Sudan Journal of Medical Sciences
Volume 18, Issue no. 1, DOI 10.18502/sjms.v18i1.12870
Production and Hosting by Knowledge E

Case Report

A Tale of 5Ms: Massive Uterine Leiomyoma Mimicking Ovarian Malignancy along with Multiple Fibroids displaying Multiple Degenerations

Aakanksha Koul[1], Archana Shetty[1], Nidha Gaffoor[1]*, Nirupama Murali[1], and Nagendra Prasad[2]

[1]1Department of Pathology, Dr. Chandramma Dayananda Sagar Institute of Medical Education and Research, Dayananda Sagar University, Ramanagara, Karnataka, India
[2]Department of Obstetrics and Gynaecology, Dr. Chandramma Dayananda Sagar Institute of Medical Education and Research, Dayananda Sagar University, Ramanagara, Karnataka, India
ORCID:
Nidha Gaffoor: https://orcid.org/0000-0003-1013-7599

Abstract

Background: Leiomyomas are by far the commonest uterine neoplasms in the female reproductive age group. Giant leiomyomas are quite scarce and when longstanding tend to undergo various degenerations owing to decreased blood supply which on imaging may simulate malignancy owing to compromised blood supply and may simulate malignancy on imaging.

Case Presentation: We present a case of a 48-year-old post-menopausal multiparous woman complaining of intermittent lower abdominal pain for a month. Suspected as an ovarian tumor clinically and on ultrasound, this was seconded by raised serum CA125 levels. Histopathological examination gave a definitive diagnosis of a giant uterine leiomyoma along with multiple fibroids exhibiting multiple degenerations.

Conclusion: Degenerated leiomyomas can masquerade malignancy and hence should be one of the first differentials in women of reproductive age group presenting with complex abdominopelvic masses.

Keywords: hyaline, leiomyoma, malignancy, ovary, uterus

Corresponding Author: Nidha Gaffoor; email: nidha.gaffoor@gmail.com

Received 24 February 2022
Accepted 17 November 2022
Published 31 March 2023

Production and Hosting by Knowledge E

Editor-in-Chief:
Prof. Nazik Elmalaika Obaid Seid Ahmed Husain, MD, M.Sc, MHPE, PhD.

OPEN ACCESS

1. Introduction

Uterine leiomyomas are benign mesenchymal tumors of smooth muscle origin usually presenting in the fifth decade of a woman's life [1]. Although monoclonal in origin, when multiple, each myoma originates from an independent myocyte [2]. They may grow into large tumors without producing any symptoms owing to a slow rate of growth, large capacity of the abdomen, and elasticity of the abdominal wall [3]. Superadded secondary degenerative changes like hyaline degeneration, dystrophic calcification, and cystic degenerations are noted as they grow in size [4]. The International Federation of Gynaecology and Obstetrics (FIGO) has broadly classified leiomyomas into three

types according to their location – submucosal (FIGO type 0, 1, 2), intramural (FIGO type 3, 4, 5), and subserosal (FIGO type 6, 7). Type 7 subserosal fibroids are more commonly pedunculated and may mimic ovarian tumors [5].

On ultrasound, leiomyomas are visualized as homogenous masses with hypogenic shadows. Owing to various degenerations and large size, fibroids may appear heterogenous, leading to misinterpretation of malignancy [6]. We present a case of giant uterine leiomyoma which was clinically suspected to be an ovarian malignancy. In addition, multiple fibroids with four types of degenerations were reported in the same case.

2. Case Presentation

A 48-year-old multiparous, post-menopausal woman presented to the gynecology OPD with complaint of lower abdominal pain on and off for a month. There was no other relevant medical/family history. Abdominal examination revealed a firm mobile mass of approximately 20×15 cm in size, the lower border of which could not be delineated. On bimanual examination, the uterus was normal in size with bilateral free fornices. The mass was non-tender and was felt separate from the uterus. Ultrasound abdomen revealed a heteroechoic pelvic mass of size 19×12×17 cm with solid and cystic components and was suspected to be a malignant tumor arising from the ovary (Figure **1**).

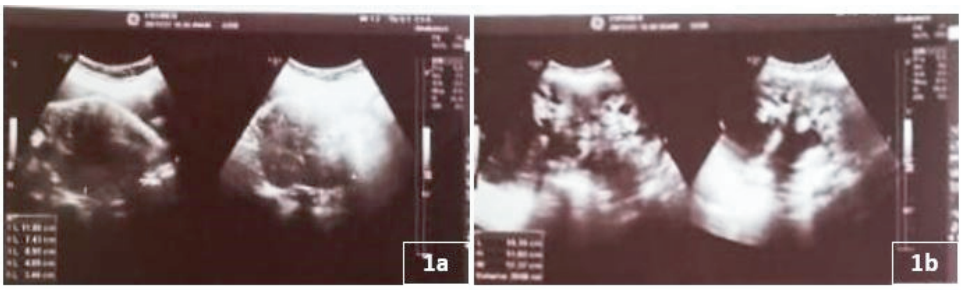

Figure 1: Ultrasound image showing a heteroechoic pelvic mass with solid and cystic areas.

This was followed by a CT scan which showed a large lobulated enhancing mass lesion with necrotic areas in the pelvis, extending into the abdomen, measuring 22×15×13 cm, predominantly arising from left adnexa, suggestive of a malignant ovarian lesion. CA 125 was 210 U/ml. The patient underwent a total abdominal hysterectomy and bilateral salpingo-ophorectomy under general anesthesia. Intraoperatively minimal ascites were noted. Bilateral tubes and ovaries appeared normal. The mass was excised and sent in toto for histopathological examination.

Figure 2: (a) Uterus with adnexa and leiomyoma showing bosselated surface. (b) Cut section showing multiple intramural fibroids with cystic cavitation (arrow head) and calcifications (arrow). (c) Cut section of giant degenerated fibroid measuring 25x20x13 cm with solid and cystic areas.

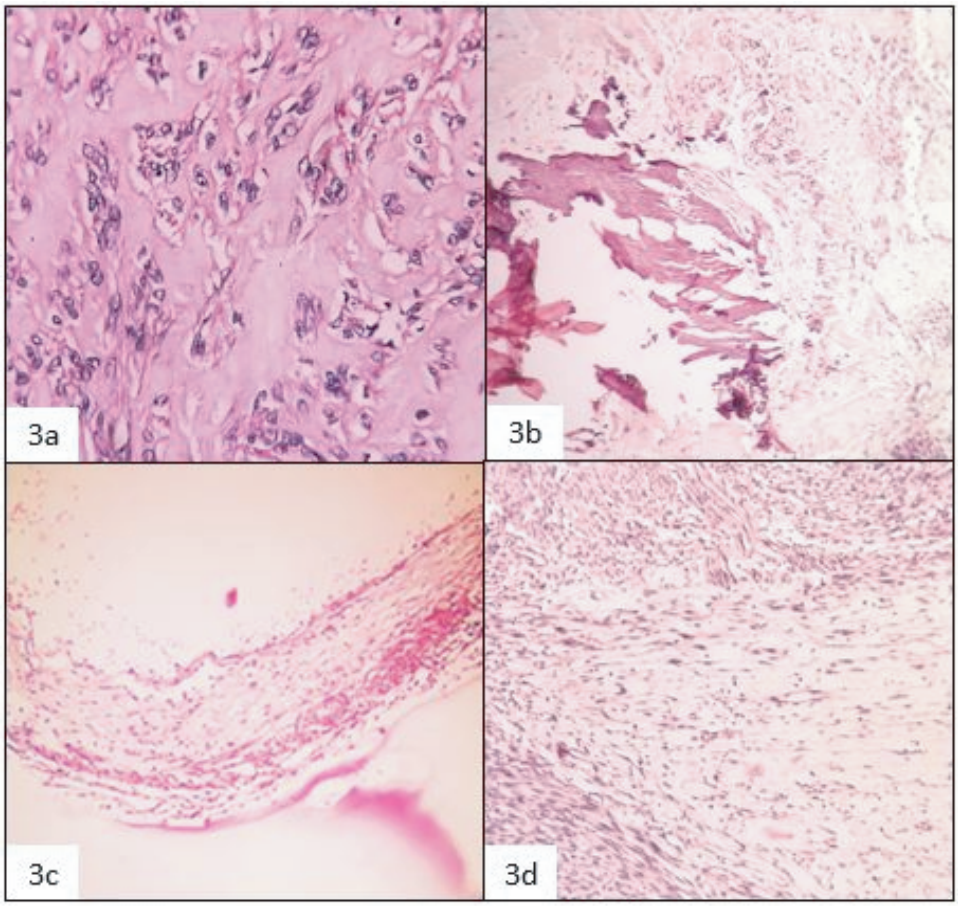

Figure 3: Microscopic image of fibroids showing different types of degenerations (a – Hyaline change [H&E,×400], b – foci of calcifications [H&E, ×100], c – cystic change [H&E, ×400], d –myxoid change [H&E, ×100]).

On gross examination, uterus with cervix measured 13.5×9.5×8 cm. The endometrium was compressed by multiple intramural and subserosal fibroids, some of which were gritty to cut. Bilateral adnexa appeared unremarkable. The suspected pedunculated giant mass was seen attached to the fundus of the uterus and measured 25×20×13 cm and weighed 4.5 kg (Figure **2**a). On cutting open 1.5 liters of mucinous

fluid was drained. The cut surface was variegated showing solid and cystic areas with septations (Figures 2b & 2c). No necrotic or hemorrhagic areas were noted.

Sections from the ovaries and fallopian tubes were histologically unremarkable. Sections from the largest mass and the smaller uterine fibroids showed features of leiomyoma with secondary degenerative changes of hyaline, myxoid, and cystic nature along with calcifications in the smaller fibroids (Figures 3a–3d). The patient had an uneventful postoperative stay after which she was discharged.

3. Discussion

Leiomyomas or fibroids are the commonest benign neoplasms and the commonest indication for hysterectomy within the reproductive age group in India [1]. Its prevalence ranges from 4% in 20–30 year-olds, 11–18% in 30–40 years, and approx. 33% in 40–60 years [7]. The patient in our case presented in her fourth decade. Although the underlying pathogenesis is unclear, various associated risk factors like genetic changes, family history, race, premenopausal women, and hypertension have been described [1].

The first differential diagnosis of a large abdominopelvic mass with both solid and cystic components on imaging is an ovarian malignancy, which can be ruled out by visualizing both ovaries on ultrasound [8]. On ultrasound, fibroids normally present as heterogenous/homogeneous hypoechoic mass [6]. Our case, however, presented as a heteroechoic mass with solid and cystic components. Origin was also not visible as adnexa were obscured owing to the huge size of the mass. The presence of solid and cystic spaces with internal septations and calcifications are deceptive features that probably made the radiologist consider an ovarian malignancy. Ovarian vascular pedicle signs in a CT scan can be used as a differentiator to confirm an ovarian mass over subserosal fibroid on a CT scan [6]. In our case, the CT scan revealed a large lobulated enhancing mass lesion with a necrotic mass arising from the left adnexa, suggestive of a malignant ovarian lesion. The pedicle sign could not be visualized.

Few reports suggest MRI to be very useful in detecting fibroids with cystic degenerations when adnexae are not clearly visualized on ultrasound. Maizlin *et al.* presented a case where ultrasound findings pointed toward an ovarian tumor, but MRI diagnosed it to be a fibroid with cystic degenerations [6]. Other differentials of leiomyomas with both solid and cystic components include endometriosis, cystic teratoma, mesothelioma, mesenteric cyst, lymphangioma, etc. [8].

Biomarkers do play an important adjunct role in the diagnosis of ovarian malignancies. CA125 is a glycoprotein expressed by ovarian epithelial cells and a common biomarker

used in the workup of ovarian neoplasms. It helps in diagnosis, framing treatment protocol, and prognosis. A combined panel of TK1, HE4, and CA125 provide a better idea of the risk of ovarian malignancy. Raised CA-125 however may also be seen in other benign and malignant gynecological disorders [9]. In our case, the raised level of CA125 supported by ultrasound findings might have added on the suspicion of malignancy.

Giant leiomyomas are not very common. To date, less than 100 cases of giant leiomyomas have been reported as per a literature search. In 1888, the largest leiomyoma was reported which weighed 63.3 kg [10]. As fibroids enlarge in size, they tend to outgrow their blood supply leading to ischemia and degeneration. Approximately, 65% of leiomyomas undergo degeneration, the most common being hyaline degeneration (63%), followed by myxoid (19%), calcification (8%), cystic degeneration (4%), fatty change (3%), and red degeneration (3%) [6]. Cystic degenerations are said to represent long-standing hyaline degenerations that have undergone liquefaction [11]. They are very rarely associated with myxoid degenerations as in our case. Decreased blood supply leads to ischemia, followed by necrosis which may lead to calcification [4]. The multiple degenerations seen in our case points out to probability of long-standing fibroids, sequentially undergoing various spectrum of degenerations. Long-standing fibroids may undergo a malignant sarcomatous change in 0.1% of cases [4].

Genetic studies point to different pathways by which fibroids develop. Reports say that around 50% of these tumors bear specific chromosomal aberrations like trisomy 12, a reciprocal translocation between chromosomes 12 and 14, and monosomy 22. Such rearrangements may be responsible for the initiation, growth, as well as genetic heterogeneity observed histologically in these tumors. MED 12 negative genotypes are likely to be associated with the development of larger fibroids, suggesting it to be a negative controller of tumor growth [3]. Further molecular analyses would help identify putative candidate genes in uterine leiomyomata formation which may facilitate the prediction of genetic risks and patient management by appropriate therapeutic measures [12].

4. Conclusion

Giant uterine leiomyomas with extensive cystic degeneration can mimic ovarian malignancy clinically and radiologically, especially when the origin is unclear. It is imperative to consider degenerated leiomyoma as a differential in cases of abdominopelvic masses with raised CA125. Histopathological examination is decisive and can often reveal multiple unsuspected findings on histopathology.

Acknowledgements

Nil.

Ethical Considerations

A consent form was signed by the patient.

Competing Interests

None declared.

Funding

Nil.

References

[1] World Health Organization. (2020). Tumors of uterine corpus: Mesenchymal tumors of uterus. In *Female genital tumors – WHO classification of tumors*. 5th Ed. Geneva: WHO.

[2] Rajshree, D. K., Pushpa, C., & Sonia, A. (2021). Giant uterine leiomyoma (5 kg) with bunch of 45 fibroids: A challenging case during covid-19 pandemic. *Obstetrics & Gynecology International Journal*, *12*(4), 199–201.

[3] Gayathre, S. P., Sivakumar, T., Aashmi, C., & Prashanth. (2021). Giant uterine fibroid: A rare differential diagnosis for an abdominopelvic mass. *International Surgery Journal*, *8*(11), 3475–3478.

[4] Renuka, M., & Garima, A. A large cystic degenerating broad ligament leiomyoma masquerading as ovarian malignancy! *Journal of Case Reports*, *5*(2), 486–489.

[5] Christopher, W., Kaitlyn, B., Courtney, R., & Christopher, K. (2020). Laparoscopic management of a degenerating cystic leiomyoma imitating an ovarian cyst: A case report. *Case Reports in Women's Health*, *27*, e00205.

[6] Prabhu, J. K., Sunita, S., Shanmugapriya, C., Divya, S., & Shanmugapriya, R. (2021). A massive degenerative leiomyoma mimicking an ovarian tumor: A diagnostic dilemma. *Journal of Gynecologic Surgery*, *37*(1), 67–69.

[7] Mallick, D., Saha, M., Chakrabarti, S., & Chakraborty, J. (2014). Leiomyoma of broad ligament mimicking ovarian malignancy – Report of a unique case. *Kathmandu University Medical Journal*, *47*(3), 219–221.

[8] Samardjiski, I., Petrushevska, G., Simeonova Krstevska, S., Paneva, I., Livrinova, V., Todorovska, I., Ilieva, M. P., Dimitrovski, S., & Nikoloska, K. (2021). Rare concomitant myxoid and cystic degeneration of uterine leiomyoma - Case report. *Scripta Medica*, *52*(3), 235–238.

[9] Moss, E. L., Hollingworth, J., & Reynolds, T. M. (2005). The role of CA125 in clinical practice. *Journal of Clinical Pathology*, *58*, 308–312.

[10] Kalyan, S., & Sonam, S. (2018). Giant uterine leiomyoma: A case report with literature review. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, *7*(11), 4779–4785.

[11] Yorita, K., Tanaka, Y., Hirano, K., Kai, Y., Arii, K., Nakatani, K., Ito, S., Imai, T., Fukunaga, M., & Kuroda, N. (2016). A subserosal, pedunculated, multilocular uterine leiomyoma with ovarian tumor-like morphology and histological architecture of adenomatoid tumors: a case report and review of the literature. *Journal of Medical Case Reports*, *10*(1), 352.

[12] Välimäki N, Kuisma H, Pasanen A, Heikinheimo O, Sjöberg J, Bützow R, Sarvilinna, N., Heinonen, H. R., Tolvanen, J., Bramante, S., Tanskanen, T., Auvinen, J., Uimari, O., Alkodsi, A., Lehtonen, R., Kaasinen, E., Palin, K., & Aaltonen, L. A. (2018). Genetic predisposition to uterine leiomyoma is determined by loci for genitourinary development and genome stability. *Elife*, *7*, e37110.