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J Case Rep Images Obstet Gynecol 2026 Jan-Jun;11(1):59–64.
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Ovarian and fallopian tube yolk sac tumor in postmenopausal patient: Case report and review of literature

Gloria López Pérez, Pablo Eulalio Ruiz Iglesias, Raquel González Marín, Emilia Hernández Nieto, María del Carmen Torres Caballero

ABSTRACT

Introduction: Ovarian yolk sac tumors are uncommon malignant germ cell neoplasms that occur predominantly in young women. Their occurrence in postmenopausal women is exceedingly rare. Elevated serum alpha-fetoprotein (AFP) remains the key diagnostic and surveillance marker.

Case Report: A 58-year-old postmenopausal woman presented with bleeding, abdominal pain, and dyspnea. Imaging revealed a large left adnexal mass with AFP of 2062 ng/mL. Surgical cytoreduction confirmed an International federation of Gynecology and Obstetrics (FIGO) stage II yolk sac tumor involving the left ovary and right fallopian tube with omental implants. Postoperative AFP normalized, and the patient has undergone adjuvant BEP chemotherapy and remains under clinical surveillance.

Conclusion: This case highlights a rare presentation of ovarian yolk sac tumor in a postmenopausal patient with involvement of the contralateral fallopian tube, a combination that, to our knowledge, has been described only in isolated cases in the literature. Germ cell tumors should be included in the differential diagnosis of adnexal masses in older women, particularly when APF is elevated, and multidisciplinary management is essential to optimize outcomes.

Keywords: Alpha-fetoprotein, Fallopian tube, Ovarian, Postmenopausal, Yolk sac tumor

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Received: 14 February 2026
Accepted: 03 May 2026
Published: 30 June 2026

How to cite this article

Pérez GL, Iglesias PER, Marín RG, Nieto EH, Caballero MCT. Ovarian and fallopian tube yolk sac tumor in postmenopausal patient: Case report and review of literature. J Case Rep Images Obstet Gynecol 2026;12(1):59–64.

Article ID: 100233Z08GP2026

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doi: 10.5348/100233Z08GP2026CR

INTRODUCTION

Ovarian yolk sac tumors are uncommon malignant neoplasms of germ cell origin, characterized by rapid progression and aggressive behavior. They typically affect adolescents and young women. Available evidence suggests that outcomes in premenopausal and postmenopausal patients are less favorable than those observed in younger cohorts, with older age being associated with inferior overall survival [1]. The current standard of care includes surgical resection followed by adjuvant chemotherapy, an approach associated with high remission rates improved long-term survival [2].

CASE REPORT

A 58-year-old nulliparous woman, postmenopausal since the age of 47, with no significant past medical

history, presented to the emergency department with 24-hour postmenopausal bleeding, one month of abdominal pain, and progressive dyspnea.

Physical examination revealed a large abdominal mass extending approximately 10 cm above the navel, measuring roughly 20 cm on palpation. The mass had a firm, fixed, and solid consistency. Given its size, the mass was also palpable through the pouch of Douglas on vaginal examination. Pelvic ultrasound revealed a linear endometrium and a 16 × 10 cm anechoic cystic lesion in the left adnexa, with a multilocular inferior pole and smooth walls with a Doppler score of 2–3, with no ascites identified.

Due to the patient's hypoxemia, computed tomography (CT) of the chest was initially requested, this was deferred. Plain chest radiography did not demonstrate acute cardiopulmonary pathology, and the patient was discharged with outpatient follow-up.

The patient presented three days after discharge with persistent hypoxemia (SpO_2 90%) and hemodynamic instability. She was admitted to the intensive care unit, where she was diagnosed with massive pulmonary embolism and, bilateral deep vein thrombosis was confirmed, requiring placement of an inferior vena cava filter.

Serum tumor markers were significantly elevated with AFP (2062 ng/mL), CA-125 (75.5 U/mL), and HE4 (145 pmol/L). Imaging also demonstrated a 21 × 16 cm predominantly cystic mass (Figure 1) with multiple septations and papillary projections measuring up to 3 cm, which raised suspicion for malignancy.

An exploratory laparotomy was performed, identifying a 15 cm cystic mass originating from the left ovary. The right fallopian tube appeared abnormally thickened with a tumor-like morphology and hematosalpinx (Figure 2). The remaining pelvic and abdominal structures, including the right ovary and left fallopian tube, appeared macroscopically normal.

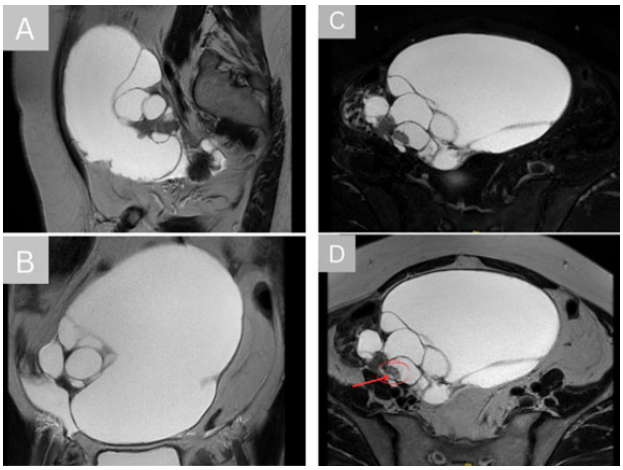

Figure 1: Ovarian mass seen on pelvic MRI scan. (A, B) The mass and its anatomical relationship to adjacent structures are shown. (C) Papillary projections and multiple septations are demonstrated. (D) Papillary projections marked with an arrow.

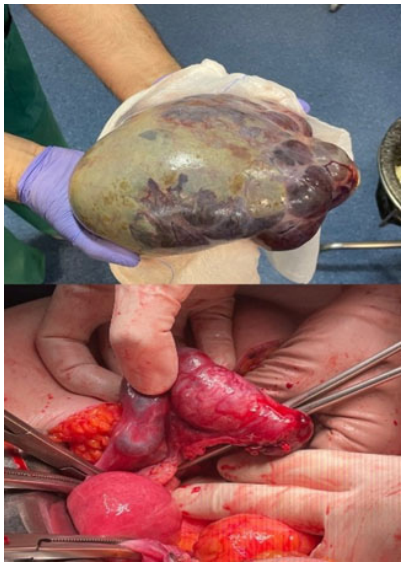

Figure 2: Resected left adnexal mass on the upper image and right fallopian tube mass during surgery.

Bilateral salpingo-oophorectomy was performed. Intraoperative section analysis confirmed malignancy of the left ovary and right fallopian tube; surgery was completed with lymphadenectomy, appendicectomy, and omentectomy. The patient's immediate postoperative course was uneventful.

Definitive histopathological analysis confirmed a yolk sac tumor involving the left ovary and right fallopian tube with omental implants. Immunohistochemical analysis demonstrated positivity for AFP, SALL4, and AE1/AE3 cytokeratin, with focal CDX2 expression, an aberrant p53, and a 50% proliferation index. The final diagnosis was FIGO stage II yolk sac tumor.

The patient is currently receiving BEP (bleomycin, etoposide, and cisplatin) chemotherapy, and postoperative serum AFP has decreased to 4.2 ng/mL, indicating a favorable biochemical response.

DISCUSSION

Yolk sac tumors are germ cell neoplasms exhibiting various growth patterns reflecting extraembryonic endodermal differentiation, or less commonly, somatic endodermal features [3]. They represent 20–25% of malignant germ cell ovarian tumors and 1–3% of all malignant ovarian neoplasms; their occurrence as primary fallopian tube tumor is exceedingly rare, with at least one previously documented case of a yolk sac tumor arising as a component of a mixed germ cell tumor of the fallopian tube [2, 4, 5]. Chromosomal abnormalities are identified in approximately 75% of cases, most commonly isochromosome 12p [6].

Yolk sac tumors represent the second most common malignant germ cell tumor and typically occur between the ages of 15 and 19. Their presence in postmenopausal women is extremely rare [7].

Their non-specific clinical presentation frequently contributes to diagnostic delay, particularly in older patients in whom germ cell tumors are uncommon. In this case, the patient reported abdominal pain, dyspnea, and postmenopausal bleeding, the last being uncommon in this type of tumor. The vaginal mass was attributed to direct tumor infiltration of the vaginal mucosa and distortion of pelvic anatomy due to its size, while postmenopausal bleeding was considered to result from local and vascular invasion with increased mucosal friability. The development of pulmonary embolism was indicative of a paraneoplastic hypercoagulable state, a rare finding in germ cell tumors [8].

Yolk sac tumors characteristically produce cytokeratin and AFP. A serum AFP concentration exceeding 2000 ng/mL is considered highly suggestive of this tumor type.

While preoperative AFP levels are not associated with worse survival, postoperative levels correlate with five-year survival, making AFP an important marker for early recurrence detection [2].

In the present case, AFP-producing metastatic adenocarcinomas, including gastric hepatoid carcinoma as well as lung and other gastrointestinal primaries, were excluded based on an integrated assessment of clinical, morphological, and immunohistochemical findings. Comprehensive radiological and clinical evaluation failed to identify any extra-gynecological primary tumor at either initial presentation or during follow-up. Additional immunohistochemical studies were performed to further evaluate these possibilities, demonstrating negativity for TTF1 and focal, rather than diffuse, CDX2 expression. Morphologically, classic histological features of yolk sac tumor, including Schiller–Duval bodies, were identified. Immunophenotypically, the tumor showed strong expression of germ cell markers, including SALL4 and AFP, as well as Glypican-3, supporting yolk sac differentiation. Importantly, the absence of epithelial Müllerian markers PAX8 and WT1 argues strongly against high-grade serous carcinoma and other Müllerian-derived adenocarcinomas.

Histologically, yolk sac tumors display multiple growth patterns. In this case, the cyst wall was entirely composed of tumor without evidence of any admixed serous, mucinous, endometriotic, or other epithelial components. The reticular or microcystic pattern is most common. The classic pattern is defined by Schiller–Duval bodies: papillary structures comprising a central vessel surrounded by a layer of neoplastic cells and enclosed within a cavity lined by neoplastic cells. Additional recognized patterns include papillary, solid, festooned, and glandular configurations, with the glandular occasionally exhibiting endometrioid-like or intestinal-like differentiation [3].

Immunohistochemically, yolk sac tumors consistently express SALL4, LIN28, AFP, glypican-3, ZBTB16, and CDX2 in intestinal-like subtypes [9]. In this case, tumor involvement was confined to the left ovary and the right fallopian tube, with the left fallopian tube remaining unaffected. Cytological examination of the tubal mass revealed papillary structures with moderate nuclear-to-cytoplasmic ratio distortion. Peritoneal implants were identified on deferred histological analysis. Immunohistochemical staining across all tumor sites expressed SALL4 and evidence of intestinal differentiation through CDX2 positivity, although growth patterns differed by site, with an intestinal-like pattern in the ovary and classic Schiller–Duval bodies in the tube component (Figures 3 and 4).

The abnormal p53 immunostaining pattern and involvement of the contralateral fallopian tube raise the theoretical possibility of a somatically derived yolk sac tumor arising from an underlying epithelial carcinoma, particularly a high-grade serous carcinoma of tubal origin. However, extensive histological examination of both fallopian tubes revealed no serous tubal intraepithelial carcinoma (STIC) or other precursor serous lesions. Furthermore, no associated somatic-type carcinoma,

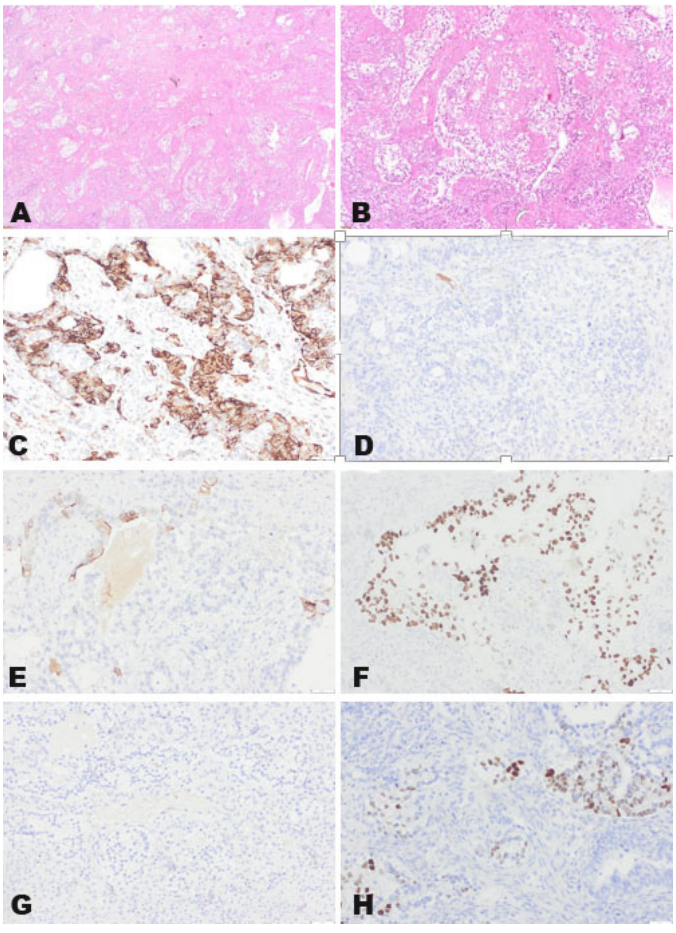

Figure 3: Histological sections of the left ovary. (A and B) Sections stained with H&E demonstrating clear neoplastic cells arranged in acinar structures (4×, 10×). (C) Immuhistochemistry for WT1 (20×), showing nuclear negativity. (D) Negative expression for PAX8 (20×). (E) AFP immunohistochemistry showing partial expression (20×). (F) Immunohistochemistry for SALL4 (20×), showing diffuse expression. (G) Negative expression for TTF1 immunohistochemistry (20×). (H) Partial expression for CDX2 immunohistochemistry (20×).

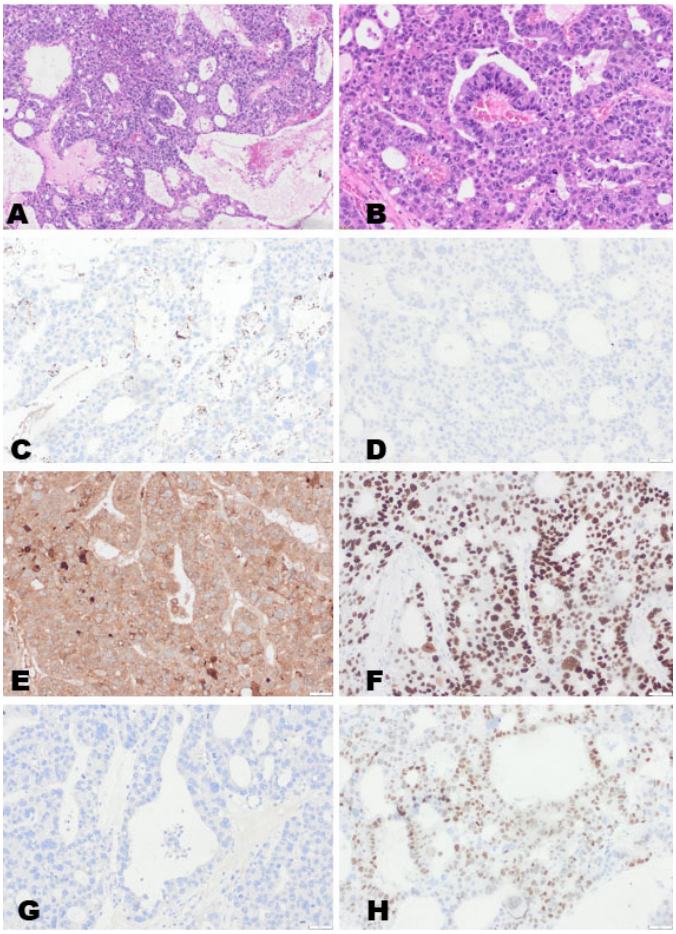

Figure 4: Histological sections of the right Fallopian tube. (A) Section stained with H&E (10×) revealing a classic growth pattern. (B) Schiller–Duval body (20×). (C and D) Immunohistochemistry for WT1 (C) and PAX8 (D), showing negative expression (20×). (E and F) AFP (E) and SALL4 (F) immunohistochemistry, demonstrating diffuse expression (20×). (G) Negative expression for TTF1 immunohistochemistry (20×). (H) CDX2 immunohistochemistry showing partial expression (20×).

including high-grade serous, endometrioid, or clear cell carcinoma, was detected in the ovary, fallopian tubes, omentum, or peritoneal specimens. In addition, the tumor was negative for the Müllerian markers PAX8 and WT1, which are typically retained in high-grade serous carcinoma, even in cases showing divergent differentiation. Taken together with the uniform yolk sac tumor morphology, the characteristic immunophenotype with SALL4 and AFP positivity, and the absence of epithelial precursor lesions, these findings support a diagnosis of a yolk sac tumor rather than a somatically derived neoplasm.

Although the WHO classification does not include tubal-origin yolk sac tumors, and the mass likely originated in the left ovary, the precise primary origin could not be determined. It was postulated that this pattern of spread is best explained by transcoelomic dissemination. As ovarian carcinomas commonly spread by peritoneal seeding, the anatomical continuity of the peritoneal cavity provides a plausible route for tumor spread from the left ovary to the right adnexa [9]. Yolk sac tumors in older women may arise from somatic rather than germinal origin, according to current classifications [3]. The possibility of somatic origin and coexistence with other malignancies, such as mixed germ cell tumors, is clinically significant and should be carefully considered. In older women presenting with yolk sac tumors, comprehensive tissue sampling is essential to exclude both mixed germ cell tumors and somatic malignancies, and this important consideration warrants emphasis in diagnostic practice.

Given the rarity of this tumor in the postmenopausal population, clinical experience remains limited. Surgical management was directed towards optimal cytoreduction, encompassing hysterectomy, bilateral salpingo-oophorectomy, pelvic lymphadenectomy, and omentectomy, in accordance with established guidelines for the management of ovarian malignancy. Pathological and intraoperative findings were consistent with FIGO stage II disease, presenting omental involvement without distant metastases or lymph node spread.

CONCLUSION

We report a rare case of ovarian yolk sac tumor in a postmenopausal woman, remarkable not only for the patient's age but also for the concurrent involvement of the contralateral fallopian tube, a combination that, to our knowledge, has been described only in isolated cases in literature.

This case highlights the importance of thorough and systematic differential diagnostic approach to ovarian tumors, including both clinical presentation and serological tumor marker. Clinicians should also be vigilant for the possibility of somatic origin or a mixed tumor in older women with yolk sac tumors, and ensure comprehensive tissue sampling to exclude coexisting malignancies, as this has important implications for diagnosis and management.

Given the rarity of this tumor, continued reporting of cases and research efforts are essential to expand the evidence base, develop therapeutic strategies, and ultimately improve survival outcomes for affected patients.

REFERENCES

1. Nasioudis D, Chapman-Davis E, Frey MK, Caputo TA, Holcomb K. Management and prognosis of ovarian yolk sac tumors; an analysis of the National Cancer Data Base. Gynecol Oncol 2017;147(2):296–301.
2. Guo YL, Zhang YL, Zhu JQ. Prognostic value of serum α-fetoprotein in ovarian yolk sac tumors: A systematic review and meta-analysis. Mol Clin Oncol 2015;3(1):125–32.
3. Rabban J, Cao D, Vang R. Yolk sac tumor. In: WHO Classification of Tumours Editorial Board, editor. Female genital tumours. 5th ed. Lyon, France: WHO; 2020.

4. Smith HO, Berwick M, Verschraegen CF, Wiggins C, Lansing L, Muller CY, et al. Incidence and survival rates for female malignant germ cell tumors. Obstet Gynecol 2006;107(5):1075–85.
5. Li S, Zimmerman RL, LiVolsi VA. Mixed malignant germ cell tumor of the fallopian tube. Int J Gynecol Pathol 1999;18(2):183–5.
6. Riopel MA, Spellerberg A, Griffin CA, Perlman EJ. Genetic analysis of ovarian germ cell tumors by comparative genomic hybridization. Cancer Res 1998;58(14):3105–10.
7. Maldonado V, Masvidal M, Morente Laguna V, Cimerman J, Martinez Soriano S. Atypical presentation of an ovarian yolk sac tumor in an 80-year-old woman: A case report and review of the literature. Case Rep Oncol 2024;17(1):1342–50.
8. Wang T, Wang B, Wang SX, Wu MF. Clinicopathologic characteristics and survival of patients with rare malignant ovarian yolk sac tumors: A population-based analysis. Curr Med Sci 2021;41(2):342–7.
9. Nogales FF, Quiñonez E, López-Marín L, Dulcey I, Preda O. A diagnostic immunohistochemical panel for yolk sac (primitive endodermal) tumours based on an immunohistochemical comparison with the human yolk sac. Histopathology 2014;65(1):51–9.

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Acknowledgment
The authors thank the medical and nursing staff involved in the patient's care, as well as the patient, for consenting to share her case for educational and scientific purposes.

The authors also acknowledge the use of artificial intelligence (AI)-assisted writing tools in the preparation of this manuscript. All AI-generated content was reviewed, edited, and approved by the authors, who take full responsibility for the accuracy and integrity of the published work.

Author Contributions

Gloria López Pérez – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Pablo Eulalio Ruiz Iglesias – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Raquel González Marín – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

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Guarantor of Submission
The corresponding author is the guarantor of submission.

Source of Support
None.

Consent Statement
Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest
Authors declare no conflict of interest.

Data Availability
All relevant data are within the paper and its Supporting Information files.