
CASE REPORT

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AGGRESSIVE ANGIOMYXOMA OF SUPRACLAVICULAR FOSSA: A CASE REPORT

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Abstract: *Background.* Aggressive angiomyxoma (AAM) is a rare myxoid mesenchymal tumor that occurs almost exclusively in the adult pelvic-perineal region and predominantly in females. Only 1 case of AAM occurring outside this region has been reported. Here we report another such case.

Methods. The patient was referred for evaluation of a firm nonmovable mass of the supraclavicular fossa that had progressively enlarged within the previous year. MRI showed an infiltrative growth pattern with adhesion to adjacent anatomic structures. Wide excision was attempted, but a clear margin could not be achieved.

Results. The histopathology revealed characteristic features of AAM, including stellate to spindle-shaped tumor cells set in a myxoid background, with hyalinizing thick-walled vessels and characteristic immunophenotype.

Conclusion. Accurate diagnosis and a definite surgical margin are crucial because AAM is locally aggressive and easily recurrent. Our case deserves attention because it shows that AAM may exist in the head and neck. ©2008 Wiley Periodicals, Inc. *Head Neck* 30: 821–824, 2008

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Aggressive angiomyxoma (AAM) is a rare myxoid mesenchymal tumor of fibroblastic/myofibroblastic origin that predominates in the pelvis and perineum of reproductive women, as originally proposed by Steeper and Rosai in 1983.¹ Male cases of AAM were also documented in analogous sites of the inguinoscrotal region including scrotum, spermatic cord, inguinal soft tissue, and the perianal, perineal, and pelvic regions.^{2–6} The tumor was thought to be locally recurrent only. However, 2 recent case reports documented rare metastases, even resulting in death.^{7,8} Unusual case in which the tumor had features consistent with AAM and occurred in the head and neck region was also recently reported.⁹ Together with our case, accumulation of these unusual cases may lead to a reappraisal of the nature of AAM and to the awareness that topographically AAM may occur outside the pelvic-perineal region.

CASE REPORT

A 48-year-old man was referred to our hospital because of a right supraclavicular mass that had

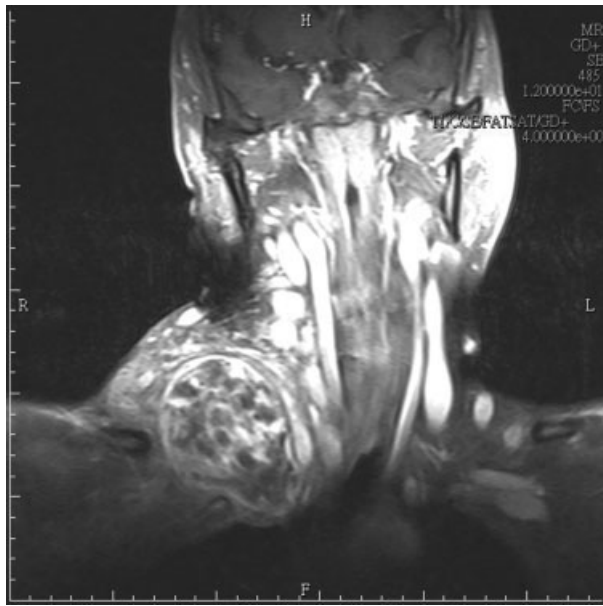


FIGURE 1. Contrast-enhanced T1-weighted MR image with fat saturation reveals a heterogeneous mass involving the right supraclavicular and infraclavicular fossa, leading to compression and displacement of adjacent vessels.

progressively enlarged during the past year. There was no significant history of illness. On physical examination, the tumor nodule was firm, nontender, not movable, and measured approximately 12 cm × 10 cm in dimension. MRI revealed a relatively defined mass with irregular border in the right lower neck, involving the supra- and infra-clavicular fossa (Figure 1). Infiltrative growth had compressed and displaced the adjacent trachea and large vessels, including the carotid artery, jugular vein, and right supraclavian artery and vein.

Preoperative biopsy showed microscopically stellate to spindle-shaped tumor cells in a background of loosely myxoid stroma with vessel proliferation, which was suggestive of AAM. Wide excision was attempted. Intraoperative findings disclosed a poorly circumscribed, lobulated mass with fibrosis and adhesion to the surrounding large vessels, nerves, clavical bone, and pleura. The lower pole of the tumor extended to the apex of chest wall. The cut surface of the main tumor was brown-pink in color, gelatinous in texture, and myxoid in appearance (Figure 2). Morphological features in sections of the final wide excision were similar to those in the preoperative biopsy.

Histopathological examination revealed stellate to spindle-shaped tumor cells, hyalinized thin-to-thick wall vessels set in a myxoid

background (Figure 3A). Infiltrative margin with entrapment of hyalinized, thickened vessels at the periphery of the tumor was also seen (Figure 3B). The tumor cells showed no hyperchromatism or atypical nuclei, and showed positive immunoreactivities for vimentin, desmin, muscle-specific actin, and estrogen receptor, but negative for cytokeratin, S100, and progesterone receptor, which were consistent with the immunophenotype of AAM (Figures 3C and 3D). The patient was followed up for 6 months postoperatively and remained free of apparent tumor recurrence.

DISCUSSION

AAM is a rare mesenchymal tumor affecting adults, with female to male ratio of 6:1 in the third to fifth decades and occasionally young adolescent and perimenopausal women. The increase of tumor volume during pregnancy and the response to gonadotropin-releasing hormone agonists may explain the hormone dependence of the tumor. A confirmatory diagnosis of AAM is mandatory since the tumor has a propensity for local aggressive recurrence. Tumor recurrence may develop postoperatively within years to decades if a clear surgical margin cannot be achieved.

The concept of AAM as a nonmetastasizing tumor, limited to local recurrence, may be changed as the phenomena of distant metastases and tumor-related death have been recently reported in 2 cases.^{7,8} Both patients were women: 1 was postmenopausal (63 years old) and the other was of reproductive age (29 years old). At presentation,

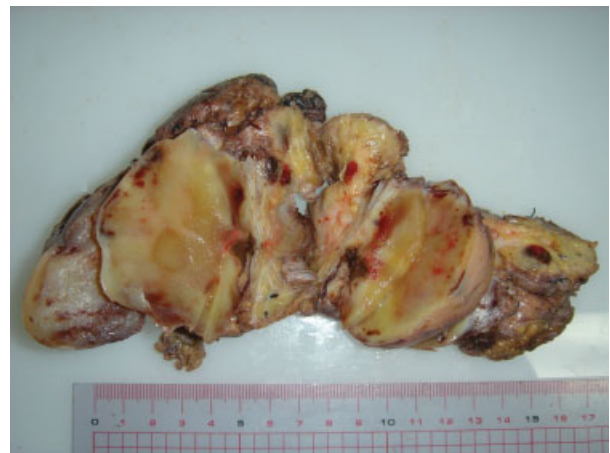


FIGURE 2. Photograph of gross specimen shows gelatinous and myxoid cut surface of the tumor as well as its multinodular growth pattern and adhesion to adjacent soft tissue (unit of measure: cm). [Color figure can be viewed in the online issue, which is available at www.interscience.wiley.com.]

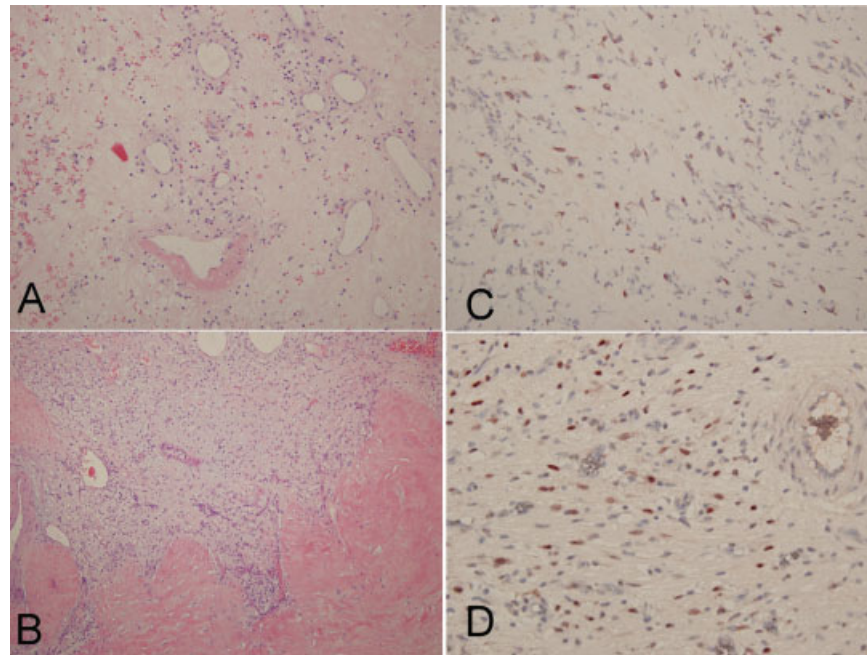


FIGURE 3. Photomicrograph of the tumor shows myxoid stroma with stellate and spindle-shaped tumor cells at low-power field (hematoxylin-eosin stain) (A) and infiltrative margin with hyalinized and thickened vessels at the periphery (B). The tumor cells were positive for immunohistochemical stains of desmin (C) and estrogen receptor (D). [Color figure can be viewed in the online issue, which is available at www.interscience.wiley.com.]

the former had already developed abdominal tumor seeding as well as pulmonary and mediastinal metastases. The latter developed metastasis 8 years after the primary tumor was diagnosed, with an interlude of local recurrence, ending in the patient's death. Accumulation of these unusual reports suggests that AAM may be regarded as tumors of intermediate malignancy that have unpredictable and even sometimes unfavorable outcome.^{7,8}

In the head and neck region, myxoid or fibrous tumors either with or without vasculature are not frequent. Differential diagnoses should include benign tumors of superficial angiomyxoma, sinonasal myxoma, fibromyxoma, nasopharyngeal angiofibroma, odontogenic myxofibroma, and intramuscular myxoma, and even malignant tumors such as myxoid malignant fibrous histiocytoma, myxoid fibrosarcoma, and myxoid liposarcoma.¹⁰ They usually show variable recurrence rates. Differential diagnosis should be made upon variable predilection for different anatomic sites, clinicopathologic analysis, and immunohistochemical studies.¹¹ The tumor in our case was deep-seated and had an infiltrative border, stellate to spindle-shaped tumor cells, and hyalinized thin- to thick-walled vessels set in a myxoid background, immunoreactivities for desmin, vimentin, and actin, and no immuno-

reactivities for cytokeratin and S100, which was conclusive of the diagnosis of AAM, and the differential diagnoses between AAM and aforementioned tumor conditions could be made.

On the basis of histopathological morphology of myxoid stroma with rich vasculature, differential diagnoses including superficial angiomyxoma, angiofibroma (AMF), and malignant tumors of myxoid malignant fibrous histiocytoma or myxoid liposarcoma should be considered. Superficial angiomyxoma usually arises in the trunk, head, neck, sometimes the lower limbs, and in the genital region. It usually presents as a superficially slowly growing cutaneous nodule or polypoid lesion less than 5 cm, mainly located in the dermis and subcutis. Local recurrence occurs in 30% of cases.¹² Slender spindle- and stellate-shaped tumor cells in a myxoid background may resemble the histopathological picture of AAM. But features of superficial angiomyxoma including cutaneous dermal location, presence of neutrophils, frequently entrapped epithelial components, and negative immunoreactivity to desmin and estrogen receptor distinguished our case from superficial angiomyxoma. The morphologic overlap between AAM and AMF was observed and suggested that they are related neoplasms in a spectrum of tumors showing myofibroblastic

origin.⁶ The immunophenotypes between AAM and AMF are also similar. But distinct features of AMF, including subcutaneous location, smaller tumor size, sharply circumscribed margins, and delicate smaller tumor vessels, can differentiate our case from cases of AMF. No evidence of malignant cellular features such as abnormal mitosis or atypism was identified in our case, which excluded the possibility of myxoid malignant fibrous histiocytoma and myxoid liposarcoma.

Recent advancements in molecular diagnosis and cytogenetic studies of AAM suggest that gene rearrangement occurs within the long arm of chromosome 12. Candidate genes located in this chromosomal region, including CDK4 (cyclin dependent kinase 4), MDM2 (murine double minute-2), and HMGA2 (high mobility group type A2) may be postulated in the pathogenesis of AAM. But they are also frequently involved in the tumorigenesis of mesenchymal tumors, including uterine leiomyoma, lipomatous tumors, and others.^{13–15} In addition, CD44 (cluster of differentiation 44) immunoreactivity was also reported in 8 of 12 cases in another series.¹⁶

We herein reported a case of AAM of the supraclavicular fossa. Tumor extension with fibrosis and adhesion to pleura, trachea, and adjacent large vessels made a clear surgical margin impossible. Close follow-up of such cases is mandatory since local recurrence and even rare metastases tend to occur.

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