

Concurrent Diagnosis of Renal Calculi, Uterine Fibroids and Ovarian Cysts: A Complex Case Study

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ABSTRACT

This case report presents a complex clinical scenario in a 41-year-old female patient, highlighting the concurrent diagnosis of renal calculi, uterine fibroids, and ovarian cysts. The patient's medical history reveals a prior diagnosis of renal calculi six months ago, characterized by flank pain and urinary symptoms. More recently, the patient sought medical attention due to abnormal bleeding and discomfort, leading to the discovery of a bulky uterus with fibroids and a left ovarian cyst categorized as O-RADS 2 (benign). Notably, the patient was undergoing hormone replacement therapy for perimenopausal symptoms. While these conditions typically have distinct etiologies and anatomical locations, their simultaneous presence prompts consideration of potential systemic factors or shared risk factors contributing to this multifaceted clinical presentation. The case underscores the importance of comprehensive evaluation and individualized management strategies in patients with multiple concurrent diagnoses, emphasizing the need for multidisciplinary collaboration between urologists and gynecologists to optimize patient care and outcomes. Further investigation may be warranted to explore any potential connections or underlying factors linking these diverse medical conditions.

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Introduction

Concurrent diagnoses of renal calculi, uterine fibroids, and ovarian cysts in a single patient present a complex medical scenario. Renal calculi, characterized by the formation of kidney stones, are typically unrelated to conditions affecting the female reproductive system. However, the patient's history of renal calculi diagnosed six months prior, alongside the recent discovery of uterine fibroids and an ovarian cyst, raises intriguing clinical questions. Uterine fibroids are common benign growths within the uterine wall, whereas ovarian cysts are fluid-filled sacs that can develop on the ovaries [1]. This case report aims to elucidate the clinical intricacies of this rare combination of medical conditions and explores potential associations or underlying factors. The patient's ongoing hormone replacement therapy for perimenopausal symptoms further adds to the complexity. By presenting this case, we seek to highlight the need for comprehensive evaluation, interdisciplinary collaboration and tailored management strategies to address the challenges posed by these simultaneous diagnoses [2]. Our

objective is to improve our understanding of such complex clinical presentations and facilitate better patient care.

Case Presentation

A 41-year-old female patient was presented with a complex medical history. Six months ago, she was diagnosed with renal calculi following severe flank pain and hematuria. Details about the size, location and treatment response of the renal calculi are pertinent to this case. Additionally, she was undergoing hormone replacement therapy using Ethinyl Estradiol (0.03mg) and Desogestrel (0.15mg) for perimenopausal symptoms.

Clinical Findings

Clinical examination revealed a bulky uterus containing fibroids (20x13mm) at anterior myometrium. An ovarian cyst (44x33mm) categorized as O-RADS 2 (benign) was identified, demanding attention to its size and morphology. The ultrasound scan report is shown in Figure 1. A hypoechoic lesion within the myometrium was also observed, necessitating investigation into its size and location within the uterine wall.





Figure 1: Ultrasound Scanning report showing the presence of ovarian cyst, uterine fibroids and renal calculi

Diagnostic Timeline

The timeline of diagnostic events begins with the renal calculi diagnosis six months ago and extends to the recent discovery of uterine fibroids, the ovarian cyst, and the myometrial lesion. This chronological account outlines diagnostic procedures, specialist consultations, and treatment interventions, providing essential context for understanding the patient's medical journey [3].

The patient's complex medical history, featuring renal calculi, uterine fibroids, an ovarian cyst, and myometrial lesions, prompts considerations based on anatomical knowledge. The coexistence of renal calculi and gynecological issues suggests a need to explore potential systemic factors affecting both the urinary and reproductive systems [4]. The hormonal aspect introduces the possibility of hormone-related interactions. While definitive conclusions require further investigation, the intricate interplay between these conditions underscores the importance of holistic patient evaluation and multidisciplinary care. Such complex cases emphasize the need for healthcare providers to consider potential cross-system influences and individualized management strategies for improved patient outcomes [5].

Discussion

Renal Calculi - A Prior Diagnosis

The patient's medical history includes a prior diagnosis of renal calculi, or kidney stones. Kidney stones are solid deposits that can form in the kidneys and cause pain and urinary issues.

Renal Calculi Characteristics: The renal calculi in this patient were 4 mm in size. While this is relatively small, it's essential to note that even small stones can lead to discomfort and urinary symptoms [6].

Clinical Presentation: The patient's initial diagnosis of renal calculi was made due to severe flank pain and the presence of blood in the urine (hematuria). These symptoms are characteristic of kidney stone episodes and often prompt medical evaluation [7].

Treatment History: Treatment for the renal calculi may have involved pain management, increased fluid intake, and in some cases, medications or procedures to assist in passing or removing the stones [8].

Shared Risk Factors: Although renal calculi and gynecological conditions typically involve different bodily systems, some shared risk factors include diet, hydration levels and underlying metabolic conditions. These factors could potentially play a role in both kidney stone formation and gynecological issues [9].

Hormonal Influence: The patient's use of hormone replacement therapy Novelon tablets [Ethinyl Estradiol (0.03mg) + Desogestrel (0.15mg)] may have implications for kidney stone formation. Hormone therapy can affect calcium metabolism, which is a known contributor to stone formation. It's possible that hormonal changes could influence the risk of kidney stones.

Uterine Fibroids: Clinical Presentation and Implications

Ovarian Cysts: Classification and Management

In this case, the patient's diagnostic evaluation revealed the presence of an ovarian cyst categorized as O-RADS 2, indicating a benign classification [10]. Understanding the classification and management of ovarian cysts is crucial.

Ovarian Cyst Classification: Ovarian cysts can vary widely in nature and are often categorized based on their characteristics. The Ovarian-Adnexal Reporting and Data System (O-RADS) offer a standardized

approach to classifying these cysts. O-RADS 2 designates cysts as benign, suggesting a low likelihood of malignancy. This classification is reassuring but necessitates ongoing monitoring [11].

Clinical Significance: O-RADS 2 cysts are generally considered benign and are typically associated with a low risk of malignancy. However, their clinical significance lies in the need for continued surveillance. These cysts may change in size or appearance over time, making regular monitoring essential to ensure they remain benign [12].

Management Approach: The management of benign ovarian cysts primarily involves a watchful waiting strategy. Surgical intervention is typically not necessary for these cysts unless they exhibit concerning changes or become symptomatic. Instead, patients are recommended for periodic ultrasound examinations to track any alterations in the cyst's size and characteristics [13].

Hormone Replacement Therapy: Relevance and Considerations

The patient's concurrent use of hormone replacement therapy (Novelon tablets) adds a layer of complexity to the management of ovarian cysts [14]. Several considerations are pertinent in this context:

Hormone Influence on Ovarian Cysts: Hormone replacement therapy can impact ovarian function and the menstrual cycle. It is essential to assess whether hormone therapy may influence the ovarian cyst. Hormonal changes can potentially affect the development and growth of ovarian cysts, and the interplay between the therapy and the cyst should be closely monitored.

Hormone Replacement for Perimenopausal Symptoms: The patient's use of Novelon tablets is indicative of hormone replacement therapy administered to alleviate perimenopausal symptoms. It is vital to consider the patient's clinical response to this therapy and whether it effectively manages her symptoms [15].

Interdisciplinary Collaboration: Given the interplay between hormone replacement therapy and gynecological conditions, close collaboration between the gynecologist overseeing the ovarian cyst and the healthcare provider managing hormone replacement therapy is essential. Coordinated care ensures that

both aspects of the patient's treatment align and do not negatively impact each other [16].

Informed Decision-Making: The patient should be engaged in informed decision-making regarding her hormone replacement therapy and ovarian cyst management. A comprehensive discussion about the potential benefits, risks, and alternatives of hormone therapy should take place to ensure that the chosen treatment aligns with her overall health goals and considerations [17].

Potential Connections or Shared Risk Factors

Exploring potential connections or shared risk factors among the patient's medical conditions is a crucial aspect of understanding her complex clinical presentation. While renal calculi, uterine fibroids and ovarian cysts primarily affect different anatomical systems, there are factors that warrant consideration [18].

Metabolic Factors: Shared metabolic factors, such as abnormal calcium metabolism, may contribute to the development of both renal calculi and uterine fibroids. Calcium is essential in the formation of kidney stones, and alterations in calcium homeostasis could potentially influence the growth of uterine fibroids [19].

Hormonal Influences: Hormones play a significant role in the pathogenesis of uterine fibroids. The patient's use of hormone replacement therapy (Novelon tablets) for perimenopausal symptoms introduces hormonal influences that might have implications for her uterine fibroids [20].

Inflammatory Responses: Chronic inflammation is a shared risk factor for various medical conditions. Inflammation can contribute to the formation of kidney stones and may also be involved in the growth and development of uterine fibroids [21].

Lifestyle and Diet: Lifestyle factors, such as diet, hydration, and physical activity, can influence the risk of both renal calculi and uterine fibroids. Poor dietary choices, dehydration, and sedentary lifestyles can contribute to stone formation and potentially exacerbate uterine fibroid symptoms [22].

Genetic Predisposition: A genetic predisposition to certain conditions could be a shared risk factor. Genetic factors may influence the development of



kidney stones, uterine fibroids and even ovarian cysts [23]. While it is essential to consider these potential connections and shared risk factors, it is equally crucial to recognize that these conditions primarily affect different organ systems. Therefore, a comprehensive evaluation by healthcare providers, including urologists and gynecologists, is necessary to determine the extent to which these factors contribute to the patient's overall health and the interplay between her medical conditions [24].

Multidisciplinary Approach

The complexity of the patient's case, involving renal calculi, uterine fibroids and an ovarian cyst, necessitates a multidisciplinary approach to ensure comprehensive and coordinated care. Collaboration among various healthcare specialists is paramount to address the unique aspects of each condition and their potential interactions [25,26].

Urologist: Given the prior diagnosis of renal calculi, the involvement of a urologist is crucial. The urologist can provide expertise in managing kidney stones, assessing their impact on renal function and guiding any necessary interventions or preventive measures.

Gynaecologist: The presence of uterine fibroids and an ovarian cyst falls within the domain of gynaecological care. The gynaecologist plays a pivotal role in evaluating the gynaecological conditions, addressing associated symptoms and determining the appropriate course of action, such as medical management or surgical intervention.

Endocrinologist: Given the patient's use of hormone replacement therapy, consultation with an endocrinologist may be beneficial. An endocrinologist can assess hormonal influences on the patient's health and help manage hormone therapy to align with her overall well-being.

Radiologist: Radiological expertise is essential for interpreting imaging studies, such as ultrasounds, CT scans or MRIs which are vital for assessing the status of the patient's renal calculi, uterine fibroids and ovarian cyst. Collaboration with a radiologist ensures accurate and consistent interpretations.

Primary Care Physician: The patient's primary care physician serves as the central point of contact, overseeing the patient's overall health and

coordinating care among specialists. They play a vital role in integrating the various aspects of the patient's care and communicating treatment plans.

Collaborative Care

Effective collaboration among these specialists facilitates the exchange of information, ensures continuity of care and minimizes potential conflicts in treatment approaches. Regular case conferences or discussions among the multidisciplinary team allow for a holistic assessment of the patient's health.

Treatment Considerations

The treatment approach should be tailored to the individual needs and preferences of the patient. Factors to consider include the size and location of renal calculi, the characteristics of uterine fibroids and the stability of the ovarian cyst.

Treatment options may include:

- ❖ Conservative management for renal calculi, such as increased fluid intake and pain management.
- ❖ Monitoring and hormonal therapy for uterine fibroids.
- ❖ Watchful waiting for the ovarian cyst or minimally invasive procedures if necessary [27].

Long-term Monitoring

Long-term monitoring is essential for tracking changes in the patient's conditions and ensuring timely intervention if needed. Regular follow-up appointments, imaging studies, and symptom assessments are critical components of the patient's ongoing care plan [28,29].

Conclusion

This case report highlights the complexity of concurrent diagnoses of renal calculi, uterine fibroids and an ovarian cyst in a single patient. It emphasizes the importance of multidisciplinary collaboration, individualized treatment, and long-term monitoring. The interplay between these conditions underscores the need for comprehensive care and patient-centred approaches. Further research may reveal insights into potential connections among these conditions, but for now, this case emphasizes the value of interdisciplinary teamwork in managing complex medical presentations.



Conflict of interest

The authors declare no conflict of interest

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