Granulosa Cell Tumor of Ovary with Anterior Abdominal Wall and Colonic Metastasis– A Case Report

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ABSTRACT
Among the various sex cord-stromal tumors, granulosa cell malignancy is the most common, representing approximately 2-5% of primary ovarian tumors. There are adult-type and juvenile-type histological variants of granulosa cell tumor. These lesions are mostly asymptomatic, and inhibin is an important tumor marker. A 29-year-old female with irregular bleeding for 3 months. She had a right salpingo-oophorectomy for an adnexal cyst, and histology had revealed an adult granulosa cell tumor. Abdominal wall and pelvic metastasis occurred at the time of the first visit to our hospital. She presented late and underwent chemotherapy and then debulking surgery. Regular follow-up is required to monitor recurrence.

Keywords: *granulosa cell; inhibin; ovarian tumor*

INTRODUCTION
Granulosa cell tumors (GCT) have a favourable prognosis because of early diagnosis despite they are asymptomatic in nature and have a long clinical course.[1] They have a sex cord and stromal origin and they can produce a hormone. The adult form of GCT is rare and comprises only 1 in 100 of all ovarian cancers.[1,3] The prevalence of GCT in the general public is between 0.5 and 1.5 in 100,000 women per year. They are usually diagnosed incidentally during histopathological assessment after surgical operations.[3]

The primary modality of initial management is surgery, whereas the recurrence cases or advanced primary disease may be managed using systemic chemotherapy.[4] Granulosa cell tumors have asymptomatic nature, which means that they often present late.

CASE REPORT
A 29 years' female who initially presented on 25 August 2018 with irregular bleeding for three months and visited to local medical centre in Jhapa and management done with some oral medication. As her symptoms does not resolve, she underwent laparoscopic surgery for right adnexal mass of fallopian tube 5 x 5 cm and right ovarian cyst of 7 x 5 cm size. Histopathology report collected after 20 days showed granulosa cell and patient was send to Bharatpur Cancer hospital.

Operation was planned at Bharatpur cancer hospital. However, patient was not convinced and visited another medical centre for possibility of pregnancy and was send back to home for possible conception. After four years of diagnosis of granulosa cell tumor. She presented to Bhaktapur cancer hospital and her report reviewed and detailed imaging and investigations were done which showed multiple deposit on anterior abdominal wall, pelvic cavity, anterior to uterus, left lower abdomen, right lower abdomen and cutaneous plane. However, she was asymptomatic, examinations and vitals were normal. Therefore, chemotherapy planned for extensive and advanced disease and she received 6 cycle of day care taxanes and carboplatin-based chemotherapy.

Again, true cut biopsy done from anterior abdominal wall which revealed granulosa cell metastatic deposit on anterior abdominal wall and again 3 cycle of BEP (Bleomycin, etoposide and carboplatin) chemotherapy given as initial chemotherapy was not respond well. After chemotherapy on 27 March

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2023, post NACT (neoadjuvent chemotherapy) debulking surgery done with removable of uterus, left fallopian tube, omentum, anterior abdominal deposit and deposit from pelvic colon.

Operative finding revealed multiple deposit of largest approximately 3 x 2 cm in pelvic colon, mesentery, anterior bladder walls, bladder fold, pouch of Douglas. Similarly, anterior abdominal wall deposit approximately 5 x 4 cm solid to cystic in nature and another cystic lesion on left anterior abdominal wall of size 3 x 2 cm. Pathology report of deposit was positive for metastatic tumor as shown in below (figure 1)

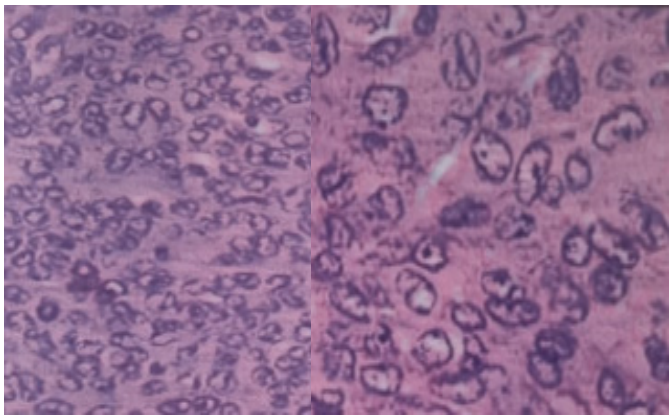

Figure 1: Tumor cell arranged in sheet exhibiting small round cell type nuclear features with coffee bean nuclei

Initial lab parameter on 2022/09/04, showed Inhibin-B level was of more than 1100 pg/ml, CA-125 level was 40.5 U/ml, inhibin-A level was 47.50 pg/ml, LDH level was 169 IU/l and rest of markers were normal. IHC (immunohistochemistry) on 2022/09/04 showed granulosa cell adult type. Recent value of markers on 2025/ 6/ 04 during follow-up monitoring shows inhibin B level of 257.04 pg/ml in decreasing order and rest of markers are within normal range and recent MRI reports on June 15 2025 shows small cyst in right area and small nodule anterior to bladder likely lymph node.

DISCUSSION

GCTs are most common variety among sex cord-stromal tumors. Presence of call-Exner bodies is specific to GCT and immunohistochemistry is positive for CD55, inhibin-α, Cd99, and S100 staining. It is negative for CK19 staining.[5]who presented to The Affiliated Hospital of Guilin Medical University (Guangxi, China). The prognosis of GCT is good as comparison to others ovarian tumors. Adult variant of GCT shows specific clinical, histological and evolutional profile whereas Juvenile variant have more risk of recurrence. The common age group for adult granulosa cell tumors (AGCT) is around menopausal period with peak incidence at 50-55. However, Juvenile granulosa cell tumors (JGCT) occur at a prepubertal age group.[6]

Granulosa cell tumors has low-malignant potential. However, recurrence is common approximately 25% of the patent within 6 years of initial treatment.[7] After undergoing complete cytoreductive surgery (CRS). The common presenting features of GCT are abdominal pain, abdominal distention, abdominal mass, menstrual irregularity, infertility, amenorrhea, postmenopausal bleeding, ascites and pleural effusion.[8] However, our patient was asymptomatic except irregular cycle.

The useful marker for diagnosis and post treatment surveillance of GCT is inhibin B which is secreted by tumor cell with specificity of 89%.[9] Checking level of anti-mullerian hormone, estradiol, lactate dehydrogenase, alpha fetoprotein, inhibin, and human chorionic gonadotropin is suggested by various reports. However, a meta-analysis involving 70 cases of AGCT revealed that serum AMH serves as a valuable marker.[7] Recurrence was suspected and proven by computed tomography-guided biopsy. After undergoing complete cytoreductive surgery (CRS), there are no definitive imaging parameters for detecting GCT. Therefore, inhibin B level should be done even if ovaries look normal on ultrasound examination. Tumors markers level return to normal after removal of tumors so serum inhibin B level are found to be useful for follow-up monitoring.[9]

The histopathological finding of GCT shows granulosa cell proliferation which are arranged in nodular or diffuse pattern within a myxoid or edematous background. The spaces may contain eosinophilic or basophilic secretion. Call-Exner bodies are rarely found.[10] In recent studies, chromosomal abnormalities associated with GCT which includes monosomy 22, deletion of chromosome 6 and trisomy 12, so chromosomal studies also advised in some case.[11] Metastasis of GCT occurs via direct extension or by intraperitonial seeding. Hematogenous spread may occurs to lungs,

liver, brain and others organs even years after initial diagnosis.[11] In our patient, anterior abdominal wall, cutaneous plane, pelvic region, colon and bladder wall were already infiltrated by at the time of the presentation.

The primary management option of the GCT is a comprehensive staging surgery and no additional therapy required for stage I granulosa cell tumors. Adjuvant therapy required for AGCT of stage IC2-IC3 and JGCT of stage IC patients. In the case of these two drugs the regimen of choice is the BEP combination therapy i.e., combination of Bleomycin, Etoposide and Cisplatin. Hence, this patient received three cycle of BEP adjuvant chemotherapy.[12] Our case is one of rare cases of GCT with early anterior abdominal wall metastasis and typically patient presents late despite of knowing the diagnosis. As she was asymptomatic, so understanding and high degree of suspicion was required for her diagnosis.

Conclusion: Granulosa cell tumor is a relatively rare malignancy of ovary with long natural history. It often remains asymptomatic. The surgery is mainstay of treatment but chemotherapy is necessary in advanced stage. As a result of late recurrence, lifelong follow-up is advised and inhibin is one of the markers of GCT.

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Conflict of Interest: None.

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