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Case Report

A case report on spindle cell neoplasm of ovary

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ABSTRACT

Ovarian spindle cell neoplasms are rare stromal tumors that pose significant diagnostic and management challenges due to their potential for aggressive behavior and their ability to mimic other malignancies. These tumors can be classified as benign, borderline, or malignant, each with distinct clinical features and treatment approaches. Despite their rarity, spindle cell tumors can exhibit malignant potential, necessitating early detection and intervention. This report presents the case of a 35-year-old woman who presented with lower abdominal pain and distension for four months. Imaging revealed a large solid-cystic mass suggestive of a neoplastic etiology, classified as ORADS 5, though tumor markers remained within normal limits. Laparotomy uncovered a 10 kg left ovarian mass, primarily cystic with mucinous degenerative changes, and histopathology confirmed a spindle cell neoplasm with focal atypia but no malignant transformation. Although imaging indicated a high suspicion for malignancy, the histological findings negated malignancy. Surgical management through total abdominal hysterectomy with bilateral oophorectomy provided significant symptom relief. Given the rare and potentially aggressive nature of these tumors, ongoing follow-up and consideration of oncological therapies are essential. This case emphasizes the importance of a comprehensive diagnostic approach including imaging, tumor markers, surgical staging, and histopathology, particularly as such tumors can occur in younger women. Age alone should not exclude the possibility of an ovarian spindle cell neoplasm, and further research is needed to refine diagnosis and treatment strategies for improved clinical outcomes.

Keywords: Ovarian spindle cell neoplasm, Stromal tumor, Rare ovarian tumor, Spindle cell tumor, Tumor markers, Mucinous degeneration

INTRODUCTION

Ovarian cancer is one of the most fatal gynecological cancers, marked by considerable histopathological diversity. The vast majority of ovarian tumors, approximately 95%, originate from epithelial cells, which can develop into various cancer types, such as serous, endometrioid, and clear cell carcinomas.[1] However, less common tumors, including those arising from stromal cells, present significant clinical challenges.[2]

Among these, spindle cell tumors—rare stromal neoplasms—are particularly noteworthy due to their spindle-shaped cells and potential for aggressive behavior. These tumors can mimic other malignancies, complicating the diagnostic process. They are frequently associated with high cellular atypia and increased mitotic activity.[3,4] Despite their infrequency, spindle cell tumors can exhibit considerable malignant potential, with risks of local invasion and metastasis, highlighting the importance of early and effective surgical intervention.

Low-grade pelvic masses characterized by spindle cells and fibroblastic proliferation are exceedingly rare, poorly recognized, and inadequately described in the literature.[5] This specific histologic pattern has been linked to anaplastic thyroid carcinoma, medullary thyroid carcinoma, as well as conditions such as low-grade fibrosarcoma, malignant fibrous histiocytoma, myxofibrosarcoma, and fibrosing-type fibrosarcoma.[6,7]

The recognition and classification of myxofibrosarcomas and fibromyxoid sarcomas that contain spindle cell and fibroblastic proliferation remain limited, with most reports primarily appearing in specialized pathology journals.[5,7,8] As a result, there is a lack of clarity surrounding the optimal clinical approach to diagnosis and management. Ovarian spindle cell neoplasms can be categorized into benign, borderline, or malignant types, each with distinct characteristics and treatment approaches. Benign ovarian spindle cell neoplasms are non-cancerous tumors that typically do not spread. Common examples include ovarian fibromas, benign cystadenomas, and adenofibromas. Treatment often involves cystectomy (removal of the cyst) or oophorectomy (removal of the ovary). Borderline ovarian spindle cell neoplasms have a low malignant potential, meaning they are less likely to spread but still require careful monitoring. These tumors are characterized by abnormal cell growth (atypical epithelial proliferation) without destructive invasion. Examples include mucinous and serous borderline tumors. Treatment typically involves surgical removal, often including hysterectomy and bilateral salpingo-oophorectomy, along with staging to assess the disease's extent. Malignant ovarian spindle cell neoplasms are cancerous tumors that have the potential to spread to other parts of the body. They are characterized by destructive stromal invasion, indicating the tumor cells are spreading to surrounding tissues. Ovarian carcinomas, such as high-grade serous, endometrioid, and mucinous carcinomas, are common examples. Treatment for malignant tumors generally involves a combination of surgery, chemotherapy, and/or radiation therapy. Given that multiple high- and low-grade tumor subtypes exhibit this particular histology, thorough follow-up is critical for addressing potential risks such as local recurrence, tumor progression, or metastasis.[9,10] In this report, we present a case of abdomino pelvic mass exhibiting spindle cell proliferation, along with an exploration of the diagnostic and clinical management strategies used.

CASE REPORT

A 35-year-old woman with completed family and history of tubal ligation 10 years ago presented in gynecological OPD with complaint of lower abdominal pain and abdominal distension since 4 months. She had no history of any medical or surgical illness in past.

On examination a large palpable mass was seen extending from pelvis to xiphisternum characterized by poorly defined margins. Transabdominal ultrasound revealed a large 27.8×21×19.2 cm solid-cystic mass with thickened wall and septations classified as ORADS 5 with mild to moderate ascites and mild bilateral pleural effusion raising high suspicion for Meigs syndrome. Subsequently contrast enhanced computed tomography (CECT) abdomen identified heterogeneously enhancing abdominopelvic solid – cystic lesion measuring 17.7×32.8×23.4 cm extending from D10 – L3 vertebral levels. Anteriorly abutting the anterior abdominal wall posteriorly abutting the pancreas, abdominopelvic vessels and bowel loops, laterally displacing the bowel loops and inferiorly abutting the uterus and urinary bladder, all findings suggestive of neoplastic etiology.

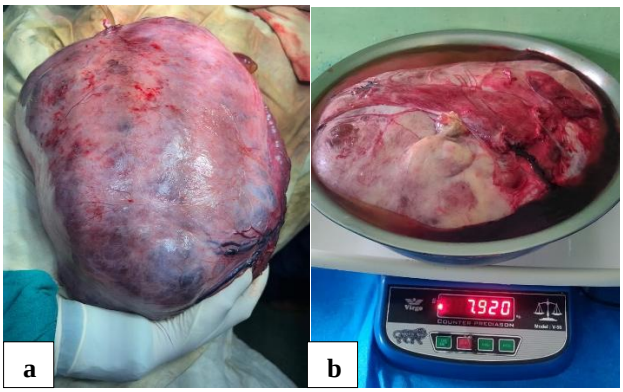

Figure 1 (a and b): Huge ovarain mass weighing 7.9 kg after removing 2 litres of mucinous fluid.

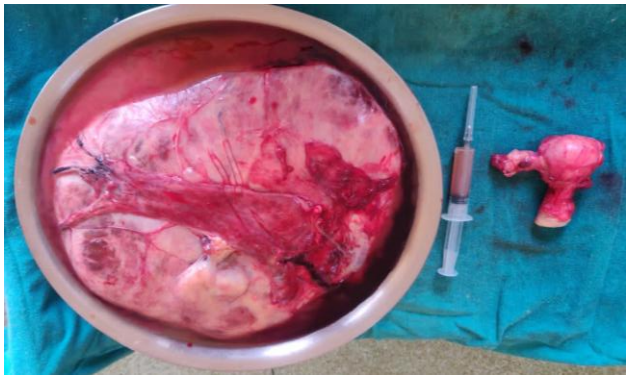

Figure 2: Specimens collected for histopathological examination.

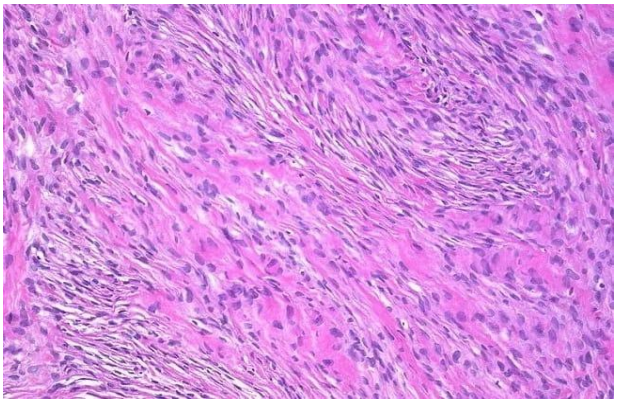

Figure 3: Pathological slide with spindle cells.

To further investigate the nature of the mass tumor markers were sent for assessment which came out to be in normal range. Hence the decision of laparotomy was taken that revealed a huge 10 kg mass of left ovary completely occupying the abdominal cavity with islands of mucinous degenerative changes. Around 2 litres of mucin was

drained with around 200 cc of ascitic fluid. Mass measured 40×32×23 cms and sent for histopathology examination.

The final histopathology report showed presence of spindle cell neoplasm with secondary degenerative changes and focal cytoarchitechtural atypia, with no malignant transformation.

Postoperatively the patient reported substantial relief from her pain and she was discharged with followup advice in gynecological OPD.

DISCUSSION

Spindle cell neoplasms of the ovary are rare tumors that pose significant diagnostic and management challenges due to their rarity and histological similarities to other malignancies. These tumors may present as sarcomas or sarcomatoid variants, often showing aggressive behavior with potential for malignancy, local invasion, and metastasis.[11]

In the presented case, a patient with lower abdominal pain and distension underwent imaging, which revealed a solid-cystic mass on transvaginal ultrasound and a suspicious ovarian mass on CECT. The O-RADS 5 classification suggested a high likelihood of malignancy. However, histopathology confirmed a spindle cell neoplasm with degenerative changes and focal atypia, without malignant transformation.

Management typically involves radical surgery to reduce the risk of recurrence and metastasis. In this case, the patient underwent a total abdominal hysterectomy with bilateral oophorectomy, leading to significant pain relief. The treatment plan included ongoing follow-up and potential future oncological therapies if required.

The limited literature on ovarian spindle cell tumors highlights the need for further research into clinical outcomes, molecular characteristics, and therapeutic strategies to improve patient management and prognosis. Future studies should refine diagnostic criteria and treatment protocols, incorporating both clinical and molecular data to better address the challenges these rare tumors present.[12]

CONCLUSION

Spindle cell tumors of the ovary, though rare, present diagnostic and management challenges due to their potential for aggressive behavior. Typically, such tumors are seen in perimenopausal and menopausal women, however, in this case, the patient is a 35-year-old female. This suggests that age alone should not be used as a factor to rule out ovarian spindle cell tumors. This case highlights the importance of detailed imaging and tumor markers in reaching the actual diagnosis, but also emphasizes the critical role of surgical staging followed by histopathological examination to get a confirmed diagnosis. This is because imaging results and tumor marker values may not always correlate with the actual findings. Radical surgery, along with adjuvant therapies, can help in successfully managing the tumor and relieve symptoms, but ongoing follow-up remains essential due to the tumor's aggressive nature. The case emphasizes the need for further research to enhance the understanding and treatment of ovarian spindle cell neoplasms in future as the literature still remains very limited.

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