

Uterine Leiomyosarcomas: Potentially Deceiving Tumors with Major Consequences

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Abstract

Leiomyosarcomas (LMS) are smooth muscle malignancies that often arise in the uterus de novo and have poor response to chemotherapy¹. This case follows a 62-year-old African American female, who presented with abdominal pain and post-menopausal bleeding for two weeks. Physical exam showed a prolapsing vaginal mass, and the patient underwent a total abdominal hysterectomy with bilateral salpingo-oophorectomy.

Upon gross examination, the uterus contained a large malodorous mass extending from the uterine body through the cervical canal. Upon histologic examination, the patient was diagnosed with conventional uterine leiomyosarcoma with focal lymphatic invasion and a pathologic stage of pT1b. The patient shortly developed pulmonary and osseous metastases and passed away approximately six months after diagnosis. This case highlights the importance of thorough assessment of a specimen to appropriately determine risk of progression.

Background

Leiomyosarcoma

While rare compared to leiomyomas, uterine LMS contributes to many uterine cancer deaths and account for 3-8% of all uterine corpus malignancies.² They typically spread hematogenously and patients present with symptoms like those seen in leiomyoma cases.

Grossly, LMSs are often yellow or tan solitary masses greater than 10cm containing areas of hemorrhage and necrosis. Histologically, these tumors show significant atypia, lymphatic invasion and irregular, infiltrative borders.²

Leiomyoma

Leiomyomas are the most common benign gynecologic tumor. These tumors arise from smooth muscle cells and grow in response to estrogen, and they may present with symptoms such as pelvic pain and abnormal bleeding.³ The most significant risk factor for leiomyomata is African descent.³

Grossly, leiomyomata present as well-defined, firm, white, and whorled nodules.⁴ Histologically, they are composed of monoclonal smooth muscle cells.

Racial disparities in Diagnosis of Leiomyoma and Leiomyosarcoma

Compared to white women, black women are more likely to receive delayed diagnoses and delayed time to first diagnostic procedure related to uterine cancers.⁵ For benign leiomyomas, incidence is much higher in black women in relation to tumor number, tumor size, and severity. Disparities for benign tumors may be related to genetic, environmental, and lifestyle risk factors.⁶

Clinical History

A 62-year-old African American female presented to the Emergency Department with abdominal pain and two weeks of post menopausal bleeding and with the sensation that her "uterus was going to fall out". A non-reducible vaginal mass was found on exam, along with sepsis due to concurrent infections of E. coli and Enterobacter.

Hospital Course

Patient underwent a total abdominal hysterectomy with a bilateral salpingo-oophorectomy with the differential diagnoses including leiomyomata or endometrial carcinoma.

Gross Morphology

The uterus measured 14.5 x 14 x 7.1 cm, with multiple evident subserosal leiomyomata. Upon opening, the endometrial cavity was noted to be completely distorted by leiomyomata, however a large white-tan to grey malodorous mass was identified that was protruding through the cervical canal. The mass was adherent to the myometrium and invaded >50% of the myometrial wall. The myometrium also contained subserosal, intramural, and submucosal white-tan, firm, and whorled nodules ranging from 0.4 to 6.5 cm. The largest nodule contained a central area of necrosis, and others contained calcifications. The ovaries and fallopian tubes were grossly unremarkable.



Figure 1. Gross photos of uterine body, containing a large, grey-tan necrotic, friable mass that is prolapsing through the cervical canal invading the myometrium (arrow), and separate white, whorled nodule. The mass demonstrated areas extending to the uterine serosa.

Figure 2. Cross section of various nodules. The large white-tan, necrotic, and hemorrhagic lesion measured 13.5 cm in greatest dimension (LMS lesion). Additional well-defined, white-tan homogenous nodules were noted throughout the uterus.

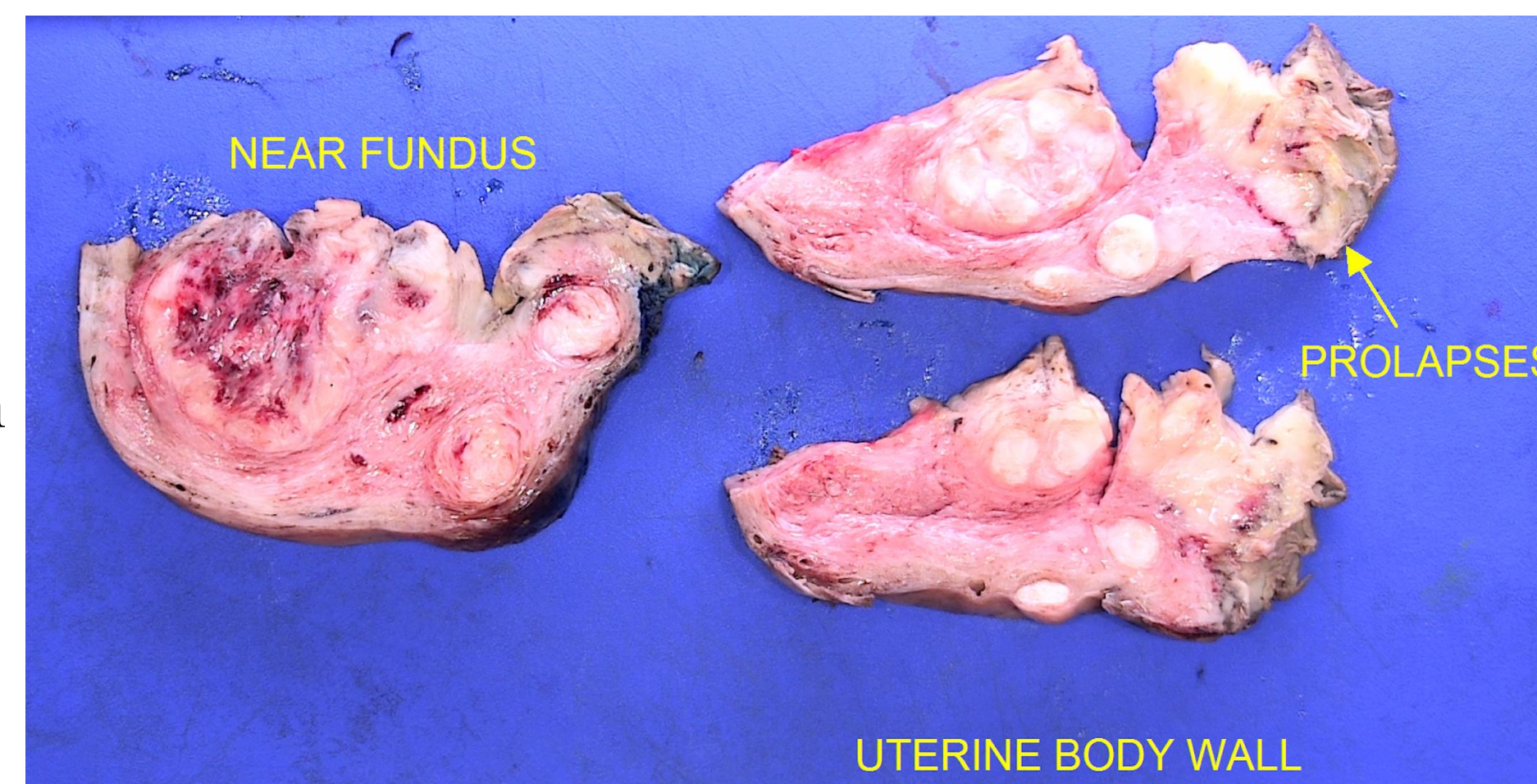
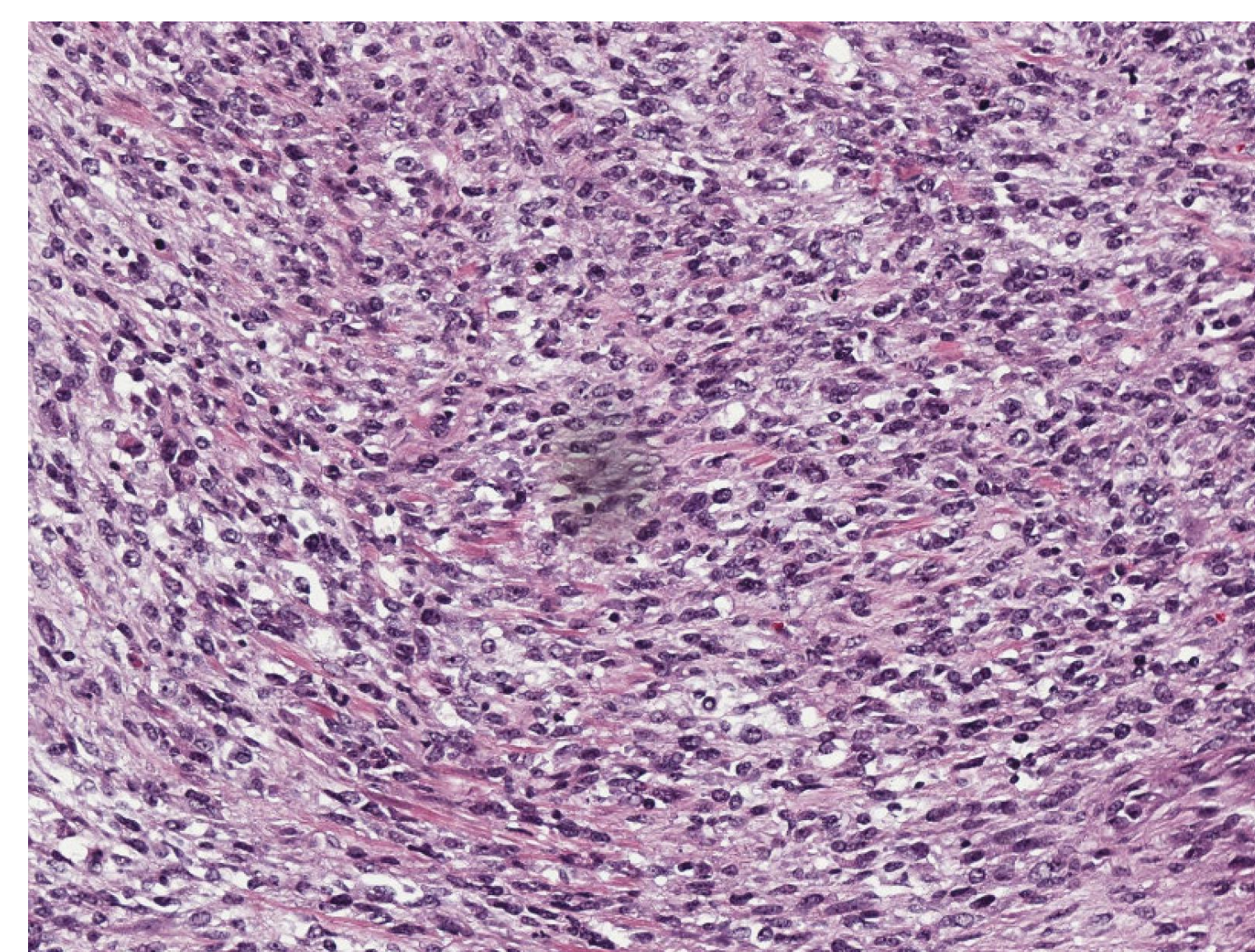


Figure 3. Alternate view of LMS mass. Grossly, almost no normal endometrial tissue present and the malignant mass showing different phases of degeneration. The singular, large, friable lesion is consistent with conventional LMS.

Figure 4. Photomicrograph of invasive mass with atypical cells with abundant mitoses. Lymphovascular invasion was identified. The morphology and immunostaining pattern supported the diagnosis of conventional leiomyosarcoma.



Diagnosis and Staging

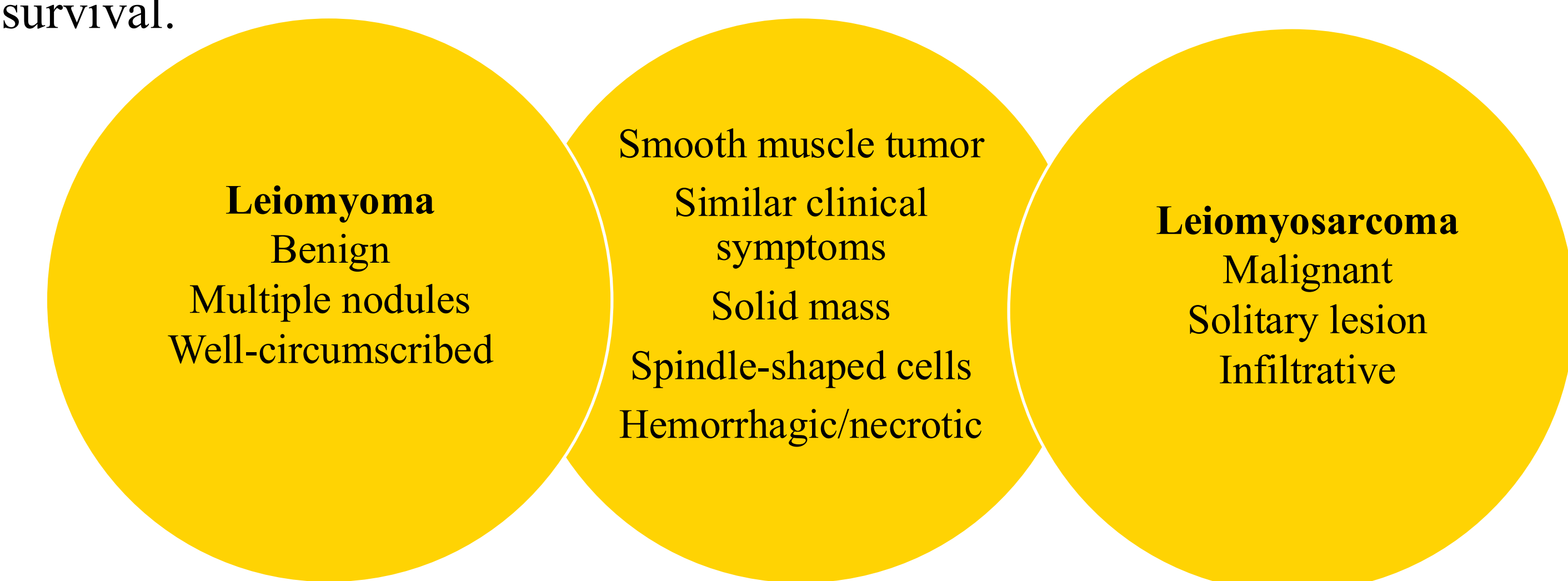
Uterus, Cervix, Bilateral Fallopian Tubes & Ovaries

- Conventional uterine leiomyosarcoma, 13.5 cm.
- Lymphovascular invasion identified.
- Uterine leiomyomata.
- Bilateral fallopian tubes and ovaries with no diagnostic abnormalities

Final Pathologic Stage: pT1b (tumor more than 5 cm in greatest dimension)

Discussion

African American women are at increased risk of developing benign and malignant uterine tumors and should therefore be screened and treated for symptoms of pathologies as soon as they appear. Although there is not extensive research in this area, it is possible that benign processes can become malignant, emphasizing the importance of early detection and treatment of even benign leiomyomas.⁷ In the case of this patient, treatment of her uterine fibroids may have prevented advancement to a malignant lesion. Access to healthcare resources and treatment options could also have been a factor in her disease process. The patient presented to the emergency department after having symptoms for several weeks, giving her malignancy time to become extensive and possibly affect her treatment plan and length of survival.



Conclusion

Racial disparities are a large factor in considering the diagnosis and treatment of women with uterine malignancies and benign uterine tumors. In the case of this patient, had treatment of her uterine leiomyomas been performed at the onset of symptoms, cancer diagnosis and staging may have been reduced at the time of pathologic diagnosis. It is important as a Pathologists' Assistant to dissect and evaluate all pathologies to assure proper sampling and evaluation in a given surgical specimen to assure appropriate patient management.

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