Case Report

Pathology Section

An Unusual Clinical and Morphological Features of Uterine Leiomyosarcoma: Immunohistochemistry Solves the Diagnostic Pitfalls of Uterine Sarcomas

P.M. SUBRAMANIAM, P.R. REKHA, R. THAMIL SELVI

ABSTRACT

Introduction: Leiomyosarcoma (LMS) arises from smooth muscle of the uterus and is a rare tumour that accounts for 2% to 5% of all uterine malignancies. Very few cases are reported in the literature. Our patient presented with a pelvic mass and did not have any history of genital bleeding, which is the usual presentation in uterine sarcoma. We report here an original case report of an unusual presentation of this rare tumour in the endometrial cavity with combined features of epithelioid differentiation and haemangiopericytoma (HPC) like areas in a single tumour which is not yet reported in the published literature.

Case Report: A 55- years multiparous woman presented with a pelvic mass for 8 months duration with a rapid increase in size over the last three months. Ultrasonography showed a mass arising from the uterus. An exploratory laparotomy was performed and the histopathology report confirmed the diagnosis of uterine sarcoma combined with epithelioid differentiation and haemangiopericytoma like areas and hence a panel of immunohistochemical (IHC) workup was done which confirmed leiomyosarcoma.

Conclusion: Our report highlights how a good index of suspicion, detailed histopathological diagnosis which when complemented with immunohistochemical work up could prevent the pitfalls of misdiagnosis and mismanagement of uterine sarcomas.

Key Words: Leiomyosarcoma, Epithelioid, Haemangiopericytoma, Immunohistochemistry

INTRODUCTION

Uterine sarcomas account for between 3–7% of all malignant diseases of the uterine corpus. They can broadly be classified into leiomyosarcomas, which arises from the smooth muscle of the myometrium, and endometrial stromal tumours, which originates from the endometrial stroma [1,2]. Mixed mesodermal tumours or carcinosarcomas have both epithelial and mesenchymal components and are now thought to be metaplastic carcinomas, rather than a subgroup of sarcomas. Leiomyosarcomas are the most common, accounting for about 25–36% of uterine sarcomas [3,4] and they are notorious for their aggressive nature and poor prognosis.

Uterine sarcomas are uncommon and pre-operative diagnosis which is frequently unknown, ultrasonography and MRI can raise suspicion of a uterine sarcoma, however, there are no pathognomonic features on any imaging technique. The clinical benefit of chemotherapy is limited, which underscores the importance of targeted therapy. Endometrial Stromal Sarcoma(ESS) and uterine leiomyosarcoma are driven by different pathways, resulting in a different clinical behaviour. ESS typically is a hormone-sensitive tumour with indolent growth. Uterine leiomyosarcoma is notorious for its aggressive growth and poor outcome. Individualisation of treatment is mandatory, for both ESS and uterine leiomyosarcoma, hysterectomy with bilateral salpingo-oophorectomy, but without lymphadenectomy, is the standard surgical treatment for early stage disease. There is no proven benefit from any adjuvant treatment (ie, radiotherapy, chemotherapy, or hormonal targeted) for both entities, however hormone receptors are the most important targets for primarily advanced or recurrent ESS, as for a subset of recurrent uterine leiomyosarcomas [5].

CASE REPORT

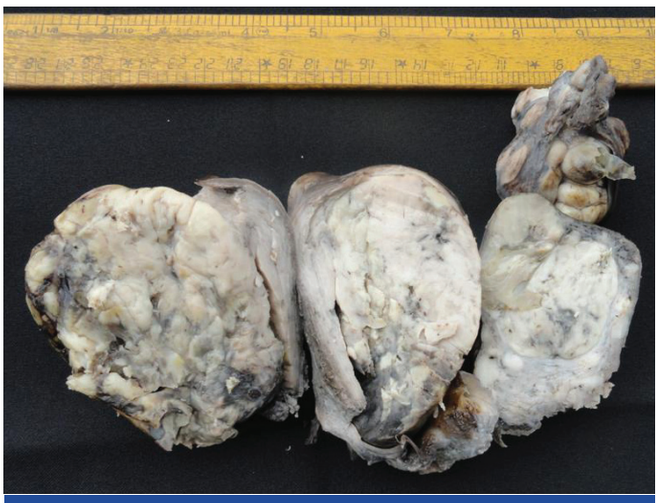
A 55-years post-menopausal multliparous woman was reported to the outpatient clinic with complaints of a mass in the lower abdomen for 8 months duration associated with lower abdominal pain with rapid increase in size for three months. She had no history of genital bleeding.

On general physical examination, pallor was present, and the patient's vital signs were normal. She was thinly built. On abdominal examination, an irregular midline mass arising from the pelvis was present. The mass was firmed to be hard in consistency with restricted mobility and nontender with no free fluid. There was no hepatosplenomegaly or lymphadenopathy.

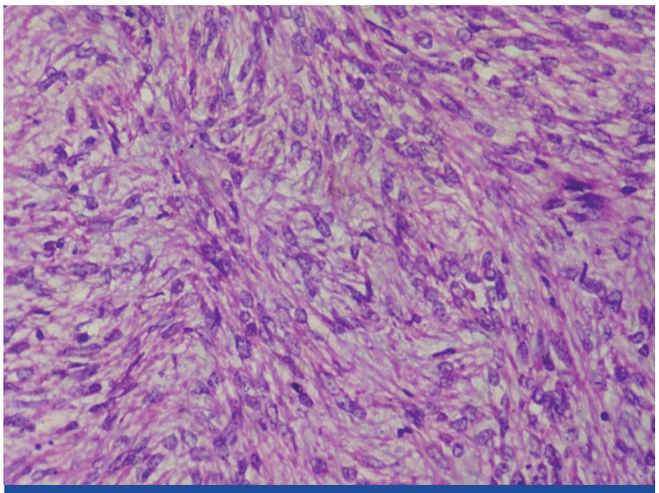
On vaginal examination, the patient's uterus was enlarged to 18-20 weeks gestational size and nodular, occupying the whole pelvis. Ultrasonography findings were suggestive of a growth in the endometrial cavity with predominant solid elements measuring 8x6 cms, and the patient was posted for exploratory laparotomy.

Intra-operatively enlarged uterus appropriately of 20 weeks size with a subserosal nodule measuring 5 cms in diameter. Both ovaries and fallopian tubes were normal.

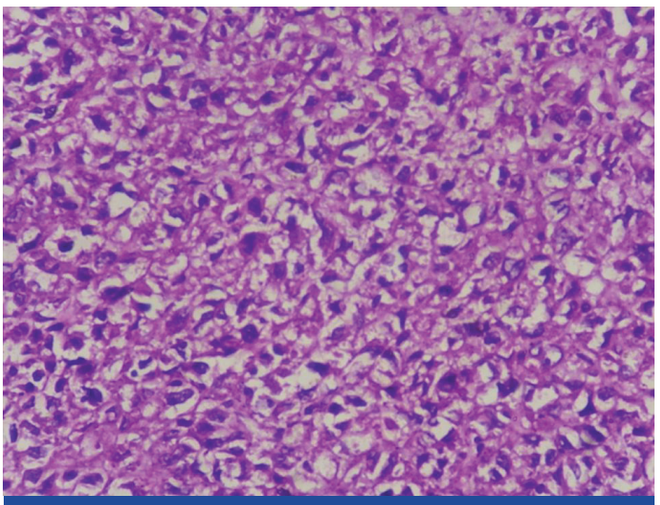
Total abdominal hysterectomy with bilateral salpingo-ophorectomy was done. The uterus measured 18 × 12 × 10 cms with a submucosal growth arising from the fundus of uterus and occupying the endometrial cavity measuring 8 cm × 6 cm × 6 cm and solid in consistency. The tumour invades the myometrium through out the thickness at one area forming a sub-serosal nodule of 5 cms in diameter. Histopathologic examination showed a cellular tumour arranged in interlacing bundles of spindle cells with elongated



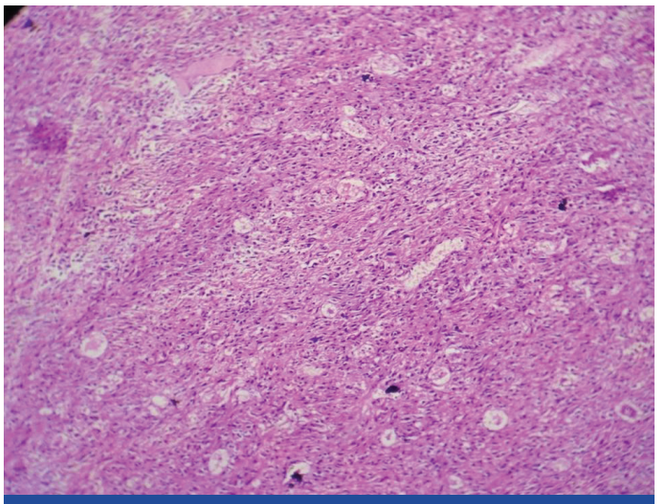
[Table/Fig-1]: Gross specimen cut surface of uterus showing a growth in endometrial cavity with myometrial invasion and subserosal nodule.



[Table/Fig-2]: H&E (40X) showing interlacing bundles of spindle cells with few mitotic figures



[Table/Fig-3]: H&E (40X) showing epithelioid cell differentiation.



[Table/Fig-4]: H&E (10X) showing Hemangiopericytoma like areas interpersed with epithelioid cell differentiation

hyperchromatic nuclei. The tumour cells exhibits moderate degree of pleomorphism and bizarre nuclei with occasional multinucleate tumour giant cells, there were large areas with epithelioid differentiation and predominance of hemangiopericytoma like areas in the tumour. Areas of abnormal and normal mitosis varying from 8-10/HPF were noted with large areas of necrosis.

The combined histopathological features led to a differential diagnosis of endometrial stromal sarcoma and leiomyosarcoma, hence forth a panel of immunohistochemical markers which included CD-10, Desmin and Myogenin were done which confirmed the positivity of Desmin and Myogenin where as CD-10 was negative. A diagnosis of Leiomyosarcoma with combined hemangiopericytoma like areas and epithelioid differentiation was made.

DISSCUSSION

Uterine sarcomas are rare and constitute about 2% to 5% of all uterine malignancies [6]. The incidence of sarcoma is 1% to 2% in post-menopausal women. These patients usually present with abnormal uterine bleeding [7]. Our patient did not have any history of uterine bleeding. The diagnosis of uterine sarcomas is made from histologic examination of the entire uterus however a one step furture with IHC which is required in cases with combined histopathological features. Our case had histopathological features of interlacing bundles of spindle cells and areas of epithelioid differentiation classic of Leiomyosarcoma and also Hemangiopericytoma like areas which were characreristic of ESS.

The diagnosis of soft tissue tumours are traditionally based on histologic patterns. However, it is well established that histogenetically different neoplasms might manifest similar if not identical histologic patterns, and neoplasms of common histogenesis often exhibit a spectrum of various histologic features. This is particularly valid for spindle cell variants, especially smooth muscle (SM) neoplasms [8]. Hence we suggest that tumours with combined HPE feature always histopathological examination must be complemented with Immunohistochemistry for confirmation which is mandatory in subclassification of the tumours and hence decide on the appropriate therapy.

Tumour diameter, stage and cellular atypia were important prognostic parameters in uterine leiomyosarcomas. surgical staging was the best predictor of survival in uterine leiomyosarcomas. Tumour diameter was also a strong prognostic indicator. Of the cellular parameters the cellular atypia had the strongest prognostic influence. Radica l primary surgery, leaving no residual tumor,seems of utmost importance in uterine leiomyosarcomas [9].

Our case is unique because till date in the published literature there were only 2 cases of leiomyosarcoma with HPC like areas, one in tongue and other intramuscular [8],however ours was the first case

of leiomyosarcoma in uterus with HPC like areas combined with epithelioid differentiation.

CONCLUSION

Our report highlights how a good index of suspicion, detailed histopathological diagnosis complemented with immunohistochemical work up could prevent the pitfalls of misdiagnosis and mismanagement of uterine sarcomas since they are characterized by pathological diversity. This report also explores the varied current dilemmas in uterine leiomyosarcomas, including clinical presentation, histopathological diagnosis which has to be complemented with immunohistochemical studies to facilitates the diagnosis, in treatment options and in exploration of novel therapies that might play a role in improving survival in the future [9].

REFERENCES

[1] Livi L, Paiar F, Shah N, Blake P, Villanucci A, Amunni G, et al. Uterine sarcoma: twenty-seven years of experience Int J Radiat Oncol Biol Phys 2003 57 1366–73 doi:10.1016/S0360-3016(03)00750-8.

[2] Acharya S, Hensley ML, Montag AC, Fleming GF Rare uterine cancers Lancet Oncology 2005 6 961–71.

[3] Norris HJ, Zaloudek CJ BlausteinA Mesenchymal tumours of the uterus Pathology of the Female Genital Tract 1982 2nd ed New York: Springer–Verlag Books 352–92.

[4] Echt G, Jepson J, Steel J, Langholz B, Luxton G, Hernandez W, et al. Treatment of uterine sarcomas Cancer 19906635–9 doi:10.1002/1097-0142(19900701)66:1<35::AID-CNCR2820660108>3.0.CO;2-V.

[5] Frédéric Amant, An Coosemans, Maria Debiec-Rychter, Dirk Timmerman, Ignace Vergote. Clinical management of uterine sarcomas. Lancet Oncol 2009; 10: 1188–98.

[6] Forney JP, Buschbaum HJ. Classifying staging and treating uterine sarcomas. *Contemporary Ob Gyn 1981,* 18*(3)*:*47.*

[7] Wickerham DL, Fisher B, Wolmark N, Bryant J, Costantino J, Bernstein L, Runowicz CD. Association of tamoxifen and uterine sarcoma. *J Clin Oncol* 2002, 20:2758-2760.

[8] Walter Schurch, MD,Omar Skalli, MSc,Thomas A.Seemayer, MD, and Giulio Gabbiani, MD, PhD. Intermediate Filament Proteins and Actin Isoforms as Markers for Soft Tissue Tumor Differentiation and Origin. American Journal of Pathology, Vol. 128, No. 1, July 1987.

[9] Randi R Nordal[1], Gunnar B. Kristensen[1†], Janne Kern[1], Anna E. Stenwig[1], Erik O. Pettersen[1] and Claes G. Tropé[1]. [1]Departments of Gynaecologic Oncology, Pathology and Tissue Culture, The Norwegian Radium Hospital, Oslo, Norway.[†]*Correspondence*: Gunnar B. Kristensen, Department of Gynecologic Oncology, The Norwegian Radium Hospital, Montebello, N-0310, Oslo, Norway.The Prognostic Significance of 'Stage, Tumor Size, Cellular Atypia and DNA Ploidy in Uterine Leiomyosarcoma. Acta Oncologica. Vol. 34, No. 6 , Pages 797-802.

AUTHOR(S):

1. Dr. P.M. Subramaniam
2. Dr. P.R. Rekha
3. Dr. R. Thamil Selvi

PARTICULARS OF CONTRIBUTORS

1. Professor and Head Department of Pathology, Vinayaka Missions Kirupananda Variyar Medical College, Salem.
2. Associate Professor, Department of Pathology, Vinayaka Missions Kirupananda Variyar Medical College, Salem.
3. Professor Department of Pathology, Vinayaka Missions Kirupananda Variyar Medical College, Salem.

NAME, ADDRESS, TELEPHONE, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. P.M. Subramaniam
186/2,Srinagar Colony, Narasothipatti,
Salem-636004.
Phone: 09344559043
E-mail: Rekharr43@gmail.com

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