A giant aggressive angiomyxoma of vulva in a young woman

A case report

Yao Xie, MM\textsuperscript{a}, Yanping Qian, PhD\textsuperscript{b}, Bingyu Zou, MM\textsuperscript{a,*}

Abstract

Rationale: Aggressive angiomyxoma (AAM) is a rare and benign invasive mesenchymal stromal tumor predominantly in women at reproductive age. AAM tends to relapse locally and should be differentially diagnosed from other mesenchymal tumors.

Patient concerns: We report here a rare case of massive vulvar AAM in a 22-year-old Chinese woman with left labia majora mass with ulcer.

Diagnoses: The diagnosis “aggressive angiomyxoma of vulva” was based on clinicopathologic and immunohistochemical features.

Interventions: A surgery with local excision of the mass was performed.

Outcomes: The patient was discharged 12 days after the surgery. There was no AAM recurrence or metastasis in a period of 12-month follow-up.

Lessons: The vulvar AAM is a benign and aggressive mesenchymal tumor. In this case, we present the diagnosis, treatment, and prognosis for vulvar AAM. The tumor was removed completely by the surgery, but a long-term follow-up is requisite for surveilling on recurrence.

Abbreviations: AAM = aggressive angiomyxoma, ER = estrogen receptor, HE = hematoxylin and eosin, Hsp = hot-shock protein, SMA = smooth muscle actin.

Keywords: aggressive angiomyxoma, vulva, mesenchymal tumor

1. Introduction

Aggressive angiomyxoma (AAM) was 1st described in 1983\textsuperscript{[1]}.

AAM occurs very rarely and is an aggressive mesenchymal tumor. AAM has poor long-term prognosis. AAM could appear in vulva, perineal region, buttocks, or pelvis in women at reproductive age. AAM tends to relapse locally and should be differentially diagnosed from other mesenchymal tumors. A few of recent studies suggest that AAM may be associated with chromosome alteration in 12q13-15 region\textsuperscript{[4,5]} and aberrant HMGIC (DNA architectural factor gene) expression induced by chromosomal translocation t(8;12).\textsuperscript{[6]} Here, we report a case with a giant vulvar AAM and describe the treatment procedure for the patient, together with a literature review on AAM.

2. Case report

A 22-year-old female (gravida 0, para 0) was presented with a giant solid mass on the left vulva with pruritus for 4 years. The vulva mass was small (about 0.5 cm × 0.3 cm) with slight pruritus. No treatment was given because she did not pay attention to it at the beginning. The mass was growing and increasing in size slowly, without fever, redness, secreta, dysmenorrhea, burning sensation, bleeding, abdominal pain, perineum pain, dysuria, difficulty in defecation, or other symptoms. She did not visit the hospital because of self-consciousness until she found ulcers on its surface. She had no history of surgery, inflammatory disease, medications, or trauma and her family history was unremarkable. The mass was long, irregular shaped, well-circumscribed, pedunculated, soft, spongy in consistency, and nontender. The size of the mass was about 30 cm × 20 cm with a pedicle of 8 cm × 2 cm. The pedicle extended from the middle left vulva to perineal body with several ulcers on the surface (Fig. 1A). No enlarged inguinal lymph nodes were palpated bilaterally. Bimanual examination revealed that no nodules appeared on vaginal, cervix, uterus, or bilateral accessory. Surface body ultrasound showed that several vessels were observed in the perineum of the mass with a sign of rich blood flow signal. There was also a slight blood flow signal in its...
distal internal of the mass. No abnormality was found in the pelvic and abdominal cavity in enhanced magnetic resonance imaging, transvaginal ultrasound, or the examination of tumor biomarkers like carcinoembryonic antigen CA125 and CA199 or alpha-fetoprotein. Of note, hot-shock protein 90 (Hsp90) rose to 134.20 ng/mL out of a standard range of 0 to 82.06 ng/mL. 

The patient underwent surgical excision of the mass. The histopathologic examination of the resected mass confirmed the diagnosis of AAM. Blood vessels with various sizes and thick walls were found in hematoxylin and eosin (HE) staining. No hemorrhagic or necrotic areas were observed. The tumor was composed of small spindle and stellate fibroblasts and mitotic cells were absent (Fig. 2). The stromal tissues had bland cells mingled with myxoid background and thin-walled capillaries. In immunohistochemistry assay, the tumor cells were positive for estrogen receptor (ER), α-smooth muscle actin (SMA) and vascular marker CD34 but were negative for cytokeratin (CK), progesterone receptor (PR), S-100, β-catenin, myogenin, and desmin. The cell proliferation marker Ki67 accounted for about 2% of total cells (Fig. 3). The patient was discharged 12 days after a surgery with satisfactory outcomes. No evidence of recurrence or distant metastasis was observed during the 12-month follow-up period (Fig. 1B).

3. Discussion

The AAM mainly occurs on the vagina, vulva, pelvic cavity, perineum, hips, and crissum in reproductive female aging from 30 to 40 years old. Occasionally, AAM may occur in men. The morbidity rate of male versus female is about 1:6.1,8 AAM is aggressive due to its nature of local infiltration and recurrence.9 The rate of AAM relapse varies from 35% to 72%.10

The AAM diameter ranges from 2 to 60 cm with an average of 12.7 cm.11 AAM may or may not have envelope and present in a spherical or leaf-like shape. AAM is either soft or hard, or possesses a finger-like protrusion to neighboring tissues in some cases. In HE staining, the tumor cells are spindle or star-shaped, among in the mucus interstitial background with unclear
A large number of blood vessels are disordered and scattered randomly in AAM. Blood vessels with a middle size have thickened walls and do not appear to be in an anastomosis. There is no reticular vascular formation. The diameter and thickness of vascular tube range from fine arteries to larger arteries. The eosinophilic spindle cells are often tightly or loosely bunched around blood vessels.\(^{[12]}\)

The AAM predominantly occurs in the perineal and pelvic regions, which leads to a possible misdiagnosis as Bartholin gland cyst or hernia.\(^{[13]}\) Moreover, AAM is also difficult to distinguish from angiomyxofibroblastoma due to similar morphology.\(^{[14,15]}\) Therefore, the diagnosis of AAM should be based on both clinical features and histologic pathologies. The tumor maker CEA, CA125, or CA199 is normal in the complete blood count, which is consistent with the previous finding.\(^{[16]}\) In this case, the Hsp90 level was elevated, consistent with the role of Hsp90 playing an essential role in cancer and being also correlated with poor prognosis in cancer.\(^{[17–19]}\) To some extent, it seems that AAM possesses potentially malignant or a tendency of regrowth. At gene expression level, AAM has a positive expression of vimentin, SMA, MSA, desmin, CD34, F8, ER, PR,\(^{[20]}\) and negative expression for S-100, CK, and CD68.\(^{[21,22]}\) This suggests that AAM is characterized by differentiation into fibroblasts and muscle fibroblasts.

The surgical removal of the tumor is the main treatment for AAM. Drug therapy, such as GnRH agonists, possesses therapeutic effect such as shrinking AAM or retarding its recurrence as an adjunct therapy in some cases. Since ERs or PRs are commonly positive in AAM, targeting ERs or PRs may be used as a potential therapeutic target.\(^{[23–25]}\) Other treatment method such as vascular embolism (ER and PR positive) may be used as adjuvant therapy, while radiotherapy and chemotherapy have an undefined and limited role. Given that its characteristics of aggression and relapse, appropriate management and long-term follow-up are necessary.

In conclusion, in this case, AAM is a locally benign and aggressive mesenchymal entity and the surgical removal of the solid mass cures the AAM without a sign of recurrence during 12-month follow-up. A long-term surveillance is further required for this treated patient with AAM.

**Author contributions**

**Conceptualization:** Yao Xie, Bingyu Zou.

**Data curation:** Yao Xie, Yanping Qian, Bingyu Zou.

**Formal analysis:** Yao Xie, Yanping Qian.

**Funding acquisition:** Bingyu Zou.

**Investigation:** Yao Xie, Yanping Qian.

**Methodology:** Yao Xie, Yanping Qian.

**Project administration:** Yao Xie, Bingyu Zou.

**Resources:** Yao Xie, Yanping Qian, Bingyu Zou.

**Supervision:** Bingyu Zou.

**Writing – original draft:** Yao Xie, Yanping Qian.

**Writing – review & editing:** Bingyu Zou.

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**Figure 3.** The immunohistochemistry of aggressive angiomyxoma. The cells are positive for estrogen receptor, CD34, Ki67, and smooth muscle actin (×200).
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