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Case Report

Sclerosing stromal tumor of the ovary: a rare case report

Arif Onur Atay[1]*, Feride Atay[2], Ali Akdemir[2], Gurdeniz Serin[3], Osman Zekioglu[3]

[1]Department of Obstetrics and Gynecology, Torbalı State Hospital, İzmir, Turkey
[2]Department of Obstetrics and Gynecology, Ege University Faculty of Medicine, İzmir, Turkey
[3]Department of Pathology, Ege University Faculty of Medicine, İzmir, Turkey

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***Correspondence:**
Dr. Arif Onur Atay,
E-mail: aoatay@gmail.com

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ABSTRACT

Sclerosing stromal tumors (SST) are rare benign tumors of the ovary, accounting for less than 5% of all sex cord-stromal neoplasms. We report the case of a 33-year-old woman who presented with pelvic pain and was found to have a 78×55 mm heterogeneous semisolid mass in the left adnexa on ultrasonography. Pelvic magnetic resonance imaging revealed a well-circumscribed adnexal lesion with both solid and cystic components, raising suspicion for a neoplastic process. The patient underwent laparoscopic left salpingo-oophorectomy. Final histopathological examination confirmed a diagnosis of SST, with an intact capsule and immunohistochemical staining positive for CD31 and CD34, and negative for cytokeratin AE1/AE3, inhibin A, and desmin. The Ki-67 proliferation index was 6%, and peritoneal cytology was benign. This case emphasizes the importance of including this rare tumor in the differential diagnosis of adnexal masses and highlights the value of minimally invasive surgery in their management.

Keywords: Sclerosing stromal tumor, Sex cord-stromal tumor, Adnexal mass, Ovarian tumor, Laparoscopy, Immunohistochemistry

INTRODUCTION

Sclerosing stromal tumor (SST) of the ovary is an exceedingly rare benign neoplasm, typically emerging in young women within their second and third decades of life. Representing approximately 6% of sex cord-stromal tumors, SSTs are predominantly found as unilateral masses, often presenting with symptoms such as abdominal or pelvic pain, menstrual irregularities, or palpable masses.[1-3] Although they usually lack hormonal activity, their histopathological characteristics may lead to confusion with other benign and malignant ovarian tumors, necessitating careful diagnostic evaluation including imaging techniques and histological analysis.[3,4] The surgical management of SST s has evolved with advancements in minimally invasive techniques. Laparoscopic surgery is increasingly preferred due to its benefits of reduced postoperative pain, shorter recovery times, and improved cosmetic outcomes compared to traditional laparotomy.[5] We herein present a rare case of SST of the ovary that was managed laparoscopically and diagnosed through histopathological and immunohistochemical evaluation.

CASE REPORT

A 33-year-old woman with a history of one prior vaginal delivery presented to the gynecology outpatient clinic with complaints of lower abdominal and pelvic pain. Physical examination was unremarkable, but transvaginal ultrasonography revealed a well-defined, heterogeneous, semisolid mass measuring 7×6 cm located in the left adnexal region. Serum CA-125 level was within normal limits (11 U/mL). Pelvic magnetic resonance imaging (MRI) demonstrated a unilateral adnexal mass with both solid and cystic components, raising suspicion for a neoplastic lesion.

The patient was scheduled for laparoscopic exploration. Intraoperatively, a left ovarian mass was identified and

removed en bloc by left salpingo-oophorectomy. The specimen was retrieved using an endobag through a posterior colpotomy. No intraoperative complications occurred.

Histopathological examination revealed a well-circumscribed tumor with an intact capsule. Immunohistochemical staining showed strong positivity for CD31 and CD34 in vascular structures (Figure 2).

Stains for cytokeratin AE1/AE3, inhibin A, and desmin were negative. The Ki-67 proliferation index was approximately 6% (Figure 3). Cytological analysis of peritoneal washings demonstrated benign mesothelial cells. Final diagnosis was consistent with a SST of ovary.

The patient had an uneventful postoperative course and was discharged on 2nd postoperative day. No recurrence or complications were observed during follow-up.

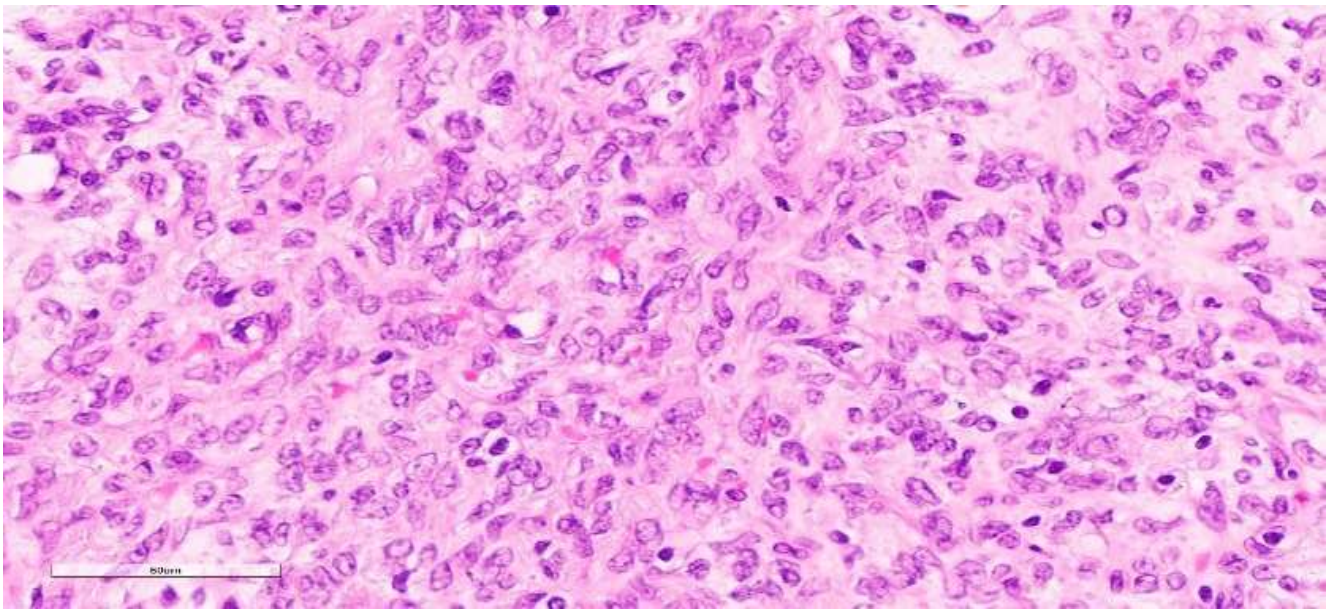

Figure 1: Histological features of the tumor (H and E, ×400).
High-power view reveals epithelioid tumor cells with round to oval nuclei, fine chromatin, small nucleoli, and moderate eosinophilic cytoplasm. The tumor cells are arranged in sheets within a loose collagenous stroma. Scale bar = 60 µm.

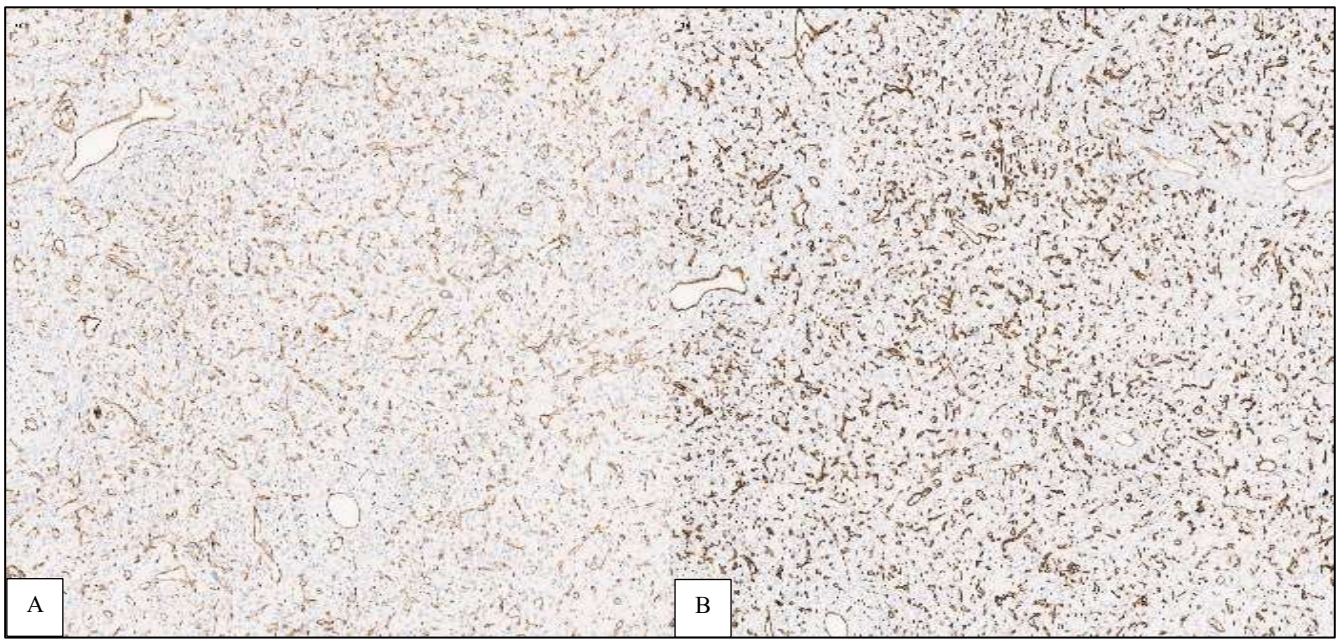

Figure 2 (A and B): Immunohistochemical staining of the tumor. (A) CD31 immunostaining highlights the vascular endothelial cells with strong membranous positivity. (B) CD34 shows diffuse positivity in the vascular structures, supporting a richly vascularized stromal pattern.

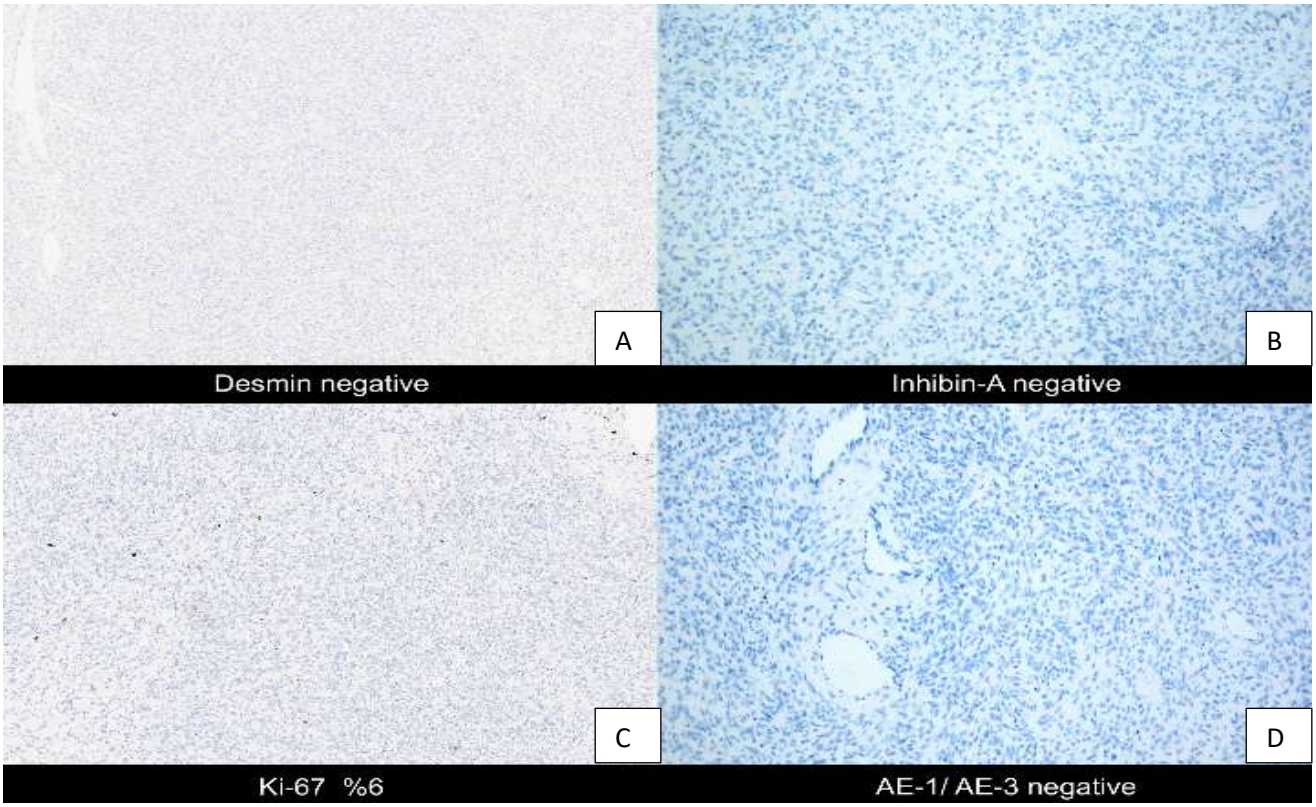

Figure 3 (A-D): Immunohistochemical profile of the tumor.

Immunohistochemical analysis revealed negativity for Desmin and Inhibin-A, excluding myogenic and sex cord-stromal differentiation, respectively. The Ki-67 proliferation index was approximately 6%, indicating low proliferative activity. AE1/AE3 staining was negative, supporting non-epithelial tumor origin.

DISCUSSION

The discussion surrounding the case of a SST of the ovary involves a comprehensive review of its clinical presentation, diagnostic challenges, and management strategies. SSTs are relatively rare benign tumors arising from the ovarian stroma, typically presenting with nonspecific symptoms such as abdominal or pelvic pain and menstrual irregularities.[1] This variability can lead to misdiagnosis, as SSTs may display histological features resembling those of other ovarian neoplasms, including fibromas and thecomas, thereby underscoring the importance of meticulous histopathological evaluation.[6] The pathogenesis of SSTs remains under investigation. Some hypotheses propose that these tumors originate from pluripotent stromal cells within the ovarian cortex or represent a progression from pre-existing ovarian fibromas.[6] Immunohistochemical profiling plays a critical role in differentiating SSTs from morphologically similar entities, as these tumors often exhibit a characteristic vascular pattern and specific staining profiles. Clinicians should consider SSTs in the differential diagnosis of ovarian masses, particularly in young women, to avoid misdiagnosis and unnecessary aggressive interventions. Minimally invasive laparoscopic techniques have become increasingly favored in the management of SSTs, offering benefits such as reduced postoperative pain, faster recovery, and improved cosmetic outcomes.[7] Although SSTs are considered benign, certain clinical feature such as large tumor size or the presence of ascites may raise concerns for malignancy, necessitating careful preoperative evaluation through imaging and serum tumor markers when indicated.[8] Clear communication with patients regarding the nature of the tumor, the rationale for surgical management, and potential outcomes is essential for informed decision-making.

In conclusion, this case highlights several important aspects of SST diagnosis and treatment, including its rarity, histopathological complexity, and the clinical value of laparoscopic management. Continued reporting and study of such rare entities are crucial to enhance diagnostic accuracy and optimize individualized patient care.

CONCLUSION

SSTs of the ovary, though benign, represent a rare and diagnostically challenging entity that can mimic malignant neoplasms both clinically and radiologically. Accurate diagnosis relies on histopathological and immunohistochemical evaluation. This case underscores the importance of considering SST in the differential diagnosis of adnexal masses, particularly in young women, and demonstrates the value of minimally invasive

laparoscopic surgery as a safe and effective management strategy.

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