

PREVALENCE OF LEIOMYOSARCOMA OF UTERUS: A THREE YEAR RETROSPECTIVE STUDY

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Abstract

Background: leiomyosarcoma of uterus are notorious for their aggressive nature and poor prognosis. The relative rarity of uterine leiomyosarcomas, as well as their pathological diversity, hinders studies aimed at improving understanding of the disease and makes it difficult to define the optimum management.

Methods: This retrospective study is conducted over a period of three year from January 2017 to December 2020. All the hysterectomy specimens received at the Department of Pathology were processed and included in the study during the study period. We report here the Prevalence of leiomyosarcoma of uterus at Bikaner region.

Results: We received a total of 952 hysterectomy specimens at Department of Pathology during the study period. Out of which 546 were operated and sent with the clinical diagnosis of uterine fibroid. Two patients were diagnosed with histopathological features of leiomyosarcoma which is 0.37% of all uterine fibroids and 0.21% of all hysterectomies at Bikaner region.

Conclusion: Uterine leiomyosarcomas are rare but highly malignant tumors which are difficult to diagnose preoperatively and mostly mimic clinical features of benign uterine fibroids. The leiomyosarcomas show poor prognosis. This makes it important to investigate uterine malignancies histopathologically to rule out leiomyosarcomas so that appropriate treatment can be started early.

Keywords: Uterine leiomyosarcoma, uterine fibroid.

Introduction

Uterine fibroids, also known as leiomyomas, are a significant gynecologic problem, affecting 70–80 % of all women during their reproductive years. These tumors are often symptomatic, producing complaints of abnormal bleeding, pain, and infertility in many of those afflicted. The disease represents a large economic burden for the health care system and significantly affects the quality of life of many with these tumors [1]. Malignant change in a leiomyoma is termed leiomyosarcoma (LMS). It arises from smooth muscle of the uterus and is a rare tumor that accounts for 2% to 5% of all uterine malignancies [2].

Uterine Sarcomas exhibit diverse histopathology and some cases may have a Mullerian duct origin resulting in heterologous histology. The modifications in their classifications have contributed to a gap of knowledge with regard to risk factors, prognosis, and management [3,4]. Based on the latest classification of gynecological malignancies by the World Health Organization in 2014 [5], the main uterine sarcoma types are the following: Leiomyosarcoma, endometrial stromal sarcoma (ESS) and adenocarcinoma. Carcinosarcomas, on the other hand, have

been recently reclassified as a metaplastic form of endometrial carcinoma, and considered for staging and treatment similarly as a high-grade carcinoma. However, this type of malignancy is still frequently analyzed as a sarcoma in association with the previous types [5,6].

They are notorious for their aggressive nature and poor prognosis. The relative rarity of uterine leiomyosarcomas, as well as their pathological diversity, hinders studies aimed at improving understanding of the disease and makes it difficult to define the optimum management.[7] The signs and symptoms like abnormal vaginal bleeding and pain abdomen or mass per abdomen associated with uterine leiomyosarcoma are also present in persons with the more common benign leiomyoma. Despite the performance of a preoperative endometrial biopsy or dilation and curettage in patients with abnormal uterine bleeding and irregular uterine enlargement because of leiomyosarcoma, the diagnosis is not reliably established preoperatively.

Most uterine LMS are solitary, with a mean diameter of 10 cm. Most are located intramurally. Less than 5% of tumours are cervical in origin. When concurrent multiple leiomyomas occur, the malignant lesion is almost always the largest lesion. The border of a LMS is usually

infiltrative or irregular. Instead of the typical whorled appearance of a leiomyoma, the cut surface is usually soft and fleshy, alternating with areas of necrosis and hemorrhage. Uterine LMS are classified into different histologic subtypes, based on cellular characteristics and constituents of the intercellular stroma. Most are of spindle cell type (usual differentiation). Leiomyosarcomas with epithelioid or myxoid differentiations are less common, and their diagnostic criteria are different. Clinically, malignant tumours of these latter differentiations usually show a lesser degree of cytologic atypia and lower mitotic counts. [8]

Methods

This retrospective study is conducted over a period of three year from January 2017 to December 2020 at the Department of Pathology, Sardar Patel Medical College, Bikaner. The Department of Pathology receives tissue samples from PBM hospital, tertiary care center in Bikaner. We report here the prevalence of leiomyosarcoma of uterus at Bikaner region.

All hysterectomy specimens like total abdominal hysterectomy with bilateral salphingo-oophorectomy (TAH with BSO) and vaginal hysterectomies received at Department of Pathology during the study period were included for study. The clinical and relevant data were recorded from requisition form and clinical records.

The specimens received were fixed in 10% buffered

formalin. Gross examination was done and findings recorded. The tissues were sectioned as per protocol and processed by wax block method. Slides were stained with haematoxylin and eosin (H&E) stain and examined under light microscope.

Results

We received a total of 952 hysterectomy specimens at Department of Pathology during the study period. Out of which 546 were operated and sent with the clinical diagnosis of uterine fibroid. Two patients were diagnosed with histopathological features of leiomyosarcoma which is 0.37% of all uterine fibroids and 0.21% of all hysterectomies at Bikaner region. Both patients presented with chief complaints of abnormal uterine bleeding and on radiological investigations had enlarged uteri. Both the patients were in sixth decade of life, one patient was 65 years old whereas other one was 61 years old. Total abdominal hysterectomy with bilateral salphingo-oophorectomy (TAH with BSO) was done in both cases. On gross examination, the uterine corpus was bulky in both the cases with necrotic and hemorrhagic debris filling the cavity of uterus as shown in Image 1 [Image 1]. On microscopic examination both patient no. 1 and patient no. 2 slides showed predominantly spindle shaped cells, moderate to severe nuclear atypia [Image 2] with areas of necrosis and hemorrhages. The tumors also showed high mitotic figures (>10 per 10 HPF).

Table 1: Clinicopathological characteristics of patients with leiomyosarcoma of uterus

Patient No.	Age (years)	Presenting Complaints	Surgical Procedure	Uterus Size
1	65	Abnormal uterine bleeding and mass per abdomen	TAH with BSO	12x7x4 cm
2	61	Abnormal uterine bleeding and mass per abdomen	TAH with BSO	10x8x4 cm

Discussion

Uterine leiomyosarcoma is an uncommon malignancy accounting for approximately 1% of uterine cancer with an estimated annual incidence of 0.64 per 100,000 women. Although leiomyosarcoma can occur elsewhere in the pelvis, including the cervix and urinary bladder, it is more commonly found in the uterus,

as seen in our two cases.[9] Most commonly these tumors occur in women over 60 years of age who usually present with abnormal vaginal bleeding, palpable pelvic mass and pelvic pain.[10] Signs and symptoms resemble those of the far more common leiomyoma and preoperative distinction between the two tumors may be difficult. In the present study both the patients were in their sixth decade of life and presented with AUB and mass per abdomen and pain abdomen, which is consistent with other studies.

Uterine fibroids rarely develop into malignant leiomyomas but leiomyosarcomas frequently coexist within a fibroid uterus and approximately 0.5% of women who have hysterectomies for uterine fibroids are found to have leiomyosarcomas. It is difficult to accurately diagnose leiomyosarcoma before surgery because most women with leiomyosarcoma will have multiple fibroids making it

difficult to know which ones should be biopsied. The incidence of leiomyosarcomas being found in women operated on for presumed uterine fibroids is about 0.5%. [11]

Leibsohn, Steven, et al. (1990) [12] in their study reported that out of total hysterectomies done for benign clinical diagnosis, 10 cases (0.7%) were histopathologically diagnosed as leiomyosarcomas, with ages ranged from 36 to 62 years. The incidence of leiomyosarcoma in their study during each decade of life steadily increased from the fourth to the sixth decade. However, the differences in each decade were not statistically significant. [12] Nisha J Marla et al. (2020)[13] in their study included a total of 246 hysterectomy and myomectomy specimens out of which 243 were diagnosed with benign uterine fibroids and they reported one case (0.41%) of uterine leiomyosarcoma. In the present study we reported the occurrence of leiomyosarcoma to be 0.39% of all uterine fibroids which is slightly lower than the reported occurrence in past studies but not with significant margin. Table 2 summarizes the occurrence of leiomyosarcoma within uterine fibroids in different studies

Table 2: Comparison of past studies done with present study.

S. No.	Study	Hysterectomies samples received	Uterine fibroids	No. of leiomyosarcomas	Prevalence of leiomyosarcoma among uterine tumors
1	Leibsohn, Steven, et al. (1990) [12]	1432	1432	10	0.7 %
2	Nisha J Marla et al. (2020) [13]	246	243	1	0.41%
3	Present Study	952	546	2	0.37%

Conclusion

Uterine leiomyosarcomas are rare but highly malignant tumors which are difficult to diagnose preoperatively and mostly mimic clinical features of benign uterine fibroids. The leiomyosarcomas shows poor prognosis. This makes it important to investigate uterine malignancies histopathologically to rule out leiomyosarcomas so that appropriate treatment can be started early.

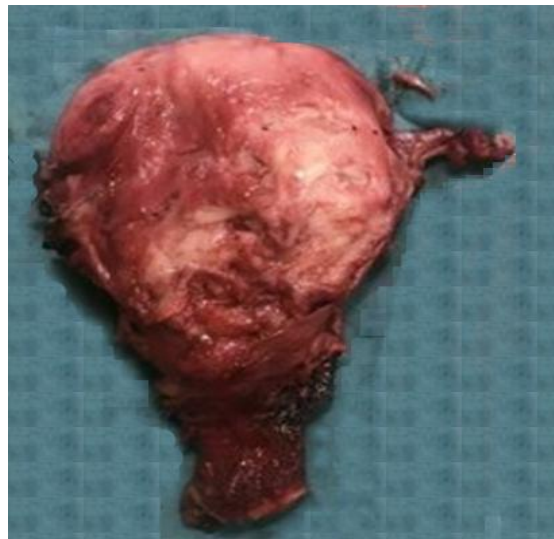
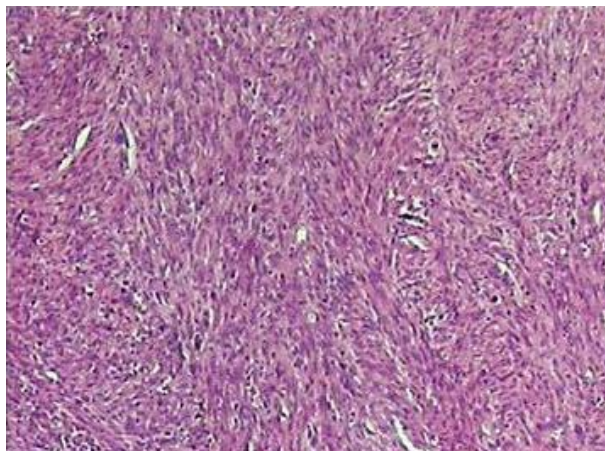
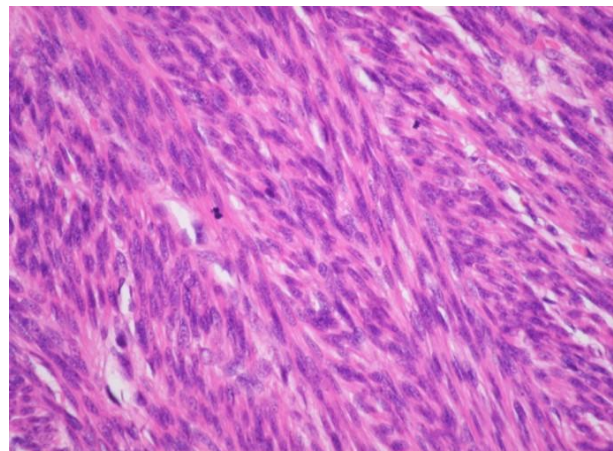


Image 1: Gross appearance of leiomyosarcoma

Image showing enlarged uterine corpus with hemorrhage and necrosis on outer surface



Leiomyosarcoma x100



Leiomyosarcoma x400

Image 2: Microscopic features of leiomyosarcoma Microscopic features showing spindle shaped cells (10x) and on high power (40x) showing pleomorphic nuclei with mitotic figures.

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