:

- Does not rupture after several menstrual periods.
- Larger in size.
- Looks unusual in ultrasonography.
- Causes severe pain.
- Ovarian cancer is uncommon, but women aged 50–70 have a higher risk of developing it.

Two Primary Surgical Methods for Treating an Ovarian Cyst

- If the cyst is small (approximately the size of a plum or smaller) and appears benign on ultrasound, a laparoscopy may be performed. This procedure involves using a lighted instrument called a laparoscope, which is inserted into the abdomen through a small incision near the belly button. The cyst can then be removed through small incisions made at the pubic hairline.
- If the cyst appears too large to be removed via laparoscopy, a laparotomy is likely to be performed. This procedure involves making a larger incision to extract the cyst, which is subsequently examined for signs of cancer. If it is cancerous, the ovary and other tissues need to be removed.

DISCUSSION

Ovarian cysts are a prevalent gynecological condition, and their diagnosis, management, and potential complications pose significant challenges to healthcare providers. This comprehensive review aimed to synthesize the current literature on ovarian cysts, focusing on key aspects such as pathophysiology, clinical presentation, diagnostic approaches, management strategies, and associated complications.

The discussion section begins by highlighting the diverse etiology of ovarian cysts, which can arise from various physiological processes, including follicular development, ovulation, and hormonal fluctuations. Gaining insight into the fundamental pathophysiology of ovarian cysts is essential for precise diagnosis and effective treatment. Furthermore, the discourse delves into the clinical manifestations of ovarian cysts, underscoring the significance of comprehensive medical background assessment, pelvic examination, and imaging techniques for precise diagnosis. The approach to managing ovarian cysts is multifaceted and depends on variables like cyst type and dimensions, the patient's age and fertility status, and the manifestation of symptoms or complications. The discussion outlines various treatment options, including watchful waiting, medical management with hormonal contraceptives, and surgical intervention. Shared decision-making between patients and healthcare providers is essential to determine the most appropriate management approach for each individual case. Furthermore, the discussion delves into the potential complications associated with ovarian cysts, such as rupture, torsion, or malignant transformation. Swift identification and handling of these complications are vital to avert unfavorable consequences and safeguard ovarian functionality. Intensive surveillance and regular monitoring are advisable for individuals with intricate or high-risk ovarian cysts to minimize the likelihood of complications [12].

CONCLUSION

In conclusion, this comprehensive review provides healthcare providers with a thorough understanding of the diagnosis, management, and potential complications associated with ovarian cysts. By synthesizing the current literature on this topic, we have highlighted the importance of accurate diagnosis, individualized management, and proactive monitoring to optimize patient outcomes. Moving forward, continued research and clinical vigilance are necessary to further refine our understanding and management of ovarian cysts, ultimately improving the quality of care for women affected by this common gynecological condition.

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