

Adult Granulosa Cell Tumour of the Ovary: A Single-Centre Case Series

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Abstract: ***Background:** Adult granulosa cell tumour (AGCT) of the ovary is a rare malignancy characterized by an indolent course and a propensity for late recurrence. Owing to its rarity, evidence guiding optimal postoperative management and the role of adjuvant therapy remains limited, particularly from real-world Indian settings. **Methods:** This descriptive observational case series study was conducted at a tertiary care teaching hospital in South India from January 2020 to December 2025. Medical records of seven patients with histologically confirmed AGCT were retrospectively reviewed. Data on age, stage at presentation, primary treatment, recurrence, and clinical outcomes were analysed descriptively. **Results:** The study included seven patients with AGCT who underwent primary surgical management. No patient received adjuvant systemic therapy and all were kept on observation. During follow-up, two patients developed disease recurrence who were managed with secondary cytoreduction surgery and systemic therapy, while the remaining patients were disease-free and doing well at last follow-up. **Conclusion:** This case series highlights the generally favourable outcomes of adult granulosa cell tumour following primary surgery, with a subset of patients experiencing recurrence despite observation alone. Long-term follow-up and individualized management of recurrence are key to optimizing long-term survival and quality of care.*

Keywords: Adult granulosa cell tumour, ovary, cytoreductive surgery, recurrence

1. Introduction

Adult granulosa cell tumour (AGCT) of the ovary is a rare sex cord–stromal malignancy, accounting for approximately 2–5% of all ovarian cancers. It is characterized by an indolent clinical course, hormonal activity, and a distinctive tendency for late recurrences, sometimes occurring decades after initial treatment. Despite generally favourable survival outcomes, disease recurrence remains a significant clinical challenge.

Surgery remains the cornerstone of management for AGCT, with complete cytoreduction being the most important prognostic factor. However, the role of adjuvant therapy in early-stage disease and in patients without high-risk features is not well defined. Owing to the rarity of this tumour, most available evidence is derived from small retrospective studies and case series, resulting in variability in treatment practices across institutions.

In particular, there is limited real-world data from Indian and other resource-constrained settings regarding patterns of care, use of adjuvant therapy, and long-term outcomes in patients with AGCT. This lack of robust evidence makes individualized decision-making challenging, especially in the context of balancing potential benefits of adjuvant treatment against long-term toxicity in a tumour with an otherwise favourable prognosis.

In this context, we present a descriptive case series of seven patients with adult granulosa cell tumour managed at a tertiary care teaching hospital. The aim of this study is to describe the clinicopathological features, treatment approaches, recurrence patterns, and outcomes of AGCT in our institutional experience.

2. Materials and Methods

This descriptive observational case series was conducted at a tertiary care teaching hospital in South India. Patients with histologically confirmed adult granulosa cell tumour of the ovary managed between January 2020 and December 2025 were included in the study.

A retrospective review of medical records was performed. Adult patients with complete clinical data were eligible for inclusion, while those with juvenile granulosa cell tumour or incomplete records were excluded. Demographic, clinical, pathological, and treatment-related information were extracted from hospital case files and electronic medical records.

Data collected included age at diagnosis, stage at presentation, primary surgical treatment, use of adjuvant therapy, recurrence status, and clinical outcomes at last follow-up. The primary outcome of interest was disease recurrence, with secondary assessment of clinical status at last follow-up. Data were analysed descriptively using frequencies and percentages. Owing to the small sample size, no inferential statistical analysis was performed.

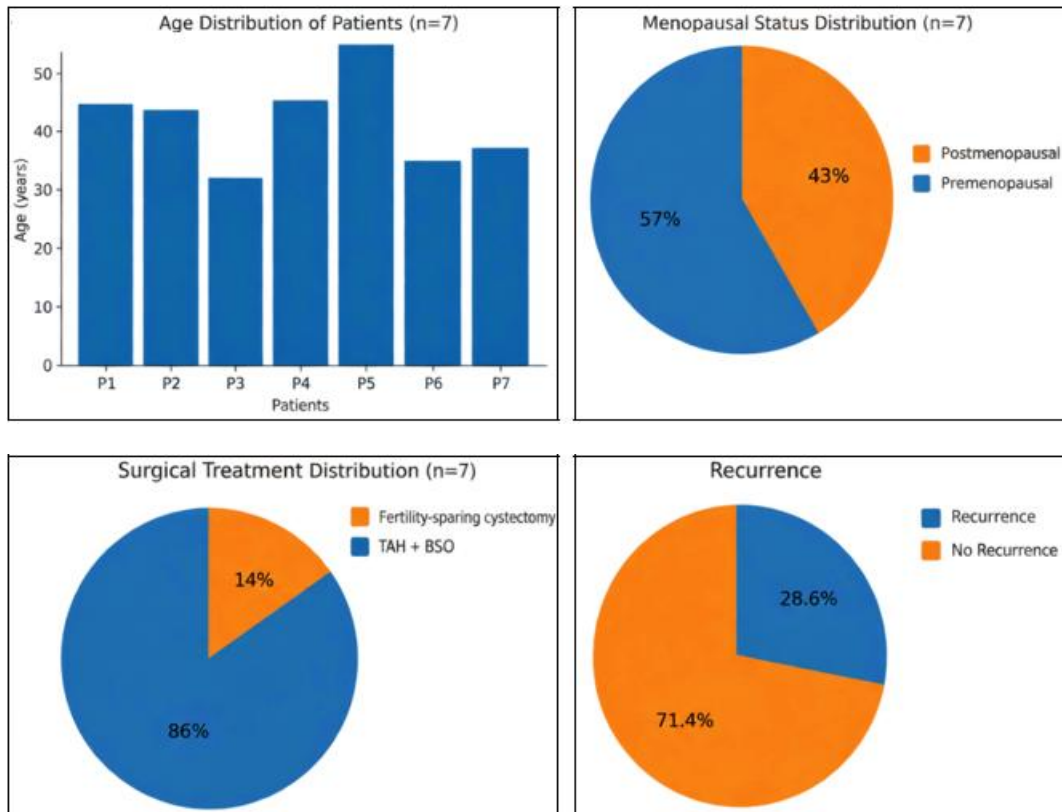
3. Results

Patient Demographics and Clinical Presentation

A total of seven patients with histologically confirmed adult-type ovarian granulosa cell tumour (AGCT) were included in this case series. The median age at diagnosis was 44 years with the range of 32 to 55 years. At presentation four patients were premenopausal and three were postmenopausal. None of them had family history of ovarian cancers.

Most of the patients presented with abnormal uterine bleeding with menorrhagia in 6 patients and irregular menstrual cycles

in one patient. None of the patients presented with symptoms of any metastasis.



Tumour Characteristics

All the patients had unilateral ovarian involvement with equal involvement in both sides. Patients presented with tumour size ranging from 3 cm to 20 cm. All tumours were confirmed as adult-type granulosa cell tumours on histopathological examination.

At presentation, all patients had early-stage disease, with FIGO stage IA being the most common clinical stage. Postoperative pathological staging also correlated with the clinical staging in all the seven patients.

Serum Tumor Markers

Serum Inhibin B levels were assessed in most patients. Inhibin B was normal or low in the majority of the patients while only one patient had elevated inhibin B level, supporting it as a reliable diagnostic and surveillance marker in selected cases.

Treatment Details

All seven patients were primarily managed with surgery. Total abdominal hysterectomy with bilateral salpingo-oophorectomy (TAH + BSO) was done in 6 patients. And one young premenopausal patient underwent unilateral ovarian cystectomy as a fertility sparing option.

All patients were kept under observation and nobody received adjuvant chemotherapy or radiotherapy, as all had stage IA disease without high-risk features.

Outcomes and Follow-up

During the follow-up period two patients had disease recurrence. One had local recurrence after 26 months of DFS with FIGO stage III and underwent cytoreduction surgery and

defaulted adjuvant chemotherapy. She again developed similar local recurrence with FIGO stage III and this time she received NACT with 3 cycles of paclitaxel and carboplatin and underwent cytoreduction surgery and she is now receiving adjuvant chemotherapy with paclitaxel and carboplatin.

Another patient developed recurrence in the form of distant metastasis involving liver and bone after defaulting 3 years for follow-up. She was managed with 2 lines of chemotherapy and she is on follow-up.

At last contact, all evaluable patients were alive. Median overall survival and disease-free survival were not reached at the time of analysis.

4. Discussion

Adult-type ovarian granulosa cell tumors (AGCTs) are rare sex cord-stromal tumours, accounting for approximately 2–5% of all ovarian cancers [1,2]. They are characterized by slow growth, hormonal activity, and a marked tendency for late recurrence, even after prolonged disease-free intervals [3,4]. This case series highlights the heterogeneous clinical behaviour of AGCT despite predominantly early-stage disease at initial diagnosis.

In our cohort, all patients presented with early-stage disease and underwent primary surgical management, which is consistent with existing literature demonstrating excellent outcomes for stage I AGCT [2,5]. The majority of patients in this series remain disease-free, reinforcing surgery as the cornerstone of management and confirming the favourable

prognosis associated with early-stage presentation. However, two patients experienced disease recurrence, underscoring the unpredictable natural history of AGCT [4,6].

One patient developed isolated locoregional recurrence and underwent repeat cytoreductive surgeries in 2023 and 2025, both revealing stage III disease. This finding aligns with published data supporting the role of secondary cytoreductive surgery in recurrent AGCT, particularly when complete or optimal debulking is achievable [4,6,11]. The initiation of adjuvant paclitaxel and carboplatin chemotherapy reflects current practice in advanced or recurrent disease, although evidence guiding optimal systemic therapy in this setting remains limited due to the rarity of the tumour [3,4].

The second recurrent case presented with distant metastases to the liver and bone after a prolonged lapse in follow-up. Late distant recurrence is a recognized phenomenon in AGCT and highlights the importance of lifelong surveillance, as recurrences may occur even decades after initial treatment [4,6,10]. This case further illustrates that noncompliance with follow-up may delay detection and limit therapeutic options.

Serum inhibin B remains a valuable diagnostic and surveillance marker [7,8,9]. However, its prognostic significance remains unclear. Consistent with existing evidence, recurrence in our series appeared to correlate more strongly with disease stage and follow-up adherence rather than initial biochemical marker levels [5,6,7].

Overall, this case series emphasizes that while AGCTs generally have favorable outcomes, their potential for late and clinically significant recurrence necessitates prolonged follow-up and individualized management strategies, particularly in the recurrent setting.

5. Conclusion

Ovarian adult-type granulosa cell tumours are uncommon malignancies with generally favourable outcomes when diagnosed at an early stage [2,3]. In this case series, most patients with early-stage disease achieved durable disease control with primary surgical management alone [3,5]. However, clinically significant recurrence occurred in a subset of patients, reinforcing the well-known but often underestimated risk of late relapse in this tumour [4,6,10].

Both locoregional and distant recurrences were observed. One patient benefited from repeat cytoreductive surgery followed by platinum-based chemotherapy, highlighting the importance of aggressive surgical management in selected cases of recurrent disease [4,11]. Another patient developed distant metastases after defaulting from follow-up, emphasizing that loss to surveillance may result in advanced, less easily treatable recurrence. These findings underline several practical points for clinicians. First, long-term, preferably lifelong follow-up is essential, even in patients with stage I disease [6,10,12]. Second, secondary cytoreductive surgery should be strongly considered in resectable recurrent granulosa cell tumours, as it may offer meaningful disease control. Third, while serum inhibin B is useful for diagnosis and monitoring, clinical assessment and

imaging remain critical, as recurrence can occur despite initially favourable features [7,8,9].

In summary, adult granulosa cell tumours should be managed with a long-term perspective. Early outcomes are excellent, but sustained vigilance, patient compliance with follow-up, and individualized management of recurrence are key to optimizing long-term survival and quality of care [3,4,6].

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