CASE REPORT

A giant soft tissue lesion of the male perineum: Unusual presentation of a cellular angiofibroma

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ABSTRACT

Cellular angiofibromas (CAF) are rare, benign, soft tissue/stromal lesions first described by Nucci et al. in 1997. These masses are well circumscribed, typically small (< 6 cm), and occur mainly in the vulvar region in women and the inguinoscrotal region in men. We present a case of a 60-year-old male who was found to have a very large (20 cm × 13.5 cm × 6 cm) lesion occupying the deep pelvis bridging the pelvic outlet and involving the perineum. Because of diagnostic uncertainty and significant symptomatology, the mass was ultimately resected en bloc with the rectum and anus. Final pathology revealed a large multi-lobulated CAF. This tumor is the largest CAF reported in the literature to date. Furthermore, this mass involved the deep male pelvis with extension between two anatomic compartments which has not been previously described.

Key Words: Cellular angiofibroma, Pelvic mass, Abdominoperineal resection, Soft tissue tumor

1. INTRODUCTION

Cellular angiofibromas (CAF) are rare, benign mesenchymal soft tissue/stromal lesions first described by Nucci et al. in 1997.[1] These masses are generally asymptomatic, well circumscribed, small (< 6 cm), and occur mainly in the vulvar region in women and the inguinoscrotal region in men.[1–4] We present a case of a 60-year-old male who was found to have a very large (20 cm × 13.5 cm × 6 cm) lesion occupying the deep pelvis bridging the pelvic outlet and involving the perineum. Because of diagnostic uncertainty and significant symptomatology, the mass was ultimately resected en bloc with the rectum and anus. Final pathology revealed a large multilobulated CAF. This tumor is the largest CAF reported in the literature to date. Furthermore, this mass involved the deep male pelvis with extension between two anatomic compartments which has not been previously described.

2. CASE PRESENTATION

A 60-year-old man presented for evaluation of a known perineal lesion present for approximately 20 years. While painless and without obstructive symptoms, the mass had grown and was again noted on his first screening colonoscopy. He was referred to our surgical group for consideration of further management. Cross sectional imaging, including CT and MRI, revealed a large (intra-pelvic portion of mass measured 9.2 cm × 10.1 cm bridging to the portion in the left buttock measuring 8.7 cm × 6.5 cm) heterogeneously enhancing pelvic mass extending through the pelvic outlet and into the left buttock with displacement of the urinary bladder, prostate and rectum without associated lymphadenopathy (see Fig-

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ure 1). Concern for malignancy led to a core needle biopsy that revealed relatively hypocellular fibrous connective tissue fragments with foci of increased cellularity, favored to represent a low-grade myxoid neoplasm. Concern for high grade sarcoma led to an operative incisional biopsy for a tissue diagnosis with an aim towards neoadjuvant therapy for optimal locoregional control. The operative incisional biopsy was not diagnostic for malignancy. The patient was discussed at the institutional soft tissue tumor conference, a group which includes pathologists, medical oncologists, radiation oncologists, and surgical oncologists. Given the diagnostic uncertainty, resection was recommended via a combined abdominal/perineal approach involving both surgical oncology and colorectal surgery.

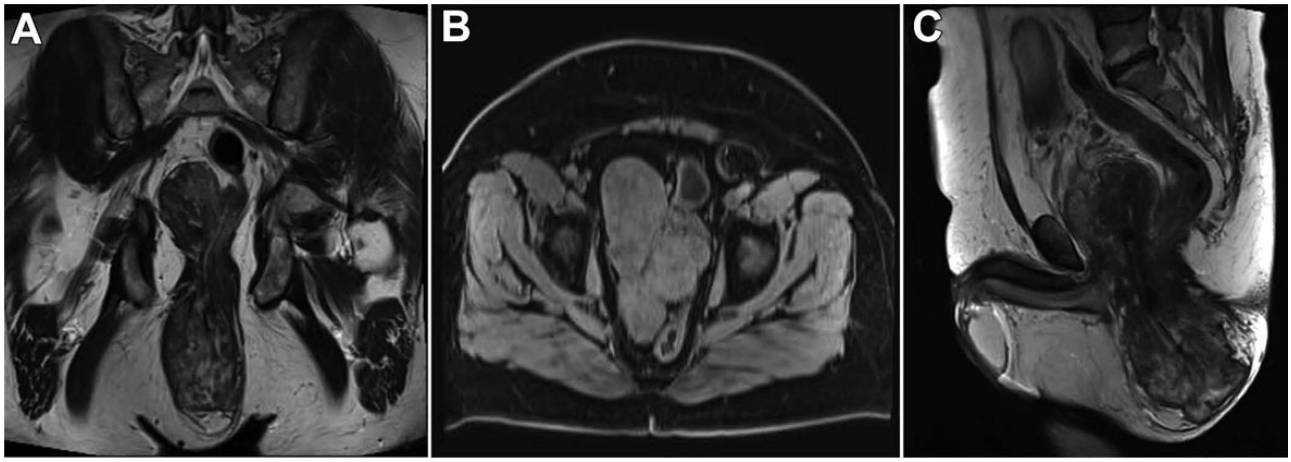

Figure 1. Cross sectional imaging of large pelvic/perineal mass
MRI imaging in a) coronal, b) axial and c) sagittal planes. Note the large size of the lesion as well as the crossing of anatomical boundaries: the pelvic and perineal involvement through the pelvic outlet.

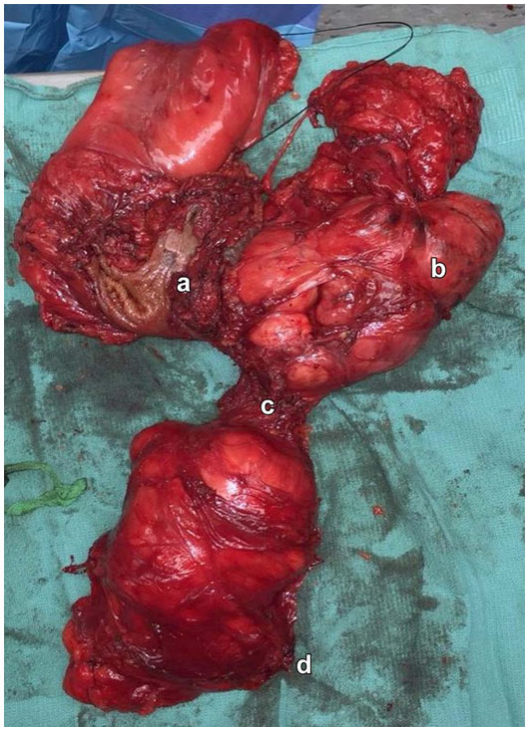

Figure 2. En bloc resection of large pelvic/perineal lesion with anus and rectum
Orientation: a) Anus with rectum, b) deep pelvic portion of lesion, c) portion bridging pelvic outlet, d) perineal portion of lesion.

In the operating room, the mass was found to be adherent to the levator muscles as well as to the anterior medial wall of the rectum. Resection of the mass with an en bloc abdominal perineal resection (APR) was necessary for extirpation without disrupting the capsule of the mass itself (see Figure 2). The patient recovered well and was discharged on post-operative day 12 without any major complications. At last follow up, 12 months post-operatively, patient continues to do well.

Final pathology revealed a 20 cm $\times$ 13.5 cm $\times$ 6 cm multilobulated and entirely encapsulated soft tissue mass consisting of multiple large nodules. Microscopically this lesion was characterized by H&E staining as a moderately cellular spindle cell neoplasm in which most of the cells have short and tapering nuclei and indistinct cytoplasm, distributed within a rather coarsely collagenous stroma. Focally, the lesional cells show degenerative nuclear atypia and hyperchromasia, consistent with the prolonged history of this mass. There are prominent thick walled, rounded blood vessels and scattered stromal mast cells (see Figure 3).

The differential diagnosis for a large, slow-growing painless mass in this anatomic location, with the features described above includes: CAF, dedifferentiated liposarcoma, and deep/aggressive angiomyxoma. The distinction between

these entities is of critical importance due to the variable clinical behavior of these lesions. While cellular angiofibromas are benign and tend not to recur following resection,[4] deep/aggressive angiomyxomas do commonly recur following local resection,[5] and dedifferentiated liposarcomas frequently recur locally following resection and metastasize in 15%-20% of cases.[6] Key features to distinguish these entities are careful morphologic examination and a combination of molecular and immunohistochemical tests. CAF is typically a well-circumscribed mass with loss of Rb expression, due to loss of a portion of chromosome 13.[7] Deep/aggressive angiomyxomas tend to have an infiltrative growth pattern, retained expression of Rb and negative molecular testing for MDM2 applification. The key molecular finding in dedifferentiated liposarcomas is overexpression of MDM2, most often detected by FISH analysis. Following careful gross and histologic examination, and with this differential diagnosis in mind we performed a battery of immunohistochemical and molecular tests.

Immunohistochemical studies demonstrated that the spindle cells were positive for desmin, vimentin and CD99, with patchy areas positive for EMA, NKIC3 and caldesmon. The neoplastic cells are negative for Rb, SMA, CD34, pancytokeratin, p75, HMB45, S100, DOG1, CD117, MiTF, melan A, GLUT1, MUC4 and CD68 (see Figure 3). Molecular studies performed on the prior biopsy sample were negative for the presence of MDM2 and FUS gene rearrangements.

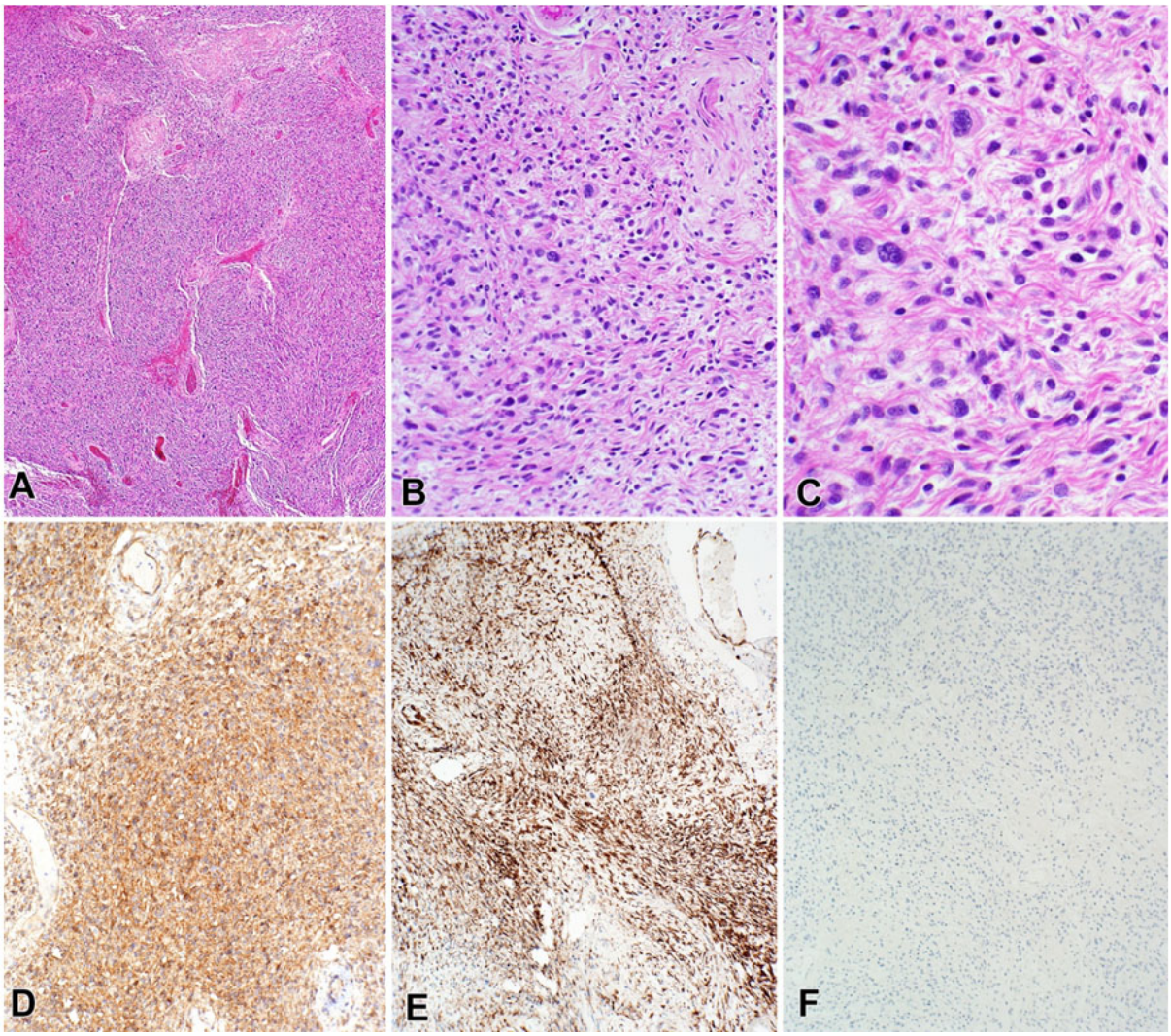

Figure 3. A) H&E showing well-circumscribed moderately cellular spindle cell lesion. The cells are short with tapered nuclei and indistinct cytoplasm within a coarse collagenous stroma and prominent thick-walled blood vessels (10× magnification). B, C) Higher magnification (20× and 40×, respectively) showing a moderate degree of cytological atypia with no mitoses or necrosis. Immunohistochemical staining is shown in figures D-F, 10× magnification. D, E) Positive staining for desmin and vimentin, respectively. F) Negative staining for cytokeratin.

3. DISCUSSION

Pre-operatively this patient represented a diagnostic dilemma – given the size, continued growth, and crossing of anatomic boundaries, concern that this represented a malignant sarcomatoid lesion was high and ultimately, despite biopsy results, aggressive resection with en bloc APR was performed. A differential of mesenchymal lesions occurring within the perineal/pelvis regions include tumors of varying malignant potential including: leiomyoma, lipoma, solitary fibrous tumor, aggressive angiomyxoma, and angiomyofibroblastoma.[8] A similar case was described by Emtage et al. in 2013,[2] wherein a 13.5 cm mass arising from the peri-prostatic tissue confined to the deep pelvis was also removed en bloc.

Generally, when the preoperative diagnosis of CAF is clear, the surgical approach consists of simple local excision or a "shelling out" of the lesion without lymphadenectomy.[4] Of the 18 cases reported in the literature with positive margins, 5/18 (27.8%) underwent re-excision and 13/18 (72.2%) did not undergo re-resection.[8,9] No recurrence or metastatic disease was noted in either group over follow up, which suggests that positive margins are not a risk factor for recurrence. However, one report of recurrent CAF exists in the literature: a 4 cm vulvar lesion excised with negative margins recurred within 6 months requiring a re-excision. For our now 60-year-old gentleman there has been no evidence of recurrence 12 months post-operatively.

4. CONCLUSION

Cellular angiofibromas are rare mesenchymal tumors typically occurring in the superficial soft tissue of the genitalia – the vulvo-vaginal region in women and inguino-scrotal area in men. We describe the case of a 60-year-old male with a CAF notable for being the largest described in the literature to date, as well as being located in an atypical location in the deep male pelvis extending across anatomic compartments. In this patient, diagnostic uncertainty dictated that a formal oncologic resection be performed. However, if a pre-operative diagnosis of CAF is rendered, typical surgical management includes local excision.

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