

A Giant Uterine Vascular Leiomyomatosis; A Rare Cause of Menometrorrhagia

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ABSTRACT Uterine angioleiomyoma is a rare type of leiomyoma originating from smooth muscle cells, containing thick-walled vessels. These tumoural lesions of mesenchymal origin can develop from all smooth muscle-containing tissues. The etiology of angioleiomyomas is still unclear. There are only a few cases of uterine intramural angioleiomyoma reported in the literature. Herein, we present the ultrasonographic and histopathological findings of a symptomatic patient with a pelvic intramural uterine angioleiomyoma, which clinically caused severe anemia.

Keywords: Uterus; angiomyoma; metrorrhagia; anemia

Intravenous leiomyomatosis is a benign tumour of smooth muscle cells that develops inside the veins. It generally originates from the uterus and grows towards the pelvic veins and the inferior vena cava. It rarely reaches the right ventricle or atrium region of the heart.¹ Although this tumour is considered as a vascular hamartoma, it is reported that mechanical and hormonal factors are present in the pathogenesis.^{2,3} Our case, which was histopathologically diagnosed as intravenous leiomyomatosis limited to the myometrium, was discussed in the light of the literature.

CASE REPORT

A 32-year-old, married, gravida 4, parity 2, abortus 2 case who had menstrual irregularity as menometrorrhagia (uterine bleeding for up to 15 days each menstrual period) for 2 years, was admitted to our clinic due to gradual increase of residual bleedings and fatigue. The patient was hypotensive (BP: 80/40 mmHg), had tachycardia (128/min) and of pale appearance, and the uterus was of 16 weeks size, and on the vaginal ultrasonography, a 13x12 cm-sized mixed echoic fibroid nucleus was visualized (Figure 1). In the laboratory examinations, the hemoglobin value was measured as 4.5 g/dl as severe anemia due to bleeding. An operation was planned following recovery of the case's blood values and vital signs following replacement treatment. Preoperatively, a fibroid nucleus close to the uterine posterior surface at the fundal region with approximately 15 cm diameter was visualized. During enucleation, the mass was observed to possess finger-like extensions and partial vascular vegetating small protrusions. As a result of intraoperative pathol-

ogist consultation, the lesion was suggested to be IVL (Intravascular Leiomyomatosis) or Uterine Carcinosarcoma (very low probability). The patient wished to retain her fertility and hence, myomec-tomy was performed with appropriate enucleation (according to the request of the patient).

On the macroscopic examination of the myoma material, there was a 14x10x6.5 cm-sized myomatous nodule (Figure 2). In the very thin myometrial serial sections performed around the large nodule, worm-like lesions of myomatous charac-ter, however, a bit softer, drew attention inside the vascular structures. On the microscopic examina-tion, the myomatous nodule was visualized as vein-rich slightly. In the slices of the worm-like lesions inside the vascular structures, arteriovenous mal-formation-like proliferation including a smooth muscle component inside the endothelium-lined spaces drew attention (Figure 3).

The distinction of intravenous leiomyomato-sis from endometrial stromal sarcoma and vascular invasion showing leiomyosarcoma is important. In our case, the typical smooth muscle morphology visualized in Hematoxylin-Eosin (HE) slices and the immune histochemical staining characteristics did not create difficulty in differentiating it from stromal sarcoma. Leiomyosarcoma was not consid-ered in the differential diagnosis, since there was no atypia, no increased mitotic figure and no necrosis observed in any areas of the several slices. The arteriovenous malformation-like appearance visualized in the HE slices belonging to intravas-cular lesions is important for intravascular leiomy-

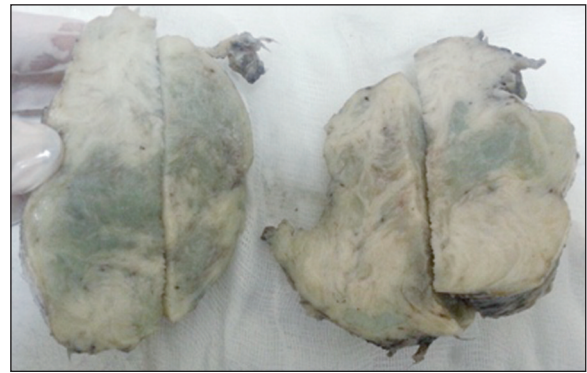


FIGURE 2: Macroscopic view of postoperative vascular leiomyoma.

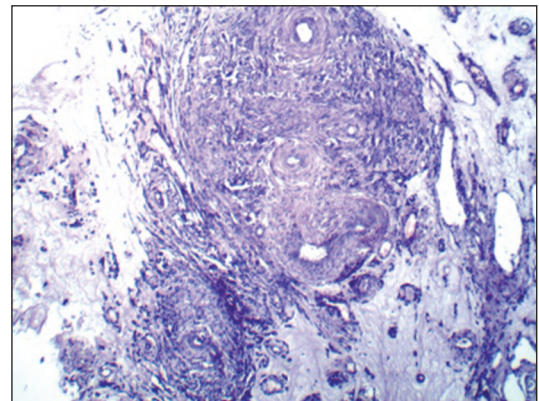


FIGURE 3: Histopathological appearance of vascular leiomyoma (H&Ex10).

omatosis and it can have differential significance in cases that are not detected on gross examina-tion. There was no pathological finding on the pelvic examination, pelvic Doppler investigation and echocardiographic imaging at the post-opera-tive second month of the regularly followed-up case. The case was informed about the annual rou-tine gynecological follow-up examination.

DISCUSSION

Angioleiomyomas are very rarely observed, gener-ally asymptomatic and slow growing benign tumours.⁴ These tumors can develop from any organ possessing smooth muscle tissue. The etiology of angioleiomyoma is still unclear. Recently, sex steroid receptors have been immunohistochemi-cally detected in leiomyomas. Angioleiomyomas are tumors that are generally smaller than 2 cm, regularly contoured and contain white-gray nod-ules. However, the tumour was 15 cm in size, but

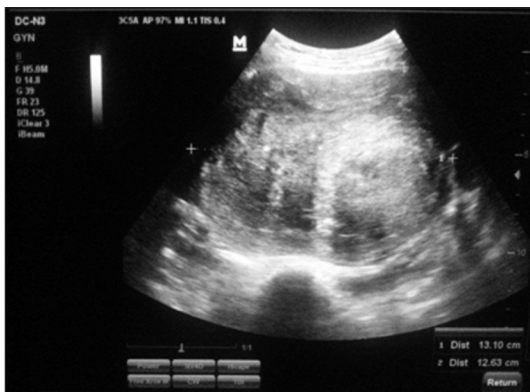


FIGURE 1: Ultrasonographic view of vascular leiomyoma.

was regularly contoured and contained white-gray nodules on the surface in the pathology of our case, too. These tumors originate from the muscularis media layer of the vascular structure.⁵ They have 3 subgroups, namely solid, venous and cavernous. The solid type is the most common type.⁶ While calcification, myxoid changes and hyalinization are often available in these tumors, atypia is rarely observed. Malignancy must certainly be suspected in case of observation of atypia. The most important indication for this tumour to be benign is the absence of mitosis.⁵

The first step diagnostic tool is ultrasonography. However, in most cases, the distinction between benign and malignant cannot be made. A specific computer tomography (CT) image of this tumor is not available. It is known that magnetic resonance imaging (MRI) is more specific for soft tissue tumours. These lesions are generally observed to be surrounded with a hypointense fibrous capsule on MRI.⁷ Definitive diagnosis is made histopathologically.

In the differential diagnosis, benign leiomyomas that can metastasize, leiomyomatosis dissemination to the peritoneums, atypical unusual leiomyoma, endometrial stromal sarcoma and leiomyosarcoma with vascular invasion should be considered.⁸⁻¹⁰

Although the actual origin of the tumor is not precisely known, two theories have been proposed. The first one is explained with the invasion of a leiomyoma into the vascular area and the other one is explained as a *de novo* development from the smooth muscles inside the myometrium.

Approximately 130 cases have been reported up to date since the first report by Birch-Hirschfeld in 1896.¹¹ Cardiac involvement was detected in 29 cases. The characteristic of this uncommon smooth muscle tumour is its polypoid extension inside the parametrium and the broad ligament veins. Although it is difficult to discriminate these types of lesions from low-grade sarcomas here, since the intravascular plugs are smooth muscle in origin, clear distinction is easily made histologically from stromatosis uteri. Edwards and Peacock reported 32 in-

travenous leiomyomatosis cases in 1966.¹² Roughly, in 50% of these cases, the intravenous tumor is localized in the parametrium; in 75%, they do not extend further than the broad ligament veins.¹² Based on these observations, they reported that in severe invasion, the independent parasitic invasion capacity was insufficient and they continued to remain silent after removal of the uterus.¹² However, this view is not mutually accepted. The primary approach in IVL treatment is excision of hysterectomy and extra uterine excision as far as the tumours permit. In tumours that cannot be fully resected, use of anti-estrogenic agents may provide benefit.¹³ Arinami et al. reported that more appropriate results could be provided in the extraction of intra-cardiac extended or intravenously invaded cases, of both primary tumour and these extensions at the same session with cardiopulmonary by-pass.¹⁴ Since the tumour is hormone-dependent and for this reason, there is the probability of increase of recurrence, salpingo-oophorectomy can be added to the operation in appropriate cases. According to the literature, the follow up of these cases should be long.^{1,14} The cases should be followed-up with ultrasound or magnetic resonance methods in the post-operative period periodically in order to detect recurrence or residual tumour.¹³ It is especially highly typical to see a mass in the inferior vena cava and the heart on magnetic resonance imaging.¹⁵ In suspected cases of cardiac spread, echocardiography and transesophageal echocardiography should be requested, and should there be pelvic involvement, it should be followed-up with pelvic Color-Doppler Ultrasonography in the early stage.

For successful surgical treatment, the tumour needs to be removed totally. Patients who live for several years are reported even after incomplete resection of the tumour. Although the recurrence after incomplete surgery has been reported as 75%, the 5-year-survival after excision of the recurrent tumor is 100%.¹⁰ In our case, severe anemia had developed due to excessively increased menstrual bleedings and surgical excision was applied under appropriate conditions for definitive diagnosis and treatment purposes. Prognosis is quite good in almost all patients. Total recovery is achieved in most

of the cases with hysterectomy. Prognosis is good in all of the intravenous tumors although metastasis remains. Despite this, 30% of the cases develop recurrence. Pelvic recurrence is not commonly observed and surgical excision is not possible in most of the times. The residual tumor can remain silent or show progression. Recurrence mostly develops in those not undergoing bilateral salpingo-oophorectomy, and this supports the opinion that the tumor is hormone-dependent.

CONCLUSION

Consequently, the diagnosis of this special tumour that is rare, histopathologically benign, but with a malignant behavioural pattern, its treatment and follow-up are somewhat different. Intravenous leiomyomatosis should be kept in mind in the differential diagnosis; it should be determined whether or not there is invasion to the veins or the heart, and the cases should be followed-up closely.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Özer Birge; **Design:** Özer Birge, Ertuğrul Gazi Özbey; **Control/Supervision:** Özer Birge, Ertuğrul Gazi Özbey; **Data Collection and/or Processing:** Özer Birge, Ertuğrul Gazi Özbey, Mehmet Adıyeke; **Analysis and/or Interpretation:** Özer Birge, Ertuğrul Gazi Özbey, Fevzi Bedir; **Literature Review:** Özer Birge, İlkan Kayar, Fevzi Bedir, Feyza Demir; **Writing the Article:** Özer Birge, Ertuğrul Gazi Özbey, İlkan Kayar, Mehmet Adıyeke; **Critical Review:** Özer Birge, Feyza Demir, Fevzi Bedir; **References and Fundings:** Özer Birge, Ertuğrul Gazi Özbey; **Materials:** Özer Birge, Feyza Demir, İlkan Kayar, Mehmet Adıyeke, Fevzi Bedir.

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