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A rare case of ductal variant multilocular prostatic cystadenocarcinoma invading the rectum

Sriharsha Talluri [a], Alex Hwang [a,*], Mark Mikhail [a], Richard Hessler [b], Amar Singh [a]

[a] University of Tennessee College of Medicine – Chattanooga, 979 East Third Street, Suite C-925, Chattanooga, TN, 37403, USA
[b] Erlanger Health System, Department of Pathology, 975 East Third Street, Chattanooga, TN, 37403, USA

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ABSTRACT

Prostate papillary and cribriform ductal prostatic adenocarcinoma is a rare malignancy infrequently reported in the literature. We describe a case of rectally invasive prostate cystic adenocarcinoma and surgical extirpative management not requiring fecal or urinary diversion.

1. Introduction

Most commonly, multilocular cystic lesions in the lower genitourinary tract are prostatic adenomas, which are benign by nature. These lesions present with lower urinary tract symptoms and typically occupy the space between the rectum and bladder.[1] These cystic pathologies rarely present as prostatic carcinomas.

We present a rare case of prostatic cystadenocarcinoma. Risk stratification after prostate biopsy deemed it NCCN intermediate-favorable risk. Final pathologic tumor staging was consistent with pT4 rectally invasive prostate cancer. Another unique aspect of this case is the manner of local surgical control.

2. Case report

A 69-year-old male was under evaluation for an elevated PSA of 10.6. He did endorse obstructive urinary symptoms, but this was resolved with tamsulosin. MRI of the prostate revealed extensive tubular and septated cystic changes in the pelvis encircling the prostate, bladder, seminal vesicles, and rectum (Video 1, Video Still 1). Prostate biopsy pathology was most consistent with Gleason 6 (3 + 3) adenocarcinoma because of a lack of staining for basal cell markers and too many atypical glands. Furthermore, a CT Abdomen-Pelvis with IV contrast revealed an enlarged prostate gland with adjacent fluid collections highly suspicious for extracapsular extension and enlarged right external iliac lymph nodes concerning for metastatic disease. However, a bone scan was negative for metastasis. Radiation Oncology evaluated the patient and believed the mass was too large for any radiation modality. Hormone therapy was also considered in order to decrease the tumor burden for eventual surgical removal or radiation; however, the patient did not prefer to receive androgen deprivation therapy.

Thus, the patient underwent a robotic radical prostatectomy with excision of the complex pelvic cystic mass involving the anterior rectal wall (Fig. 1). The rectum was primarily closed in two layers and covered with a perivesical fat flap without diversion (Video 2).

Final pathology was consistent with Gleason 7 (3 + 4), papillary and cribriform ductal prostatic adenocarcinoma. The tumor had extensive extraprostatic extension with involvement of the left seminal vesicle and bowel wall smooth muscle (Fig. 2). The overall stage was pT4.

Supplementary video related to this article can be found at https://doi.org/10.1016/j.eucr.2023.102597

3. Discussion

Prostate cystic carcinomas are extremely rare, with approximately eleven cases reported in the literature from 1991 to 2021.[2] Prostatic cystadenomas and cystadenocarcinomas can clinically present with lower urinary tract symptoms, with urinary retention being the most urgent.[3] Fecal impaction can also occur, secondary to the mass effect of the cystic component occupying the space between the bladder and rectum.[4] PSA is typically elevated in prostatic cystadenocarcinomas but may or may not be elevated in cystadenomas. In fact, cystadenocarcinomas can immensely elevate PSA.[2]

The differential diagnoses for prostatic cystic disease include the aforementioned, prostatic leiomyoma, prostatic sarcoma, phylloid variant of atypical prostatic hyperplasia, lymphangioma, pelvic

* Corresponding author.
E-mail address: sriharsha.talluri@erlanger.org (A. Hwang).

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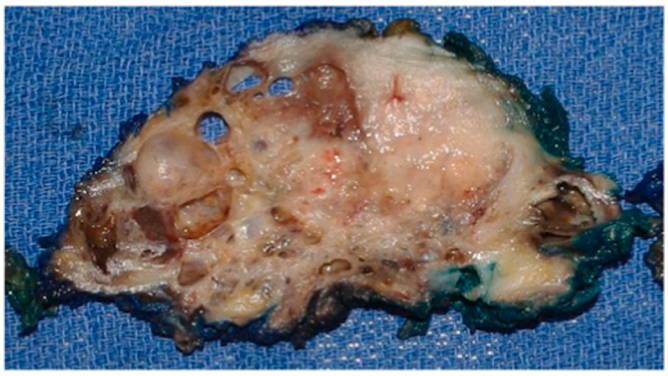

Fig. 1. On gross examination, the architecture of the prostate and peri-prostatic soft tissue is obscured by numerous cysts and fibrosis.

mesothelioma, and peritoneal inclusion cysts.[1]

A defining factor to discern between the cystic disease being benign or malignant is if a hemorrhagic component is present. Both biopsy of the prostate and cystic component should be performed to confirm a diagnosis.[5] In our instance, complete surgical extirpation furnished the most accurate diagnosis.

The pathogenesis of this disease is poorly understood. One hypothesis states that necrosis or hemorrhage within the prostate carcinoma itself results in a pseudocyst formation. Another hypothesis states that malignant degeneration of a retention cyst is responsible for prostatic cystic carcinoma formation.[6] The most common pathology of this disease is adenocarcinoma, with only one other case reporting a ductal variant.[7]

Treatment varies for prostatic cystic carcinoma, but the mainstay is surgical removal. Other studies have demonstrated efficacy of androgen deprivation therapy, specifically luteinizing hormone-releasing hormone antagonists.[8]

Surgical excision must be performed in an extremely meticulous manner, as it has been reported that there is significant adherence to surrounding structures. In this case, there was direct adherence and invasion into the rectum. Our specific surgical technique utilizing a perivesical flap may prove useful for any cases of prostatic cystic carcinoma that is adhered or extending directly into the rectum. This technique is especially helpful in cases where the omentum is not readily available.

4. Conclusion

Prostatic cystic adenocarcinoma is an extremely rare disease that requires detailed evaluation and surgical planning. The surgeon must be well equipped to encounter a myriad of difficulties and not hesitate to get other specialties involved if the disease is invading surrounding structures. Further research is warranted to understand the pathology and clinical course of this rare disease.

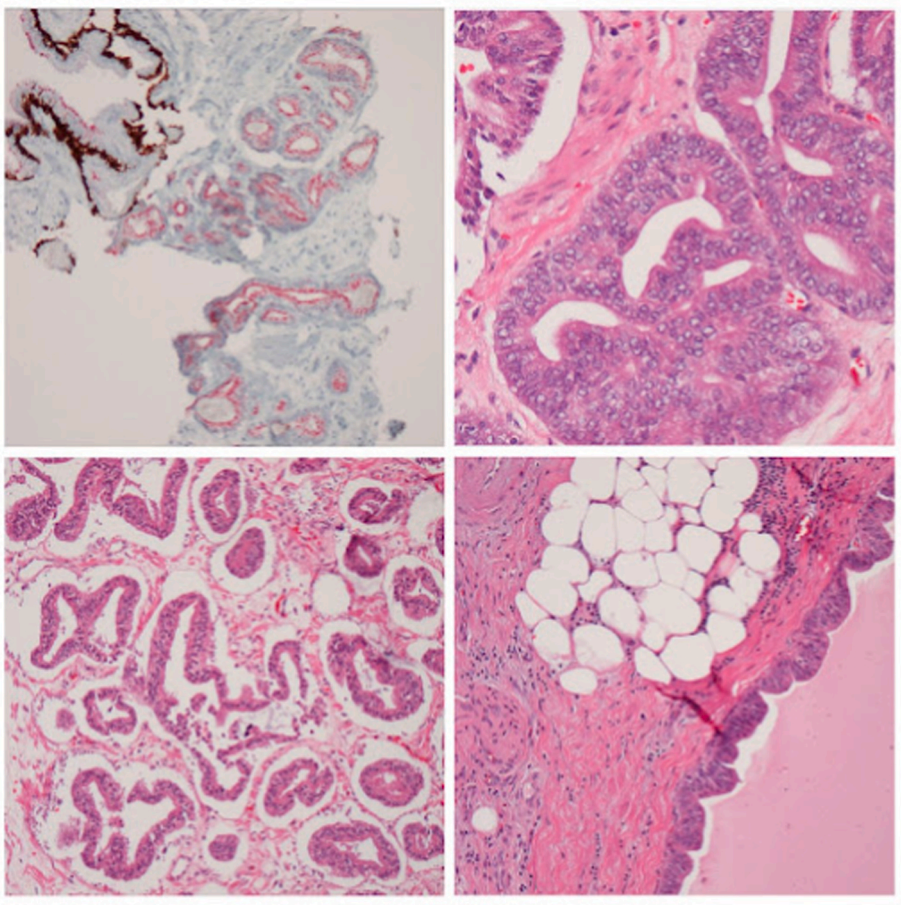

Fig. 2. On histologic section, the cysts are variably lined by classic appearing stratified epithelium characteristic of high grade prostatic intraepithelial neoplasia (HGPIN) or atrophic appearing epithelium characteristic of PIN-like (ductal) carcinoma (pattern 3) composing of 80% of the intra- and extra-prostatic tumor, with an admixed component of cribriform pattern 4 (20%) and <1% acinar pattern 3. Multiplex immunohistochemistry for p63, cytokeratin, 34betaE12, p504s (racemase) demonstrated preserved basal cells (p63, CK34 positive) with positive racemase in HGPIN and absent basal cells in adjacent acinar and cribriform carcinoma.

Consent

Written consent obtained from the patient.

Declaration of competing interest

The authors have no conflicts of interest to disclose.

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