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Case Report

Postmenopausal dysgerminoma: unveiling a rare ovarian tumour a case report and review of literature

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ABSTRACT

Ovarian germ cell tumours (OGCTs) account for 2-5% of ovarian malignancies with an annual incidence of 1:100000 and typically occurs in young women and adolescents. A pure ovarian dysgerminoma in a postmenopausal female is a rare phenomenon. We report a case of 48-year-old female postmenopausal since 3 years presented to gynaecology opd with pain lower abdomen. On clinical examination an abdominopelvic mass enlarged to 18-20-week gravid uterus size. All tumour markers were normal except lactate dehydrogenase raised to 1375. On imaging a well-defined large solid cystic heterogenous mass arising from left adnexa, suggestive of neoplastic etiology. Staging laparotomy done. A final diagnosis of ovarian dysgerminoma was made on histopathological examination.

Keywords: Ovarian germ cell tumours, Yolk sac tumour, Dysgerminoma

INTRODUCTION

Ovarian germ cell tumors (OGCTs) account for nearly 15% to 20% of all ovarian masses and about 2% and 5% of ovarian cancers.[1] The most frequently observed malignant OGCTs include dysgerminoma, yolk sac tumor (YST) and immature teratoma.[2] Dysgerminoma is an uncommon ovarian malignancy that is more frequently diagnosed in individuals with gonadal dysgenesis. The majority of cases occur in women under 30 years, while cases in postmenopausal women are very rare.[3] This rarity makes diagnosis and treatment challenging. We present a case of dysgerminoma in a postmenopausal woman who was experiencing lower abdominal pain.

CASE REPORT

A 48-year-old woman, who has been postmenopausal for three years., visited the gynaecology outpatient department with complaints of persistent lower abdominal pain since one year. She did not report any episodes of postmenopausal bleeding. Upon clinical examination, her vital signs were stable. An abdominal examination revealed a mobile, non-tender abdominopelvic mass of approximately 18-20 weeks gravid uterus size with irregular margins. On per speculum examination, her cervix was mid-positioned, and her vaginal walls appeared normal. A per vaginal examination detected a solid, firm, irregularly margined mass, roughly 18-20 weeks in size, positioned anterior to the uterus and pushing it posteriorly.

Tumor markers were all within normal limits, with the exception of lactate dehydrogenase (LDH), which was found to be elevated at 1375 U/L. A contrast-enhanced MRI (CEMRI) of the pelvis revealed a clearly defined, large solid-cystic mass with varying levels of enhancement that emerged from the left adnexa and extended to the supraumbilical area, indicating a likely neoplastic cause associated with the left ovary (Figure 1). She underwent a staging laparotomy procedure. Intraoperatively 20-25 cm solid mass with bosselated appearance and increases vascularity was seen arising from left ovary (Figure 2). Histopathological evaluation confirmed a diagnosis of ovarian dysgerminoma FIGO stage 1 A. Cytology of peritoneal fluid and omental tissue analysis were negative for malignancy, so the patient was not given adjuvant chemotherapy and was placed under routine follow-up.

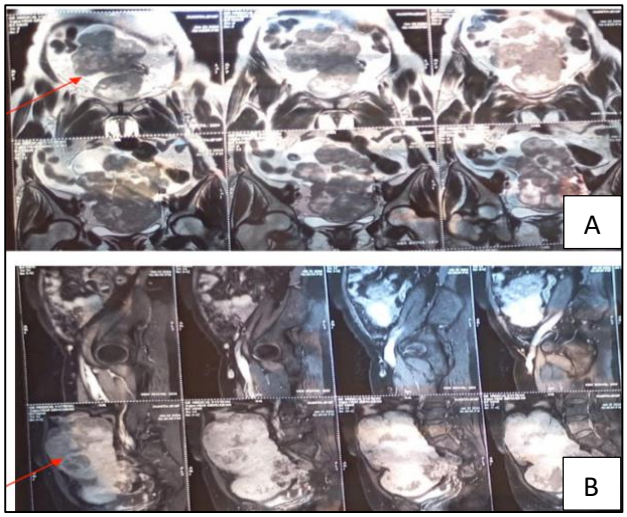

Figure 1 (A and B): MRI abdomen and pelvis showing well defined heterogeneously enhancing large solid cystic mass arising from left adnexa.

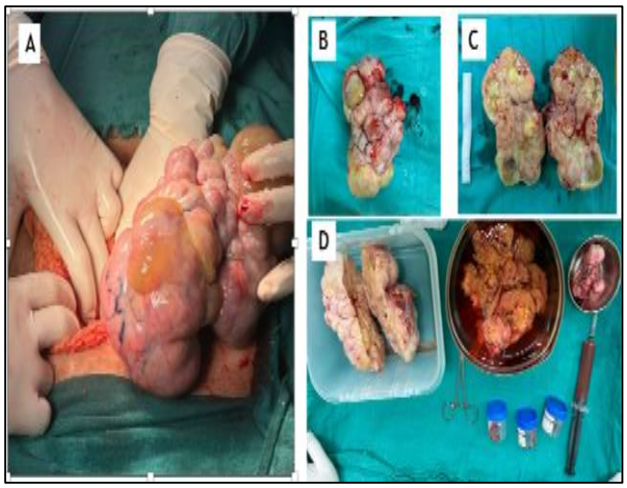

Figure 2 (A-D): Intra op large bosselated mass, gross and cut section, specimen with omentectomy and peritoneal fluid cytology.

DISCUSSION

OGCTs account for about 15% to 20% of ovarian masses and represent 2% to 5% of ovarian cancer cases.[1] The most frequently occurring malignant OGCTs include dysgerminoma, YST, and immature teratoma.[2] Dysgerminoma is an uncommon malignant tumor of the ovary, often associated with gonadal dysgenesis, such as 46, XY pure gonadal dysgenesis. The majority of individuals affected are under 30 years old.[3] As germ cells are uncommon in postmenopausal ovaries, dysgerminomas in this age group are highly rare. A comprehensive review of postmenopausal OGCTs identified only a single case of pure dysgerminoma among 37 patients.[4] Due to the rarity of postmenopausal dysgerminomas, their exact incidence remains unclear. Our patient, a 48-year-old woman, has been in a postmenopausal state for the past three years. The clinical manifestations of dysgerminoma can vary widely, ranging from no symptoms at all to experiencing abdominal pain, swelling, urinary issues, the presence of an abdominal or pelvic mass, ovarian torsion, irregular menstrual cycles, vaginal bleeding, loss of appetite, nausea, vomiting, or fever.[5] The tumor tends to grow quickly and is often significantly enlarged by the time it is detected.[6] In a similar situation, our patient exhibited symptoms such as pain in the lower abdomen, frequent urination, tiredness, weight loss, and a noticeable large mass in the abdominopelvic region.

In postmenopausal women, serum tumor markers, including CA-125 and CEA, are commonly measured. Dysgerminomas are typically associated with elevated LDH and, in some cases, increased beta-human chorionic gonadotropin (beta-HCG) levels. While increase in alpha-fetoprotein (AFP) and CA-125 elevations are less frequent.[7] In our patient, all of the previously mentioned markers were in the normal range, with the exception of LDH, which was significantly elevated. Imaging modalities such as ultrasound may reveal a septated ovarian mass with mixed echotexture, whereas CT scans can show a multilobular solid mass with fibrovascular septa.[8] Although CT is commonly used to detect female pelvic masses, MRI has been shown to be more effective in characterizing them. While CT is widely used for detecting pelvic tumors, MRI provides superior characterization. MRI findings for dysgerminoma commonly indicate a large, multilobular solid mass with heterogeneous signal intensity and fibrovascular septa.[9,10] Similarly, in this case, ultrasound identified a heterogeneous mass, and MRI confirmed a well-defined, large, solid-cystic lesion originating from the left adnexa. Dysgerminomas typically appear as solid, pink-tan lobulated tumors, resembling those seen in this case.

Histopathological examination using H and E staining often demonstrates diverse architectural patterns. Most notably, as in our case, the neoplastic cells displayed significant mitotic activity against a fibrous septal background rich in lymphocytes.[11] Microscopically, dysgerminomas consist of large, rounded, polyhedral cells with abundant cytoplasmic glycogen and distinct nuclei with prominent nucleoli.

Molecular genetic studies indicate that approximately one-third to half of dysgerminomas carry C-kit mutations, and up to 80% exhibit chromosomal abnormalities on chromosome. These tumors bear histological similarities to testicular seminomas and closely resemble embryonic primordial germ cells.[12]

Surgical intervention plays a crucial role in diagnosing, staging, and managing dysgerminoma. Fertility-preserving surgery is an option for younger patients but generally not advised for individuals who have completed childbearing.[13] The preferred treatment for younger women is unilateral salpingo-oophorectomy to conserve

fertility.[14] However, preservation of the contralateral ovary carries a 5% to 10% risk of recurrence within two years. About 75% of recurrences happen within the first year after diagnosis.[15] A standard surgical approach includes a midline incision, thorough peritoneal examination, total hysterectomy, bilateral salpingo-oophorectomy, para-aortic and bilateral pelvic lymphadenectomy, and omentectomy. In this case, total abdominal hysterectomy (TAH) with bilateral salpingo-oophorectomy, pelvic lymphadenectomy, and infracolic omentectomy was performed.

Following surgical staging, adjuvant chemotherapy is typically recommended for all cases except stage IA grade 1 and 2 pure dysgerminomas. This suggestion is derived from multiple minor studies, which include results from the management of testicular seminomas.[16] The national comprehensive cancer network (NCCN) suggests a chemotherapy regimen of bleomycin, etoposide, and cisplatin (BEP) for FIGO stage IB-IVB dysgerminomas as first line treatment (Network and cancer, 2022). Since our patient was classified as FIGO Stage IA, she did not receive chemotherapy. Pure dysgerminoma has an excellent prognosis, with an estimated five-year survival rate of 90%. Recurrence rates range between 18% and 52%, with 80% occurring within two years post-diagnosis, and the majority 75% within the first year.[17] Recurrent cases following surgery and chemotherapy can be managed with additional treatments, including paclitaxel, ifosfamide, and cisplatin (TIP) (Network and cancer, 2022). Immunotherapy may also provide an alternative treatment for patients with recurrent OGCTs. Immunotherapy is being explored as a potential option, though a phase II clinical trial of Pembrolizumab showed limited anti-tumor efficacy.[18]

CONCLUSION

Dysgerminoma in postmenopausal women is extremely rare. Imaging and tumor marker evaluation are crucial in preoperative diagnosis. Surgical intervention remains the mainstay for diagnosis, staging, and management. In young patients, fertility-sparing surgery with unilateral salpingo-oopherectomy is the standard treatment. Following surgical staging, all patients, with the exception of those diagnosed with stage IA pure dysgerminoma, should undergo adjuvant chemotherapy. It is crucial to conduct thorough follow-up to detect any recurrence.

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