Spindle Cell Lesions of the Prostate

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Case 1:

- 66yo Caucasian male with a history of hypertension, GERD, and hepatitis C secondary to blood transfusion
- Underwent prostatectomy in Jan 2003 for a 230 g prostate with neoadjuvant chemotherapy
- **Diagnosis**: High-grade spindle cell sarcoma, most consistent with a malignant fibrous tumor per Dr Christopher Fletcher based on morphology and IHC

- **May 2003**: Pt underwent salvage radical cystectomy and prostatectomy, pelvic lymph node dissection, and neobladder construction, followed by more neoadjuvant chemotherapy
• Residual high grade spindle cell sarcoma, most c/w malignant SFT, involving bladder neck and extending into perivesical tissues, but all resection margins negative.
• Calcifications, hemosiderin laden macrophages, c/w treatment/resection
• No evidence of high-grade PIN or adenocarcinoma
• No metastasis identified in 100 lymph nodes
May 2005: Pt p/w pelvic pain and CT scan showed recurrent disease but no metastases in the pelvis. Treated with more chemotherapy, which pt tolerated well.

Sept 2007: Pt still has intermittent hematuria, otherwise feels fairly well. Physical exam normal.

However, radiology showed multiple masses in the pelvis, indicating recurrent, progressive malignancy with extension into the neobladder and encasement of the afferent limb of the neobladder.
- **Sept 2007**: total pelvic exenteration
  - Neobladder resection
  - Afferent limb converted to ileal conduit
  - Colostomy
  - Orchietomy because tumor appeared grossly to be extending down into area of cord.

- Pt recovering remarkably well. Radiation therapy being considered.
Negative Stains:

- Actin
- CD10
- CD117
- Desmin
- Pancytokeratin
- S100
Differential:

- Stromal sarcoma
- Carcinosarcoma
- GIST extension from GI
- SFT
- Rhabdomyosarcoma
- Smooth muscle tumors
- Inflammatory myofibroblastic tumor
Final diagnosis:

- Malignant solitary fibrous tumor, involving resection margin grossly
- No malignancy in 19 lymph nodes
SFT of prostate

- Very rare: few dozen reported
- Age range: 21-75 yo
- Symptoms usually related to obstruction
- Size ranges from 2-14 cm, most >5 cm
- Histo: patternless pattern w/collagen, hemangiopericytomatous, prostatic glands rarely admixed (grows expansively) unlike stromal sarcoma’s
Herawi & Epstein, AJ SP, June 2007 (13 cases)

- IHC: CD34 (11/12)
  - Bcl-2 (11/11)
  - CD99 (7/10)
  - Beta-catenin (5/10)
  - C-kit (0/10)
  - Ki-67 >20% in 3, p53 >20% in 3

- 5 malignant, 4 benign, 4 UMP
- 10 prostatic, 2 involved prostate, 1 extraprostatic
- At least one had bone metastasis
Case 2

- 75 yo Latino male with history of prostate carcinoma s/p radiation in 2001
- Left psoas mass on anterior psoas, approximately 2 cm in diameter
- Biopsy showed necrotic neoplasm with cartilaginous differentiation (S100 negative) in the center and atypical cells (panK positive)
- Excision followed:
Negative Stains:

- CK7 negative
- Renal cell antigen negative
Final diagnosis:

- Clear cell adenocarcinoma with sarcomatous metaplasia (carcinosarcoma); most likely metastatic
- Exclude renal origin before concluding that this is metastatic prostatic adenocarcinoma, hypernephroid variant with sarcomatous differentiation
- No renal mass on CT chest/abdomen
Sarcomatoid carcinoma/Carcinosarcoma

- Older patients (median age 63), symptomatic, lower PSA than expected
- Mix of epithelioid and mesenchymal (5-99%) elements, both usually high-grade
- Whether both independently malignant or whether due to metaplasia not totally clear, but likely latter as:
  - The majority (21/32) of them occur in patients w/history of treated adenocarcinoma
  - Epith and mesenchymal elements have been shown to be clonally related
- Occurs from 6 months to up to 16 years after treatment
- Heterologous elements seen (chondrosar, osteosarc, rhabdomyosarc) in 30% of cases with no effect on prog
- Generally poor prognosis:
  - 20% mortality at 1-year
  - 40% survival at 5-year
  - 50% have eventual mets to bone, liver, lung
- Epithelial and prostatic markers can be focally expressed in the stromal component
# Spindle Cell Tumors of Prostate

<table>
<thead>
<tr>
<th>Tumor Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>Stromal Sarcoma/STUMP</td>
<td>Storiform, epithelioid, fibrosarcomatous, patternless, phyllodes-like</td>
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<tr>
<td>Sarcomatoid carcinoma</td>
<td>Admixed high-grade adenoCA with spindled “sarcomatoid” component w/variable heterologous element</td>
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<tr>
<td>Leiomyoma/-sarcoma</td>
<td>Intersecting fascicles (w/mitoses, necrosis, and cytologic atypia)</td>
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<td>Solit Fibrous Tumor</td>
<td>Spindled cells in a patternless pattern w/a collagenous bkgrd</td>
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<tr>
<td>Rhabdomyosarcoma</td>
<td>Small round cells, variable eosinophilic cytoplasm, strap cells, commonly a myxoid bkgrd</td>
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<td>Inflamm Myofibro. T.</td>
<td>Reactive fibroblasts, cell culture appearance, RBCs, ALK-1 pos</td>
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<tr>
<td>GIST</td>
<td>Spindled cells in fascicular pattern w/perinuclear vacuoles</td>
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## Immunohistochemistry

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<tr>
<th></th>
<th>CD34</th>
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References

- WHO Classification of Tumors: Pathology and Genetics of Tumours of the Urinary System and Male Genital Organs, 2004