

Oncology

Local recurrence of prostatic ductal adenocarcinoma despite clear surgical margins

Christopher Merrett^{a, *}, Tobias Gross^{a, b}, Diarmaid Moran^a, Homayoun Zargar^{a, c}^a Department of Urology, The Royal Melbourne Hospital, Parkville, VIC, Australia^b Department of Urology, University of Bern, Switzerland^c Australian Prostate Cancer Center, North Melbourne, VIC, Australia

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1. Introduction

Prostatic ductal adenocarcinoma (PDA) is a rare and aggressive subtype of prostate cancer that has a worse prognosis than the more common prostatic acinar adenocarcinoma (PAA). Treatment of PDA has yet to be standardized. We present a case of PDA where despite clear surgical margins there was local recurrence of disease.

2. Case presentation

An 80 year old male was diagnosed with incidental PDA on a transurethral resection of prostate specimen (pT1b). Approximately 15% of the prostate tissue examined contained multiple foci of PDA mixed with PAA. His preoperative digital rectal assessment had been non-suspicious with a serum prostate-specific antigen (PSA) of 8.9 µg/L. Conventional imaging including whole-body bone scan and staging computed tomography scan were not indicative of metastatic disease. Based on institutional standards, the patient underwent cystoprostatectomy, pelvic lymph node dissection, partial urethrectomy and urinary diversion with an ileal-conduit. The distal third of the penile urethra was spared.

Histopathological assessment of the resected specimen demonstrated malignant involvement of both sides of the prostate with approximately 70% of the gland involved. The PAA component

was graded as Gleason score 3 + 4 = 7 (ISUP II). The PDA component was graded as Gleason 4 + 5 = 9 (ISUP V) and contained scattered foci of comedo necrosis representing high grade tumour. There was extraprostatic invasion into the bladder neck wall, left seminal vesicle and perivesical fat. A 1.5 mm focus of PDA was present in the proximal urethral tissue with a clear surgical margin.

Six months postoperatively the patient developed bloody penile discharge. On urethroscopy a large papillary tumour was noted (Fig. 1 A). Biopsy of the tumour indicated a malignant process focally positive for PSA suggesting a recurrence of PDA. The patient underwent a radical penectomy where a 7 mm pure ductal adenocarcinoma with penile stromal invasion was identified (Fig. 1 B, C, D). Three months postoperatively there were no clinical signs of recurrence and the serum PSA was undetectable.

3. Discussion

PDA has held a controversial spot in the prostate cancer scientific literature since first being identified in 1967 by Mellicow.¹ There have been conflicting reports about its prognosis, aggressiveness and even its existence as a separate clinical entity.² However recent studies suggest that PDA is prostate cancer subtype that has a worse prognosis when compared to the more common PAA.³ Its characterization has been limited by its low prevalence, approximately 0.4–0.8% in its pure form and up to 5% mixed with PAA.³

Histologically PDA tends to be made up of tall pseudostratified columnar epithelium organised into either papillary or cribriform patterns.⁴ It tends to occur in the transitional zone and is associated with urethral invasion. Therefore many patients, even with advanced PDA, may have normal digital rectal examinations. Clinical detection is made even more difficult as PDA has a tendency to present with reduced serum PSA levels when compared to PAA.³ These factors often lead to late identification and advanced disease at diagnosis.

There are currently no standardized recommended treatment guidelines of PDA and its management is based on established therapeutic options for PAA and a small number of PDA case series/studies.⁴ Localised PDA is typically treated with radical

* Corresponding author. Department of Urology, Royal Melbourne Hospital, 300 Grattan Street, Parkville, Victoria, Australia.

E-mail address: merrettchris1@gmail.com (C. Merrett).

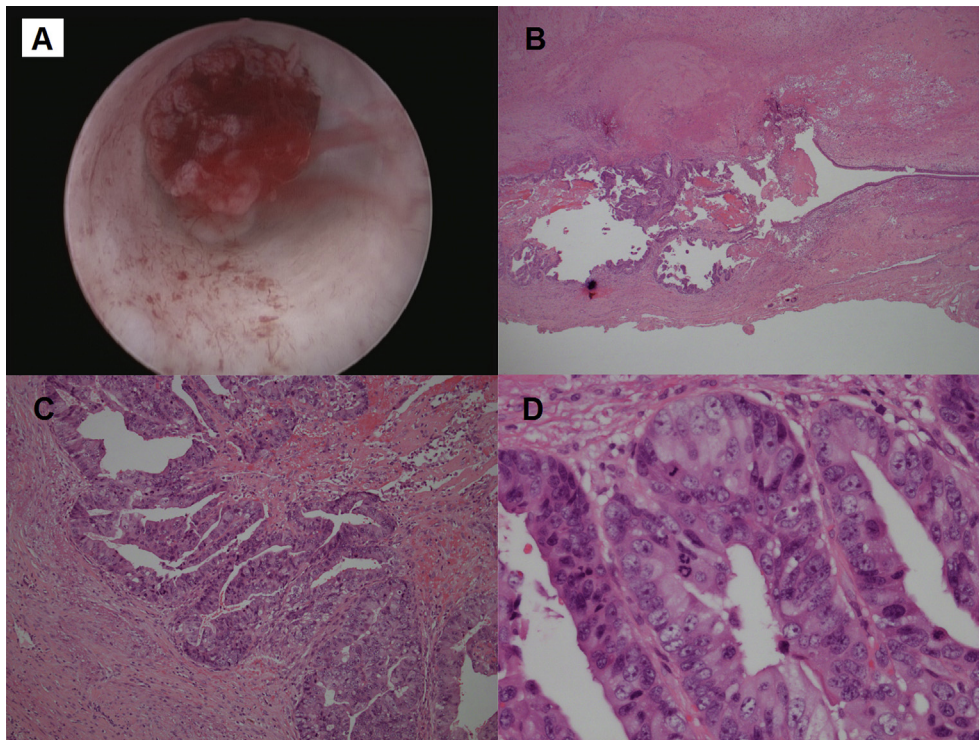


Fig. 1. **A** Papillary lesion macroscopically visible on urethroscopy. **B** Histopathology of penectomy specimen at 2× magnification with the urethra passing from the right of the image into the malignancy. **C** Histopathology of penectomy specimen at 10× magnification. **D** Histopathology of penectomy specimen at 40× magnification.

prostatectomy with consideration of cystectomy and urethrectomy depending on disease extension. Androgen deprivation therapy has been reported as being non-effective to partially effective. Chemotherapy, particularly cycles of docetaxel, has been trialed in patients with metastatic PDA with varying success. The effect of radiotherapy has been reported in small case series and has shown good local control in the treatment of PDA.⁵

Our institutional preference for the treatment of localized PDA is cystoprostatectomy and urethrectomy. In this scenario total urethrectomy was not performed and despite clear surgical margins the patient developed local recurrence in the distal urethra. Our case report lends to the developing body of research that PDA is an aggressive subtype of prostate cancer. This case highlights that a total urethrectomy and adjuvant therapies should be considered in order to minimize the risk of local recurrence despite clear surgical margins.

Due to the lack of robust data in PDA there is need for future research in this field in order to make considerations for optimal primary as well as adjuvant treatment for this rare subtype of prostate cancer.

4. Conclusion

PDA is an aggressive subtype of prostate cancer that requires

further research in order to develop standardized treatment guidelines. Complete urethrectomy and appropriate adjuvant therapies should be considered in localized disease to reduce the risk of urethral recurrence.

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