ISSN 2348-0319 International Journal of Innovative and Applied Research [2025]
(Volume 13, Issue 10)
01-05

Journal home page: http://www.journalijiar.com

INTERNATIONAL JOURNAL
OF INNOVATIVE AND APPLIED RESEARCH

CASE REPORT

Article DOI: 10.58538/IJIAR/2146
DOI URL: *http://dx.doi.org/10.58538/IJIAR/2146*

PRIMARY OVARIAN LEIOMYOSARCOMA - A RARE CASE REPORT

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Manuscript Info

Manuscript History
Received: 30 September 2025
Final Accepted: 23 October 2025
Published: October 2025

Keywords:
Primary Ovarian Leiomyosarcoma, Ovarian Sarcoma, Rare Ovarian Malignancy, Smooth Muscle Tumor, Gynecologic Neoplasm, Histopathological Diagnosis, Immunohistochemistry, Case Report

Abstract

Ovarian leiomyosarcoma is a rare and aggressive cancer that arises from smooth muscles of ovary. Incidence of this cancer is 0.1% in a Million. We presenting a case report of 60-year-old post hysterectomized female who admitted with abdominal pain and diarrhoea since one month and having a history of Type 2 Diabetes Mellitus since 10 years. Radiological examination has revealed a large pelvic-abdominal mass measuring approximately 12 × 16.3 × 16 cm, originating from the left ovary. Surgical excision of a large complex ovarian mass was performed, a detailed histopathological and immunohistochemical analyses confirming the diagnosis of leiomyosarcoma. The report discusses the clinical presentation, diagnostic process, treatment strategy, and postoperative outcome, emphasizing the rarity and diagnostic challenges of this aggressive ovarian malignancy. [1][2]

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Introduction:-

Ovarian leiomyosarcoma is an exceedingly rare form of ovarian cancer arising from smooth muscle cells. It accounts for a tiny fraction of ovarian malignancies and is notorious for its aggressive clinical course and poor prognosis. Due to its rarity, there is limited understanding about its exact pathogenesis, clinical behaviour, and optimal management. Patients often present with nonspecific symptoms such as abdominal pain or distension, which complicates early detection. Distinguishing ovarian leiomyosarcoma from other spindle cell tumours such as fibrosarcoma or endometrial stromal sarcoma is critical and relies heavily on histopathological and immunohistochemical evaluation. [1][2][3].

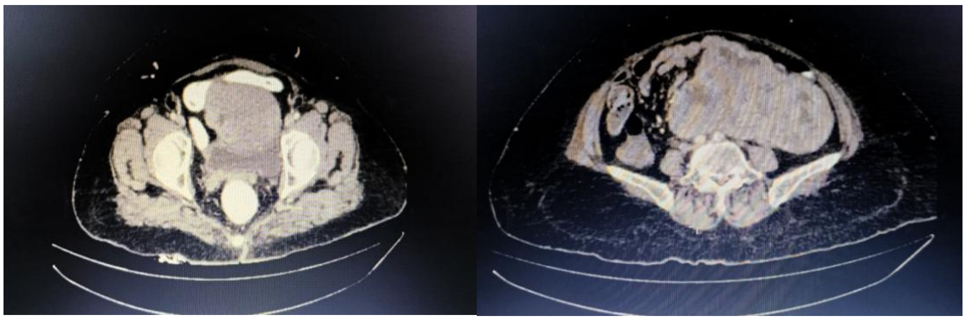
Case Report

Case presentation

A 60-year-old female admitted in the hospital with a prior history of hysterectomy presented with complaints of diarrhoea and abdominal pain persisting for one month and having the history of Type 2 Diabetes mellitus since 10 years and no history of Hypertension and Thyroid disorders.

Diagnostic Evaluation
General examination revealed stable vital signs with no signs of systemic illness. Imaging showed a left complex ovarian mass measuring approximately 19.5x15x10 cm with an intact capsule.

Radiological Examination
A contrast-enhanced computed tomography (CT) scan of the abdomen and pelvis revealed a large pelvic -abdominal mass measuring approximately 12 × 16.3 × 16 cm. The lesion appeared to originate from the left ovary and exerted a significant mass effect on adjacent structures. There was no ascites, peritoneal fluid collection, or evidence of destructive bony lesions. [2][3].



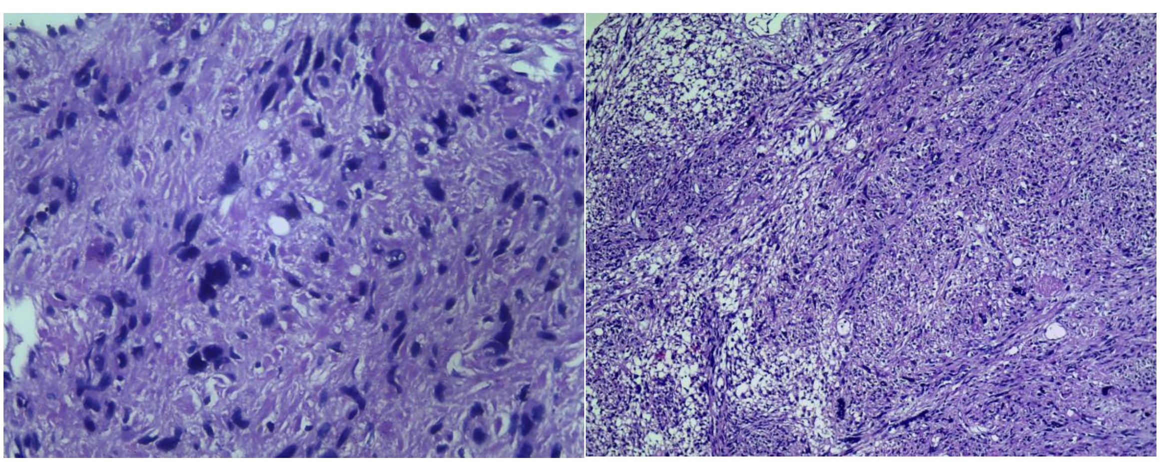
CECT Scan Reports

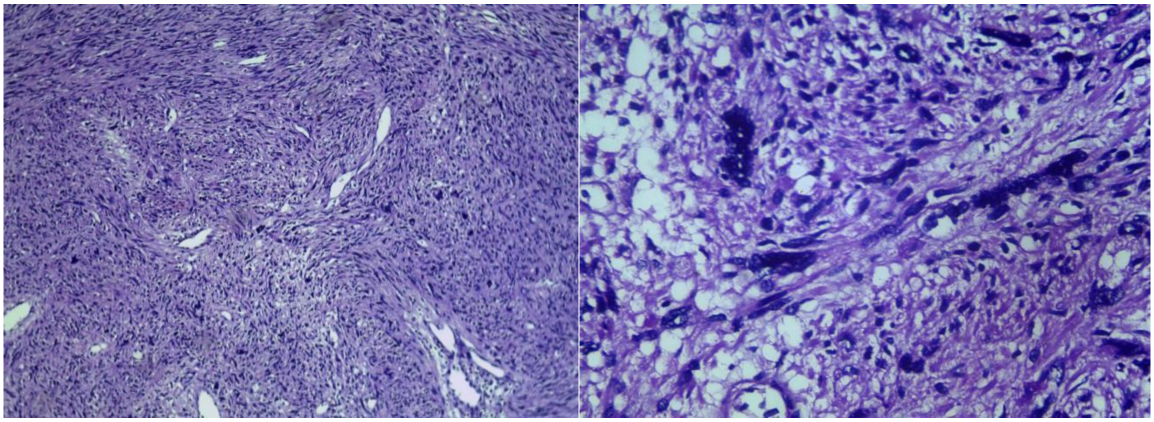
Surgical Procedure
The patient underwent surgical excision of the mass along with double-J stenting to preserve ureteral function.

Histopathology:
Gross examination revealed an ovarian mass measuring 19.5 × 15 × 10 cm. The external surface was bosselated with an intact capsule. Cut section was fleshy and grey-white to grey-tan in colour.

Microscopic findings showed3 an infiltrative spindle cell lesion with fascicular and storiform with focal herring bone pattern of argument. The individual tumor cells show moderate atypia with vesicular chromatin and scant cytoplasm. Few bizarre cells are also seen. Brisk mitotic activity is seen. Small focus of necrosis is also seen. No epithelial component is appreciated. Features are suggestive of malignant spindle cell lesion favouring Leiomyosarcoma of ovary.

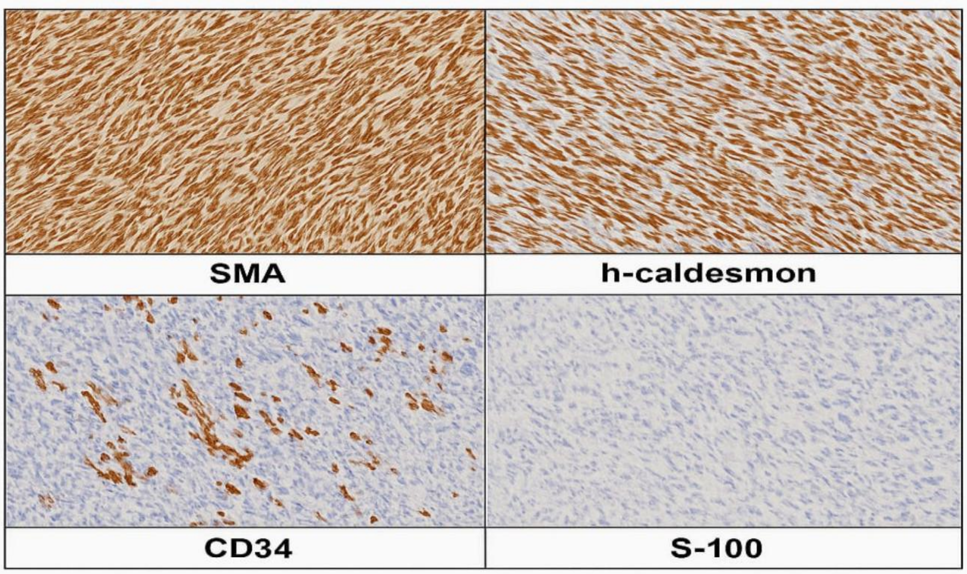
Tissue Sample Histopathological Microscopic Structures





Histopathology Images –
Fascicles of spindle shaped cells showing hyperchromatic nuclei exhibiting marked pleomorphism with few bizarre nuclei and atypical mitotic figures

Immunohistochemistry
Immunohistochemical studies performed on representative sections demonstrated diffuse strong cytoplasmic positivity for Smooth Muscle Actin (SMA, clone 1A4) and h-caldesmon (clone hHCD) in tumor cells, confirming smooth muscle differentiation. CD34 , S-100 and CD10 were negative. The Ki-67 labelling index was significantly elevated at approximately 35–40%, indicating a high proliferative rate. [3][4].



Diffuse strong cytoplasmic poitivity for Smooth Muscle Actin (SMA) and h-caldesmon was noted in tumor cells, while CD34 and S-100 were negative.

Postoperative Course and Follow-Up
Following the surgical procedure the patient was monitored in intensive care unit. The postoperative course was uneventful, and the patient was discharged in stable condition with supportive therapy.

Discussion:-

Primary ovarian leiomyosarcoma is an exceptionally rare malignant tumor arising from ovarian smooth muscle or vascular structures, with very few cases reported. It typically affects postmenopausal women, most often in the fifth to seventh decades of life, as seen in this patient. Clinically, it presents with nonspecific symptoms such as abdominal pain or distension, often mimicking benign ovarian lesions. In this case, the patient's presentation with abdominal pain and diarrhoea highlights the diagnostic challenge. Imaging assists in detecting an adnexal mass, but definitive diagnosis relies on histopathology and immunohistochemistry. [1][2] Histologically, the tumor shows spindle cells in fascicles with moderate to marked atypia, brisk mitosis, and necrosis. Using the FNCLCC grading system, this case was classified as grade 3 (score 7), indicating high-grade malignancy. The FNCLCC (French Federation of Cancer Centers Sarcoma Group) grading system (differentiation, mitotic count, tumor necrosis) is widely used for soft tissue sarcoma grading and correlates with prognosis. [4][5] Immunohistochemistry confirmed smooth muscle differentiation with diffuse SMA and h-caldesmon positivity, while CD34, S-100, and CD10 were negative. The high Ki-67 index (35–40%) reflected aggressive proliferation. An infiltrative spindle cell tumor arranged and fascicular storiform patterns. The cells showed hyper chromatic spindle to oval shaped nuclei exhibiting moderate neomorphism and significant mitotic activity. Prognosis depends on stage, size, mitotic activity, and surgical clearance. Despite optimal management, recurrence and metastasis are frequent in several reported series. This case underscores the importance of correlating clinical, histological, and immunohistochemical findings for accurate diagnosis and highlights the need for vigilant postoperative follow-up due to the tumor's aggressive course. [2][6]

Conclusion:-

Primary ovarian leiomyosarcoma is an exceedingly rare and aggressive malignancy with nonspecific clinical features that often delay diagnosis. Based on the microscopic features which was later confirmed by Immunohistochemistry. Accurate identification requires careful histopathological examination supported by immunohistochemistry to differentiate it from other spindle cell tumors. Complete surgical excision remains the cornerstone of treatment, while the role of adjuvant therapy is still unclear due to limited data. This case emphasizes the importance of recognizing this rare entity and ensuring vigilant postoperative follow-up to monitor for recurrence or metastasis. [1][2][3]

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