Adult Granulosa Cell Tumour Presenting as a Huge Ovarian Mass in a Postmenopausal Woman: A Case Report and Review of Management

Abstract

Background:

Granulosa cell tumours (GCTs) are rare sex cord-stromal tumours of the ovary, accounting for less than 5% of all ovarian malignancies. Adult-type GCTs typically present in perimenopausal or postmenopausal women and can manifest with non-specific symptoms or hormonal effects such as postmenopausal bleeding.

Case presentation:

We report the case of a 65-year-old postmenopausal woman who presented with abdominal swelling and pain. Magnetic Resonance Imaging (MRI) and ultrasonography revealed a large abdomino-pelvic mass. Surgical exploration confirmed a huge ovarian tumour and she underwent total abdominal hysterectomy and bilateral salpingo-oophorectomy for an early-stage disease [FIGO stage IA]. Histopathological examination diagnosed an adult granulosa cell tumour. Her postoperative recovery was uneventful, and she is currently on surveillance with serum Inhibin B and Anti-Mullerian Hormone (AMH) levels for early detection of recurrence.

Conclusion:

This case highlights the importance of considering granulosa cell tumour in the differential diagnosis of adnexal masses in postmenopausal women. Early recognition, appropriate surgical management and prolonged follow-up are essential due to the tumour's potential for late recurrence as seen in the management of this patient who presented with FIGO stage IA disease.

Key words: Adult granulosa cell tumour, Huge, Ovarian mass, Postmenopausal

Introduction

Adult granulosa cell tumour (AGCT) is a rare ovarian neoplasm arising from the sex cord-stromal tissue, accounting for approximately 1–2% of all ovarian tumors and representing the vast majority (over 90%) of granulosa cell tumours [1]. AGCTs are typically low-grade malignancies with indolent behaviour and a relatively favorable prognosis [2]. They most commonly occur in peri and postmenopausal women, with the average age of diagnosis between 50 and 55 years [3].

Clinically, AGCTs are often hormonally active, producing estrogen, which can lead to a range of symptoms such as abnormal uterine bleeding, including menorrhagia, intermenstrual bleeding, or postmenopausal bleeding [4].As a result of hyperoestrogenism, there is a high co-occurrence rate, ranging from 24% to 80% of endometrial hyperplasia with atypia, and approximately 5% of these cases are subsequently diagnosed with highly differentiated endometrial carcinoma [5]. Furthermore, there is a predisposition in some patients for synchronous development of endometrial and breast cancers [6].

In addition to hormonal manifestations, patients may present with non-specific symptoms like abdominal distension or pelvic discomfort due to the mass effect of the tumour [7]. Early-stage AGCT (FIGO stage I) is the most frequent presentation, with long-term disease-free survival rates reaching up to 90% [8]. However, despite their generally favorable prognosis, AGCTs can recur many years after initial treatment

[9] necessitating prolonged follow-up. Surgical resection remains the cornerstone of treatment [10]. In postmenopausal women, the standard approach includes total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH + BSO). Fertility-sparing surgery may be considered in younger patients with early-stage disease. Adjuvant therapy is typically reserved for advanced or recurrent cases [11].

We present the case of a postmenopausal woman who developed a huge AGCT, highlighting the clinical presentation, diagnostic approach, surgical management, and the importance of long-term surveillance in this rare but significant ovarian tumour.

Case Presentation

A 62-year-old postmenopausal woman, para 3^{+0} (3A), presented to our gynecology clinic with a five-month history of progressive abdominal swelling and two-month history of abdominal pain. She first noticed a gradual abdominal swelling, initially below the umbilicus, which steadily progressed. The associated pain was intermittent and mild to moderate in intensity. There were no associated systemic symptoms such as fever, nausea, vomiting, weight loss, urinary or bowel disturbances. She was 19 years postmenopausal and didn't experience any episodes of postmenopausal bleeding.

On examination, the patient appeared pale but was hemo-dynamically stable. Abdominal examination revealed a distended abdomen with a firm, slightly mobile mass corresponding to a 32-week gestation-sized uterus. On pelvic examination, the vulva, vagina, and cervix appeared grossly normal, but atrophic. Bimanual palpation revealed a large, left-sided adnexal mass occupying the pelvis and extending into the abdomen. Ultrasound of the abdomen and pelvis, including transvaginal imaging, demonstrated a large predominantly thick-walled left adnexal mass with internal echoes. Magnetic resonance imaging (MRI) further characterized the mass as a large, solid lesion with internal septations, extending from the pelvic cavity to the supra-umbilical region, measuring approximately 22cm x 18cm x 11cm (figure 1). There was no evidence of ascites, lymphadenopathy, or metastasis to the liver. The uterus was slightly bulky (measuring 7.5cm x 3.1cm x 2.0cm) but unremarkable. The laboratory investigations, including complete blood count, liver and renal function tests, and fasting blood glucose, were within normal ranges. Tumour marker CA-125 was 21.1 U/mL, within the reference range. Serologic testing for HIV, hepatitis B, and hepatitis C was negative.

The patient was optimized and scheduled for exploratory laparotomy with intra-operative findings of a large, encapsulated left ovarian mass measuring approximately 20cm x 16 cm x 11cm and weighed 2.13kg, extending from the pelvis to the supra-umbilical region (figure 2c). Dense adhesions were noted between the mass and surrounding structures, including the small bowel and urinary bladder (figure 2b). The uterus was distorted and stretched by the tumor, while the contralateral adnexa appeared grossly normal. There was no ascites or evidence of peritoneal spread.

She underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH + BSO) (figure 2d) and adhesiolysis. The estimated blood loss was 1.6 liters, requiring transfusion of 3 units of blood in total. The post-operative course was uneventful, and the patient was discharged on postoperative day 4 in stable condition. Histopathological analysis confirmed the diagnosis of adult granulosa cell tumor (figure 3). At follow-up visits at 2 and 6 weeks, she reported no new symptoms and was clinically stable. Plans for long-term surveillance using serum inhibin B and anti-Müllerian hormone (AMH) levels were initiated. At six weeks postoperatively, the patient's serum inhibin B and AMH done were 8ng/L and 0.2ng/ml respectively. A subsequent repeat assessment was scheduled for three months later.

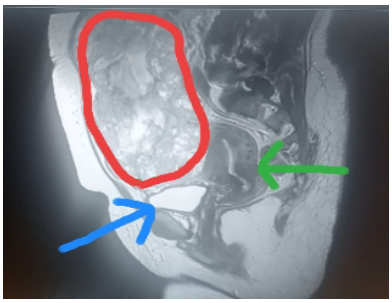
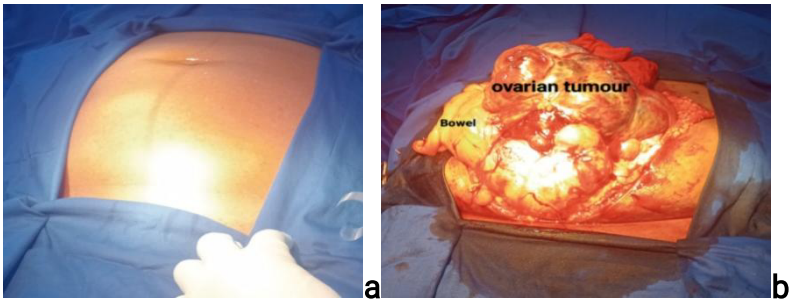


Figure 1: MRI image showing a huge left ovarian mass with internal septations (marked red), urinary bladder (blue arrow), uterus (green arrow)



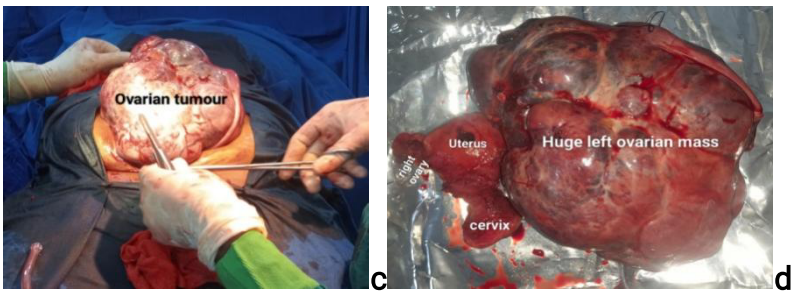


Figure 2: (a) Distended abdomen prior to surgery (b) Intraoperative image showing the ovarian mass adherent to the small bowel (c) Showing the ovarian tumour extending from the pelvis to the abdomen (d) TAH + BSO specimen after surgery

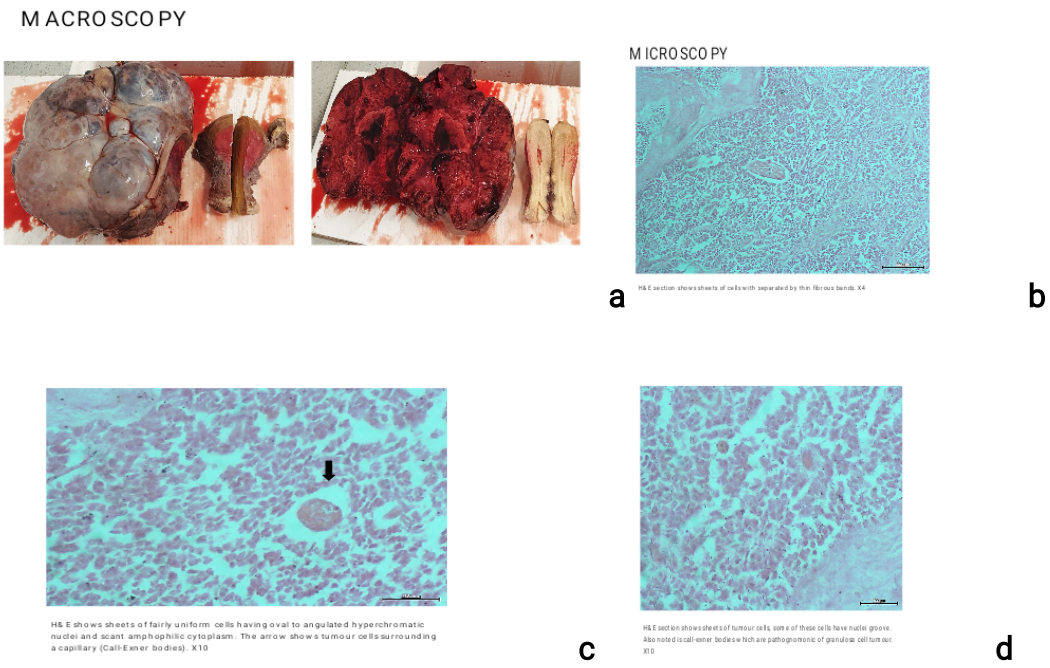


Figure 3: Histopathology

(a) Left ovarian mass measuring 20cm x 16cm x 11cm (weighs 2.13kg) and the uterus. The cut sections through the left ovarian mass shows a tan and haemorrhagic solid appearance while cut sections through the uterus, right fallopian tube and right ovary appears unremarkable.

(b) H&E section shows sheets of cells separated by thin fibrous bands. X4

(c) H&E shows sheets of fairly uniform cells having oval to angulated hyperchromatic nuclei with scant amphophilic cytoplasm. The arrow shows tumour cells surrounding a capillary (Call-Exner bodies). X10

(d) H&E section shows sheets of tumour cells, some of these cells have nuclei groove. Also noted is call-exner bodies which are pathognomonic of granulosa cell tumour. X10

Discussion

This case illustrates a classic presentation of AGCT in a postmenopausal woman who exhibited a gradually enlarging abdomino-pelvic mass and abdominal discomfort. These symptoms are often non-specific and can delay diagnosis. The colicky nature of our patient's abdominal pain may be attributed to

severe adhesions involving the small bowel and the ovarian mass, which likely caused kinking of the bowel and narrowing of its lumen. Notably, although AGCTs often produce estrogen and may present with signs of hyper-estrogenism, such as postmenopausal bleeding, [4] and in some cases as endometrial hyperplasia/endometrial carcinoma [12, 13], this patient did not exhibit any hormonal symptoms. This is consistent with the findings that approximately 30% of patients have normal serum oestrogen level due to lack of theca cells in some tumours, hence absence of oestradiol precursor [6]. Similarly, a more recent case report documented a patient who presented with the uncommon clinical manifestations of hematuria and abdominal pain, and was subsequently diagnosed histologically with synchronous granulosa cell tumour of the ovary and urothelial carcinoma of the urinary bladder. [14]

This highlights the variability in clinical presentation and the importance of maintaining a high index of suspicion, especially in postmenopausal women with adnexal masses.

Imaging plays a crucial role in the evaluation of ovarian masses [15]. In this case, ultrasonography followed by MRI delineated a large, complex left adnexal mass, which prompted surgical exploration. Tumour markers such as CA-125 may be measured during preoperative evaluation, but they are often not elevated in AGCTs, as seen in this patient. Instead, inhibin B and AMH are more specific to AGCTs and serve as useful biomarkers for diagnosis and long-term surveillance [16]. Surgery is the primary treatment for ovarian AGCT. For postmenopausal women, standard management involves total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH + BSO), as was performed in this case. Intraoperatively, the absence of ascites and peritoneal dissemination with intact tumour capsule supported a diagnosis of early-stage disease (FIGO stage IA), which carries an excellent prognosis with 10-year survival rates of 85.8% [17].

Histopathological confirmation is essential for diagnosis and typically reveals characteristic features such as Call-Exner bodies, coffee bean nuclei, and immune-histochemical positivity for inhibin, calretinin, and FOXL2 mutations [18]. Similarly in this case, call-exner bodies which are pathognomonic of granulosa cell tumour were seen (figures 3c & 3d). Although prognosis is generally favorable in early-stage AGCTs, the potential for late recurrence which is sometimes beyond 10 years, necessitates prolonged follow-up. Surveillance involves regular clinical evaluations and monitoring of serum biomarkers, particularly Inhibin B and AMH, which are typically elevated in recurrent disease [16]. Chemotherapy, radiation therapy, hormonal therapy and targeted therapy may be indicated in patients with an advanced tumour or recurrence [11, 19, 20]. In a recent systematic review and meta-analysis that assessed the impact of postoperative adjuvant chemotherapy on recurrence and mortality in stage IC ovarian granulosa cell tumours, there was no significant differences in the survival outcomes and recurrence rate between the adjuvant chemotherapy and observation groups [21].

Conclusion

This case reinforces several key points. Adult granulosa cell tumour (AGCT) should be considered in the differential diagnosis of any adnexal mass in postmenopausal women, especially when presenting with large, complex pelvic masses. Although hormonal symptoms are common in AGCT, they may be absent, making clinical suspicion crucial. Definitive diagnosis and management require surgical intervention followed by histopathological examination. Early-stage diagnosis, as in this case, is associated with an excellent prognosis. However, AGCT's long natural history and potential for late recurrence underscore the need for structured and long-term follow-up, incorporating clinical evaluation and monitoring of serum tumor markers such as inhibin B and anti-Müllerian hormone (AMH). Raising awareness of AGCT among clinicians is essential to ensure timely diagnosis, appropriate surgical management, and optimized patient outcomes.

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The authors have declared that no competing interests exist.

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