ARTICLE INFO

AUTHOR'S AFFILIATIONS
Obstetric and Gynaecology Department, Awal Bross Hospital, Rokan Hilir, Riau – Indonesia[1]

CORRESPONDING AUTHOR
Fitra Afdanil
E-mail: fitraafdaniljournal@gmail.com

Article history

Received	22-04-2025
Revised	04-08-2025
Accepted	18-09-2025
Available online	30-09-2025

Please cite this article in APA 7th edition style as:
Afdanil, F., & Novia N. I. (2025). Restoring Fertility: Excision of a Giant Ovarian Cyst in Women with Long-Standing Primary Infertility. *Jurnal Ilmiah Kedokteran Wijaya Kusuma, 14 (12), 157-162*

http://dx.doi.org/10.30742/jikw.v14i2.4378

Restoring Fertility: Excision of a Giant Ovarian Cyst in Women with Long-Standing Primary Infertility

Fitra Afdanil[1], Isny Novia N.[2]*

Abstract

Background: Ovarian cysts are common in women of reproductive age and can vary from simple functional cysts to large benign or malignant neoplasms. Giant ovarian cysts are rare and may contribute to infertility due to mechanical and hormonal disruptions. **Objective:** To report the diagnosis and management of a giant ovarian cyst in a young woman with long-standing primary infertility, emphasising the importance of individualised surgical planning for fertility preservation. **Case presentation:** A 26-year-old nulligravida woman presented with progressive abdominal distension over three months. Imaging showed a 22 cm cystic adnexal mass with suspicious features and elevated CA-125 (84 U/mL). The patient underwent exploratory laparotomy and bilateral salpingo-oophorectomy. Histopathological examination confirmed a benign serous cystadenoma. The patient recovered well and was referred for fertility counselling. **Conclusions:** Early evaluation and careful management of large ovarian cysts are crucial in reproductive-age women with infertility. Although tumor markers and imaging guide diagnosis, histopathology is definitive. Surgical decisions must balance oncologic safety and fertility potential to optimise patient outcomes.

Keywords: CA-125, Fertility preservation, Giant ovarian cyst, Laparotomy, Primary infertility, Serous cystadenoma

Case Report

INTRODUCTION

Ovarian cysts are fluid-filled sac growths on the ovaries that can have a simple or complex structure and are often caused by benign epithelial components (Cheng, 2021; Smith & Perry, 2024). These cysts are commonly classified into functional types—such as follicular, corpus luteum, and theca-lutein cysts—as well as neoplastic cysts, including benign, borderline, and malignant tumors. Ovarian tumors affect approximately 10% of women, with the majority being benign in premenopausal patients. The incidence of malignant ovarian cysts is relatively low in this group, estimated at 1 in 1000 women, but increases to 3 in 1000 by the age of 50 (Corrias et al., 2018; Limaiem & Mlika, 2023).

Simple ovarian cysts are most commonly found in women between the ages of 30 and 39, with a prevalence of approximately 48%. Unilocular, thin-walled cysts generally resolve spontaneously with conservative management such as oral contraceptive therapy over 3 to 6 months. Functional cysts under 5 cm in diameter are typically managed conservatively, especially in premenopausal women. However, ovarian cysts that grow to an unusually large size—referred to as perimagnan ovarian cysts—are rare, and can lead to mass effect symptoms and potentially impact fertility (Farahani et al., 2017; Kaur & Ma, 2025; Matalliotakis et al., 2023).

We report the case of a 26-year-old nulligravida woman with a two-year history of primary infertility who presented with progressive abdominal distension over three months. Clinical and imaging evaluation revealed a large cystic mass measuring 20 x 20 x 22 cm, originating from the right ovary. Suspicion of malignancy arose due to the large size, CT findings of septal and peripheral enhancement, and an elevated serum CA-125 level of 84 U/mL.

This case merits reporting due to several unique and clinically significant aspects. First, the sheer size of the cyst in a young, nulligravida woman is uncommon. Second, despite radiologic and biochemical indicators suggestive of malignancy, the final diagnosis was a benign lesion, underscoring the potential for diagnostic ambiguity in large ovarian masses. Third, the case raises important considerations about surgical decision-making in fertility-preserving scenarios. Lastly, it demonstrates how prompt surgical intervention can remove the physical barrier to conception, offering renewed reproductive hope for women facing infertility related to ovarian pathology.

CASE PRESENTATION

A 26-year-old nulligravida woman presented to the Gynaecology Polyclinic of Arifin Achmad Riau Provincial Hospital, accompanied by her family, with a chief complaint of progressive abdominal enlargement over the past three months. She denied any associated abdominal pain, abnormal vaginal bleeding, dysmenorrhea, weight loss, urinary difficulties, or bowel habit changes. Her menstrual cycles were regular, and there was no history of prior abdominal surgery or known gynecologic conditions. The patient had been married for two years without achieving pregnancy, fulfilling the criteria for primary infertility.

On physical examination, a large, mobile, cystic abdominal mass was palpable with its upper border reaching the level of the umbilicus. No signs of ascites or peritoneal irritation were noted. Bimanual pelvic examination was limited due to the mass size. A transabdominal ultrasound was attempted but failed to visualise the entire mass due to its dimensions exceeding the probe's field of view. As a result, a contrast-enhanced abdominal and pelvic CT scan was performed, revealing a well-defined cystic mass with septations and peripheral enhancement, measuring approximately 20 × 20 × 22 cm, originating from the right adnexal region. The lesion exhibited internal septa but no solid components. These radiologic findings, combined with a mildly elevated serum CA-125 level of 84 U/mL, raised the suspicion of a malignant ovarian neoplasm.

Figure 1. Abdominal CT Scan Results.

Given the size and radiologic characteristics of the mass, a midline exploratory laparotomy was scheduled. Intraoperatively, a large 20 × 20 cm cystic mass was identified, originating from the right ovary and adherent to the right fallopian tube. The mass was freely mobile with no adhesions to adjacent organs, such as the intestines, bladder, or omentum. The uterus and left adnexa appeared grossly normal. Considering the preoperative suspicion of malignancy and the intraoperative findings, a bilateral salpingo-oophorectomy was performed to ensure oncological safety. The histopathological examination of the excised specimen revealed a serous cystadenoma, characterised by a unilocular cyst lined with a single layer of bland, non-atypical cuboidal to columnar epithelial cells, without stromal invasion or malignant transformation. No features suggestive of borderline or malignant neoplasm were identified.

Register with CC BY NC 4.0 license. Copyright © 2025, the author (s)

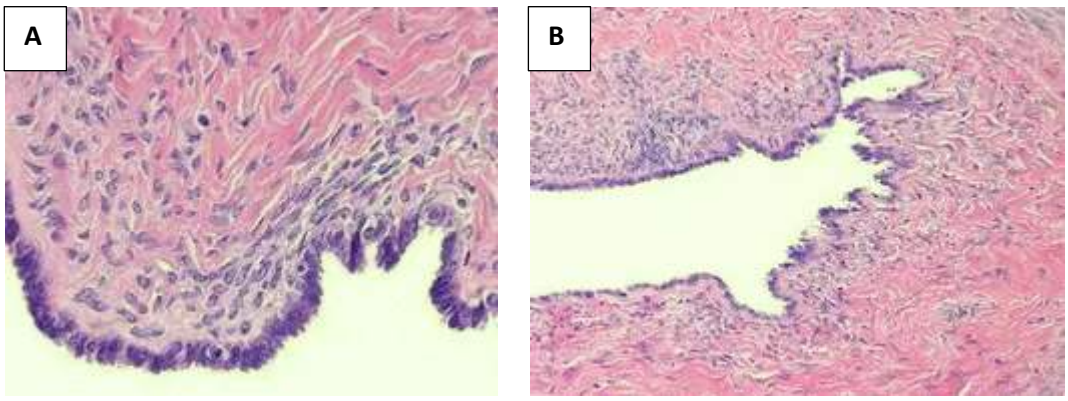

Figure 2. Histopathological Features of Ovarian Cyst. (A) High-power view (H&E, 400×) showing a unilocular cyst wall lined by a single layer of bland, non-atypical cuboidal to columnar epithelial cells. (B) Intermediate-power view (H&E, 100×). The cyst is lined by non-atypical simple epithelium supported by dense fibrous stroma. No features of borderline or malignant neoplasm are identified.

The patient recovered uneventfully postoperatively. She was discharged in stable condition and later referred to a fertility clinic for counselling regarding future reproductive planning, including options such as assisted reproductive technologies. The resolution of the large ovarian mass removed a significant mechanical and possibly hormonal barrier to conception, offering renewed hope for fertility restoration.

Figure 3. Intraoperative Mass.

DISCUSSION

Giant ovarian cysts, also known as perimagnan ovarian cysts, are an uncommon variety of cyst. There isn't currently a precise definition of a perimagnan ovarian cyst in the literature. Ovarian cysts are a frequent gynaecological finding, particularly among reproductive-aged women, and are often discovered incidentally during imaging studies. While most ovarian cysts are functional and resolve spontaneously, neoplastic cysts, including serous cystadenomas, may grow substantially and produce compressive symptoms or interfere with fertility (Bašković et al., 2025; Muhammad Yusuf & Achmadi, 2022). In this case, a 26-year-old nulligravida woman presented with a giant ovarian cyst that contributed to her two-year history of primary infertility. The cyst had grown to a size of 20 × 20 cm and produced progressive abdominal distension over three months, although no pain or menstrual disturbances were reported.

Ovarian cysts can be separated into functional and epithelial tumours based on their genesis. There are various forms of epithelial tumours, including serous, mucinous, and borderline malignancies

(J. Liu, 2024; Nur Syafiqa et al., 2023). In most cases, this condition doesn't show any symptoms; however, patients can experience digestive system problems like nausea, vomiting, and an enlarged stomach up until ascites develops. Older patients may also experience symptoms such as back discomfort, trouble walking, anorexia, generalised weakness, and, in certain circumstances, shortness of breath. Serous cystadenomas are benign epithelial tumors derived from the ovarian surface epithelium. Histologically, they are characterised by a unilocular or multilocular structure with thin walls and a lining of simple cuboidal or columnar epithelium (Corrias et al., 2018). These tumors are slow-growing and may reach substantial sizes before being detected. Although benign, their sheer size can cause mass effect symptoms and mechanical distortion of adjacent reproductive structures, potentially impairing fertility by affecting ovulation or tubal function (Albers et al., 2020; Naz et al., 2024).

The differential diagnosis for a large adnexal mass in young women includes benign neoplasms (such as serous or mucinous cystadenomas), dermoid cysts, endometriomas, functional cysts, and malignancies. In this patient, the presence of septations and post-contrast enhancement on CT imaging, coupled with a CA-125 level of 84 U/mL, prompted suspicion of a malignant process. While CA-125 is a widely used biomarker for epithelial ovarian cancer, it lacks specificity in premenopausal women and can be elevated in benign conditions such as endometriosis, pelvic inflammatory disease, and benign ovarian tumors (Farahani et al., 2017; Lotfy et al., 2024). Thus, mildly elevated CA-125 in this age group must be interpreted with caution and always in conjunction with imaging and clinical findings (Huwidi et al., 2022; Timmerman et al., 2021).

Patients may receive therapy through an operation, which is dependent on the clinical context, the clinician's skill, and the equipment at the healthcare facility. According to some publications, an oophorectomy can be performed using a laparoscopic or laparotomy technique (Bašković et al., 2025; S. Liu et al., 2025). We think that perimagnan ovarian cysts (giant ovarian cysts) are a rare and complex condition that requires a multidisciplinary approach for accurate diagnosis and effective management. The decision to proceed with laparotomy and bilateral salpingo-oophorectomy was based on the tumor’s large size, unclear malignant potential, and its adherence to the ipsilateral fallopian tube. Although a more conservative fertility-sparing approach (e.g., cystectomy or unilateral salpingo-oophorectomy) is often preferred in young, nulligravida women, surgical safety and oncologic risk were prioritised in this scenario. Importantly, the uterus and left adnexa were preserved, allowing for future fertility, either spontaneously or through assisted reproductive technologies. Histopathological findings confirmed the diagnosis of a benign serous cystadenoma with no evidence of malignancy, highlighting the importance of definitive surgical management and tissue diagnosis in such ambiguous cases.

This case emphasises the diagnostic and therapeutic challenges associated with large ovarian masses in young women, particularly those desiring future fertility. It also illustrates that while imaging and tumor markers are useful, definitive diagnosis rests on histopathology. Prompt surgical management not only alleviates symptoms and excludes malignancy but also restores pelvic anatomy and improves reproductive outcomes in selected patients.

CONCLUSION

This case highlights the importance of a comprehensive diagnostic approach in evaluating large ovarian cysts in young women, particularly those with a history of infertility. While imaging and tumor markers like CA-125 are useful adjuncts, they may not definitively distinguish between benign and malignant masses. In this patient, a large serous cystadenoma mimicked a malignant ovarian tumor both radiologically and clinically, necessitating surgical exploration. The successful excision of the mass, while preserving the uterus and contralateral ovary, offers the patient a renewed opportunity for fertility. This case underscores the significance of early detection, individualised surgical planning, and histopathologic confirmation in guiding appropriate management and preserving reproductive potential in young nulligravida women.

Register with CC BY NC 4.0 license. Copyright © 2025, the author (s)

CONFLICT OF INTEREST

The authors declare that they have no competing interests. The fund comes from authors,

ACKNOWLEDGEMENTS

Not applicable

REFERENCES

Albers, C. E., Ranjit, E., Sapra, A., Bhandari, P., & Wasey, W. (2020). Clinician Beware, Giant Ovarian Cysts are Elusive and Rare. In *Cureus* (Vol. 12, Issue 1, p. e6753). https://doi.org/10.7759/cureus.6753

Bašković, M., Habek, D., Zaninović, L., Milas, I., & Pogorelić, Z. (2025). The Evaluation, Diagnosis, and Management of Ovarian Cysts, Masses, and Their Complications in Fetuses, Infants, Children, and Adolescents. *Healthcare (Switzerland)*, *13*(7). https://doi.org/10.3390/healthcare13070775

Cheng, Y. (2021). Ovarian cysts. *American Journal of Obstetrics and Gynecology*, *225*(5), B23–B25. https://doi.org/10.1016/j.ajog.2021.06.042

Corrias, F., Pederiva, F., Cozzi, G., Ammar, L., Cattaruzzi, E., Lembo, M. A., & Barbi, E. (2018). A Giant Ovarian Cyst in an Adolescent. *Journal of Pediatrics*, *199*, 279. https://doi.org/10.1016/j.jpeds.2018.03.015

Farahani, L., Morgan, S., & Datta, S. (2017). Reprint of: Benign ovarian cysts. *Obstetrics, Gynaecology and Reproductive Medicine*, *27*(7), 226–230. https://doi.org/10.1016/j.ogrm.2017.05.002

Hem avathy, V., Sathiyalathasarathi, & Gayathri, M. (2023). OVARIAN CYST : A LITERATURE REVIEW. *International Journal of Novel Research*, *8*(9), 663–666.

Huwidi, A., Abobrege, A., Assidi, M., Buhmeida, A., & Ermiah, E. (2022). Diagnostic value of risk of malignancy index in the clinical evaluation of ovarian mass. *Molecular and Clinical Oncology*, *17*(1), 118. https://doi.org/10.3892/mco.2022.2551

Kaur, N., & Ma, K. (2025). Benign ovarian cysts in premenopausal women. *Obstetrics, Gynaecology & Reproductive Medicine*, *35*(1), 15–20. https://doi.org/https://doi.org/10.1016/j.ogrm.2024.10.003

Khan, S. A., & Banoo, A. (2015). Role of colour doppler sonography in adnexal masses. *International Journal of Medical Research & Health Sciences*, *3*(2), 233. https://doi.org/10.5958/j.2319-5886.3.2.051

Landolfo, C., Bourne, T., Froyman, W., Van Calster, B., Ceusters, J., Testa, A. C., Wynants, L., Sladkevicius, P., Van Holsbeke, C., Domali, E., Fruscio, R., Epstein, E., Franchi, D., Kudla, M. J., Chiappa, V., Alcazar, J. L., Leone, F. P. G., Buonomo, F., Coccia, M. E., … Valentin, L. (2023). Benign descriptors and ADNEX in two-step strategy to estimate risk of malignancy in ovarian tumors: retrospective validation in IOTA5 multicenter cohort. *Ultrasound in Obstetrics and Gynecology*, *61*(2), 231–242. https://doi.org/10.1002/uog.26080

Limaiem, F., & Mlika, M. (2023). *Ovarian Cystadenoma*. StatPearl Publishing. https://www.ncbi.nlm.nih.gov/books/NBK536950/

Liu, J. (2024). Ovarian Epithelial Carcinogenesis. In W. Zheng, O. Fadare, & C. M. Quick (Eds.), *Gynecologic and Obstetric Pathology* (pp. 1–29). Springer Nature Singapore. https://doi.org/10.1007/978-981-19-7696-4_4-1

Liu, S., Zeng, Q., Hu, L., Zeng, B., Wu, Y., Wang, C., Zhou, M., & Gan, X. (2025). Recurrent Giant Ovarian Cysts in Biological Sisters: 2 Case Reports and Literature Review—Giant Ovarian Cysts in 2 Sisters. *Healthcare (Switzerland)*, *13*(6), 1–11. https://doi.org/10.3390/healthcare13060656

Lotfy, A., Gonied, A., Mohamed, S., & Abd el monem, M. (2024). Effect of Ovarian Cysts on Women Health Related Quality of Life. *Zagazig Nursing Journal*, *20*(1), 81–93. https://doi.org/10.21608/znj.2024.336837

Manodarshni, M., Pallavee, P., & Samal, R. (2023). Comparison of International Ovarian Tumor Analysis Simple Rules with Risk of Malignancy Index for Preoperative Differentiation of Benign and

Malignant Adnexal Masses. *Journal of South Asian Federation of Obstetrics and Gynaecology*, *15*(3), 321–325. https://doi.org/10.5005/jp-journals-10006-2258

Matalliotakis, M., Matalliotaki, C., Krithinakis, K., Laliotis, A., Kapetanios, G., Tsakiridis, I., & Kalogiannidis, I. (2023). Anatomic Distribution of Benign Ovarian Tumors in Perimenopausal and Postmenopausal Women. *Cureus*, *15*(1), e34059. https://doi.org/10.7759/cureus.34059

Mobeen, S., & Apostol, R. (2022). Ovarian Cyst. In *StatPearl Publishing*.

Moss, E., Taylor, A., Andreou, A., Ang, C., Arora, R., Attygalle, A., Banerjee, S., Bowen, R., Buckley, L., Burbos, N., Coleridge, S., Edmondson, R., El-Bahrawy, M., Fotopoulou, C., Frost, J., Ganesan, R., George, A., Hanna, L., Kaur, B., … Morrison, J. (2024). British Gynaecological Cancer Society (BGCS) ovarian, tubal and primary peritoneal cancer guidelines: Recommendations for practice update 2024. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, *300*(June), 69–123. https://doi.org/10.1016/j.ejogrb.2024.06.025

Muhammad Yusuf, & Achmadi. (2022). Laporan Kasus: Kista Ovarium Permagna. *Keluwih: Jurnal Kesehatan Dan Kedokteran*, *4*(1), 47–50. https://doi.org/10.24123/kesdok.v4i1.5301

Naz, R., Saeed, A., & Elcircevi, A. (2024). Case Study: Fetal Ovarian Cyst. *Canadian Journal of Medical Sonography*, *15*(1), 17–21. https://doi.org/10.22374/cjms-2023-0055

Nur Syafiqa, A., Rosnani, Z., Noraini, M., Zainab, M. Y., & wan Aireene, W. A. (2023). A Huge Ovarian Cyst: Why was it Missed? *IIUM Medical Journal Malaysia*, *22*(1), 99–102. https://doi.org/10.31436/imjm.v22i1.1901

Shih, I.-M., Wang, Y., & Wang, T.-L. (2021). The Origin of Ovarian Cancer Species and Precancerous Landscape. *The American Journal of Pathology*, *191*(1), 26–39. https://doi.org/https://doi.org/10.1016/j.ajpath.2020.09.006

Smith, & Perry, R. (2024). *Netter's obstetrics & gynecology* (4th editio). Elsevier Inc.

Solanki, K. G., Choudhary, N. V., & Gujrat, B. (2020). ROLE OF ULTRASONOGRAPHY & COLOUR DOPPLER IMAGING IN EVALUATION OF ADNEXAL MASSES Incharge HOD & Associate Professor , Department of Radiodiagnosis , Govt . Medical College and Sir T Hospital , 3 Year Resident , Department of Radiodiagnosis , Govt . Medica. *International Journal of Medical and Biomedical Studies*, *4*(1), 187–191.

Timmerman, D., Planchamp, F., Bourne, T., Landolfo, C., du Bois, A., Chiva, L., Cibula, D., Concin, N., Fischerova, D., Froyman, W., Gallardo Madueño, G., Lemley, B., Loft, A., Mereu, L., Morice, P., Querleu, D., Testa, A. C., Vergote, I., Vandecaveye, V., … Fotopoulou, C. (2021). ESGO/ISUOG/IOTA/ESGE Consensus Statement on pre-operative diagnosis of ovarian tumors. *International Journal of Gynecological Cancer*, *31*(7), 961–982. https://doi.org/https://doi.org/10.1136/ijgc-2021-002565

Zhang, S., Yu, S., Hou, W., Li, X., Ning, C., Wu, Y., Zhang, F., Jiao, Y. F., Lee, L. T. O., & Sun, L. (2019). Diagnostic extended usefulness of RMI: comparison of four risk of malignancy index in preoperative differentiation of borderline ovarian tumors and benign ovarian tumors. *Journal of Ovarian Research*, *12*(1), 87. https://doi.org/10.1186/s13048-019-0568-3

Register with CC BY NC 4.0 license. Copyright © 2025, the author (s)