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Case Report

The hidden face of ovarian cysts: a case of incidentally detected granulosa cell tumor

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ABSTRACT

Adult granulosa cell tumors (AGCTs) are rare ovarian sex cord–stromal neoplasms that constitute 1–2% of ovarian malignancies and are often diagnosed late due to their nonspecific clinical, radiological, and biochemical features. We describe the case of a 50-year-old perimenopausal woman who presented with abnormal uterine bleeding and was found on ultrasound to have an endometrial polyp and a benign-appearing ovarian cyst, with normal tumor markers. She underwent laparoscopy-assisted vaginal hysterectomy with bilateral salpingo-oophorectomy, after which histopathological examination unexpectedly revealed an adult granulosa cell tumor in the left ovary, characterized by classic Call-Exner bodies and grooved ("coffee-bean") nuclei. Immunohistochemistry demonstrated strong positivity for SF1 and Calretinin with focal Inhibin expression, confirming the diagnosis. The patient was staged as FIGO IA and placed on surveillance. This case highlights the importance of routine histopathological evaluation of adnexal masses even when preoperative findings appear benign, and underscores the need for long-term follow-up because AGCTs carry a risk of late recurrence.

Keywords: Adult granulosa cell tumor, Ovarian neoplasm, Sex cord-stromal tumor, Immunohistochemistry, Inhibin, SF1, Calretinin

INTRODUCTION

Adult granulosa cell tumors (AGCTs) are uncommon ovarian neoplasms, representing 1–2% of all ovarian malignancies and about 5% of ovarian tumors overall.[1,2] They are distinctive for their potential to secrete estrogen, which can result in clinical manifestations such as abnormal uterine bleeding, endometrial hyperplasia, or, less commonly, carcinoma of the endometrium.[3,4] Despite their relatively indolent course, AGCTs carry a risk of recurrence even decades after initial treatment, necessitating long-term follow-up.[5] The diagnosis is often challenging preoperatively, as clinical symptoms and imaging findings can be non-specific, and conventional tumor markers are typically within normal limits.[6] Histopathological examination, supported by immunohistochemical markers such as inhibin, SF1, and calretinin, remains the cornerstone of diagnosis.[7]

We report this case because it highlights an incidental diagnosis of AGCT in a perimenopausal woman initially managed for benign gynaecological pathology. This emphasizes the importance of histopathological evaluation of adnexal masses and the need for vigilant postoperative surveillance in such patients.

CASE REPORT

A 50-year-old, para 2, live 2 perimenopausal woman presented to our gynaecology outpatient department with a one-year history of abnormal uterine bleeding, characterized by irregular and unpredictable menstrual

cycles. Her past medical and surgical histories were unremarkable.

On examination, the patient was hemodynamically stable with mild conjunctival pallor consistent with her history of irregular bleeding. A per speculum examination revealed a clinically healthy cervix and vagina with no active bleeding or visible lesions. On bimanual pelvic examination, the uterus was bulky while the adnexal fornices were free and non- tender. Transvaginal ultrasound demonstrated a well-defined, vascular endometrial polyp measuring 20×7 mm extending towards the internal cervical os. The right ovary contained a simple, unilocular anechoic cyst measuring 32×23×27 mm, with no solid components or worrisome features. The left ovary was reported as sonographically unremarkable. To rule out malignancy, a comprehensive panel of serum tumor markers was ordered, including CA-125, CEA, LDH, β-hCG, and CA 19-9, all of which were within normal limits. To further evaluate the endometrium, an office endometrial biopsy was obtained; histopathological analysis of the sample revealed a proliferative endometrium with no evidence of hyperplasia or malignancy. Based on the persistent symptoms and the definitive sonographic finding of an endometrial polyp, the patient was counselled and consented for a laparoscopy-assisted vaginal hysterectomy.

Intraoperatively, the uterus was confirmed to be bulky. Both ovaries were noted to be enlarged for her age but lacked any gross surface abnormalities, adhesions, or suspicious lesions. Given the patient's perimenopausal status and the bulky appearance of the ovaries, a decision was made to proceed with a bilateral salpingo-oophorectomy. A thorough inspection of the abdominal cavity revealed no ascites, peritoneal implants or omental deposits. The patient's postoperative course was uneventful, and she was discharged on the second postoperative day.

Figure 1: Gross specimen of the left ovary highlighting a tiny, solid, intramural nodule.

Gross examination of the left ovary, which had appeared unremarkable intraoperatively, revealed a nodular and congested surface. Sectioning of this ovary uncovered multiple small hemorrhagic cysts, the largest measuring 1 cm in diameter. Critically, a tiny, solid mural nodule was identified within this largest cyst (Figure 1).

Microscopic examination of this solid component revealed a tumor composed of monotonous cells with scant cytoplasm and characteristic 'coffee-bean' grooved nuclei. The cells were arranged in microfollicular patterns, forming classic Call-Exner bodies containing eosinophilic fluid (Figure 2). These features were pathognomonic for an adult granulosa cell tumor.

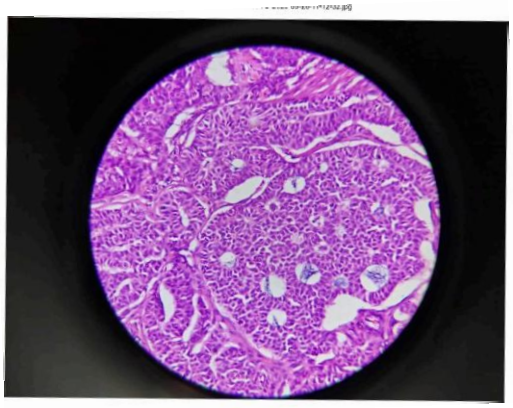

Figure 2: Microscopic appearance of the left ovary with 'coffee bean nuclei' & Carl Exner bodies.

To confirm the diagnosis, paraffin blocks were reviewed by an oncology pathologist and immunohistochemical staining was performed. The analysis demonstrated that the tumor cells were strongly positive for SF1 and Calretinin, and focally positive for Inhibin. In contrast, the right ovary contained a benign follicular cyst, and the uterine endometrium was confirmed to be in the proliferative phase.

Following the unexpected diagnosis, a postoperative serum Inhibin B level was measured and found to be within the normal range. After an oncology consultation, the patient was formally staged as FIGO Stage IA. A management plan consisting of active surveillance with clinical examinations and imaging every three to six months was initiated.

DISCUSSION

Adult granulosa cell tumors (AGCTs) are rare ovarian sex cord-stromal tumors, comprising only 1–2% of ovarian malignancies and around 5% of all ovarian tumors.[1,2] These tumors are characterized by low-grade malignant potential and an indolent course, though late recurrence has been reported even 20–30 years after initial treatment.[3,5] Most patients are diagnosed in the postmenopausal age group, with a median age at diagnosis of 50–55 years.[2,5] Our case is notable for the fact that the tumor was incidentally discovered in a perimenopausal woman undergoing surgery for irregular bleeding associated with an endometrial polyp, with no preoperative features suggestive of malignancy. This underscores the clinical rarity of such a presentation and the diagnostic challenges associated with it. Clinically, the majority of

AGCTs are associated with estrogen secretion, presenting with abnormal uterine bleeding, endometrial hyperplasia, or, less commonly, endometrial carcinoma.[3,4] However, about one-third of cases may lack overt endocrine features, which was observed here, where endometrial biopsy revealed a proliferative endometrium without atypia.[6] Furthermore, imaging studies generally lack specificity and may reveal features mimicking benign ovarian cysts. In our case, ultrasound reported a unilocular cyst without suspicious morphology, consistent with reports from the literature where AGCTs were initially presumed to be functional or hemorrhagic cysts.[8,9] Preoperative serum tumor markers such as CA-125, CEA, LDH, β-hCG, and CA 19-9 are also unreliable in diagnosing sex cord-stromal tumors and the normal tumor marker profile in this patient further explains the low clinical suspicion.[6,7] Although inhibin B and AMH are more specific biomarkers, they are not always elevated at diagnosis, a finding that is supported by data from the CORA registry.[10] Together, these limitations emphasize why many AGCTs, particularly those occurring in peri- and postmenopausal women, are diagnosed only after histopathological examination.

Histopathology continues to be the diagnostic gold standard, typically showing Call-Exner bodies and nuclear grooves. Immunohistochemistry assists confirmation, with inhibin, Calretinin, and SF1 being the most reliable markers.[2,7] The same microscopic and immunohisto-chemical features were identified in the present case, confirming the diagnosis. This reiterates the critical importance of routine histopathological evaluation of all adnexal specimens, regardless of their benign appearance on imaging or intraoperatively.

Surgery remains the cornerstone of management. For perimenopausal or postmenopausal women, total hysterectomy with bilateral salpingo-oophorectomy is the standard of care, while fertility-sparing surgery may be offered to younger women with early-stage disease.[3,5,10] Our patient underwent hysterectomy with BSO, which aligns with current practice for her age and symptom profile. Intraoperative findings suggested confined disease, which is consistent with stage I tumors and generally associated with a favourable prognosis.

Long-term follow-up, however, is crucial, as recurrence rates of 20–30% have been reported, most often in the pelvis or abdomen.[4,5,10] Mangili et al demonstrated that even patients with early-stage disease are at risk of late relapse, emphasizing the need for lifelong surveillance.[5] Current recommendations advocate 3–6 monthly follow-up initially, including clinical examination and pelvic imaging, with annual intervals after several years disease-free.[6] Serum inhibin B or AMH may be useful adjuncts for monitoring recurrence but, as evidenced in our case and in other studies, they may not always be reliable alone.[10]

This case adds to existing literature by stressing the unusual occurrence of AGCT in a perimenopausal woman with no clinical, imaging, or biochemical suspicion of malignancy. While previous case reports have described similar incidental diagnoses, there remains a relative paucity of such reports in the perimenopausal subgroup, where irregular bleeding is often attributed to benign etiologies such as hormonal fluctuations or endometrial pathology.[8,9] The unexpected finding of AGCT in this context reinforces the necessity of detailed histopathological analysis of all adnexal masses and the importance of clinical vigilance in follow-up, even when presentation appears benign.

CONCLUSION

This case highlights the diagnostic challenges associated with adult granulosa cell tumors, particularly when clinical presentation, imaging, and tumor markers suggest benign pathology. The incidental discovery of AGCT in a perimenopausal woman undergoing surgery for unrelated gynecological indications underscores the indispensable role of routine histopathological evaluation of adnexal masses, regardless of their intraoperative appearance. Given the potential for late recurrence, even in early-stage disease, this case further reinforces the need for long-term, structured surveillance following diagnosis. Early identification and appropriate postoperative monitoring are key to optimizing outcomes in patients with this rare but clinically significant ovarian tumor.

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