Case Report

Basaloid carcinoma of the prostate: A literature review with case report

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ABSTRACT

Basal cell carcinoma of the prostate (BCP) is a neoplasm composed of prostatic basal cells. There are only a few publications outlining the diagnosis, treatment, prognosis and outcome for BCP. Traditionally surgery has been used but these tumors also respond to concomitant chemo-radiotherapy. Using a BCP case report treated with radical chemo-radiotherapy from a chemotherapy regimen used in anal cancers, we propose an alternative management to the traditional options of radical surgery and radical radiotherapy.

Key words: Adenoid cystic carcinoma, basal cell carcinoma, basaloid carcinoma, chemotherapy, prostate gland

INTRODUCTION

Basal cell carcinoma of the prostate (BCP) is a neoplasm composed of prostatic basal cells.

There are only a few publications outlining the diagnosis, treatment, prognosis and outcome for BCP. Traditionally surgery has been used but these tumors also respond to concomitant chemo-radiotherapy. Using a BCP case report treated with radical chemo-radiotherapy from a chemotherapy regimen used in anal cancers, we propose an alternative management to the traditional options of radical surgery and radical radiotherapy.

CASE REPORT

Symptom description

A 78-year-old man presented with lower urinary tract symptoms, nocturia and gross hematuria in November 2002.

Examination

Examination revealed an enlarged smooth prostate and normal rectum. Prostate-Specific Antigen (PSA) was 0.8 ng/L.

Imaging results

Magnetic resonance imaging (MRI) confirmed numerous cysts within a markedly enlarged prostate (333 cc) with atypical T1 and T2 signals. These cysts occupied most of the central gland, compressed the left lateral peripheral zone, extended through the prostatic capsule and invaded

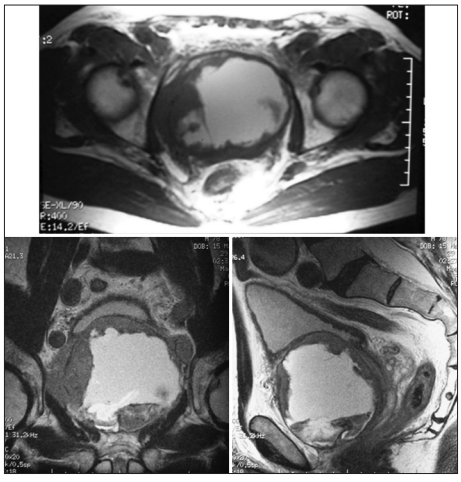

Figure 1: MRI at diagnosis confirmed numerous cysts within a markedly enlarged prostate (333 cc) with atypical T1 and T2 signals

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the obturator-internus and levator-ani muscles [Figure 1]. There was a 2-cm lymph node along the left pelvic sidewall. A bone scan was clear of bony metastases.

Pathology

Histopathology revealed BCP with no evidence of conventional prostatic adenocarcinoma. Malignant sheets of basaloid cells with small islands of keratinising squamous epithelium extensively infiltrated all six biopsy cores. The tumor cells showed mitosis but not necrosis. Immunohistochemistry focally stained positive for LP34, Cytokeratin 7 (CK 7), but negative for Prostate-Specific Antigen (PSA), Thyroid Transcription Factor 1 (TTF-1), Cytokeratin 20 (CK 20) and chromogranin

Treatment

This T4N1M0 prostate basaloid carcinoma was discussed in the multidisciplinary meeting. Based on recommendations from the meeting, the patient received concurrent chemo-radiotherapy to 65 Gy in 35 daily fractions over seven weeks from December 2002 to February 2003. Chemotherapy was based on a protocol common for anal cancers and comprised 10 mg/m2 of Mitomycin on Day 1 and 750 mg/m2 of 5-Fluro-uracil given as a continuous infusion on Day 1 to 4 during the first and fifth week of standard pelvic radiotherapy for prostate cancer. Ten months after completion of treatment an MRI scan showed complete tumor response [Figure 2]. The patient remained disease-free until 10 June 2005 when he passed away from a ruptured abdominal aneurysm unrelated to his cancer or treatment.

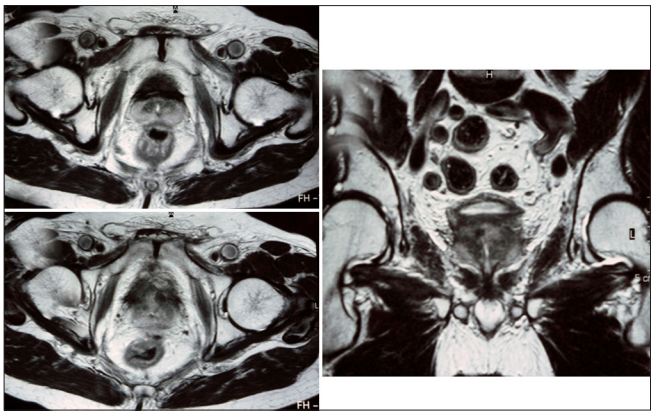

Figure 2: Post-treatment MRI showed a complete response of the tumor

DISCUSSION

Reports in the literature are confusing, as different investigators have listed BCP under different histological headings. Furthermore, there is no consistent management for BCP as the natural history and clinical course can be very variable. The age range of patients with BCP is wide (28–89 years) but BCP is more common in the elderly (median age, 68 years). The main clinical presentation was obstructive urinary symptoms with 42 patients diagnosed incidentally on trans-urethral resection of prostate (TURP). On rectal examination, the prostate is usually enlarged and partly indurated. Clinical investigations using serum PSA and preoperative imaging investigations are non-specific; serum PSA can be normal[1,2] or slightly elevated.[3]

BCP is classified in the 2004 World Health Organization (WHO) classification of tumors of the urinary system. The WHO also issued specific criteria to distinguish benign from malignant basal cell proliferations. Malignant features include an infiltrative pattern, extra-prostatic extension, peri-neural invasion, necrosis and stromal desmoplasia. Most of the cases reported in the literature showed predominantly adenoid cystic pattern, some of mixed pattern, and only six showed an exclusive basaloid pattern.

Grossly, BCP are white and fleshy, sometimes with micro-cysts, unlike acinar carcinoma, which is usually yellow. These tumors usually show ill-defined, infiltrative edges and involve the transition and peripheral zones. Microscopically, BCP has a broad morphologic spectrum and can be similar to basal cell carcinoma (BCC) of the skin. The prostate is infiltrated by irregular solid clumps, or trabeculae and larger cellular masses of basaloid cells. The cells have uniform small, round or oval nuclei with scant cytoplasm.[4] While there is peripheral pallisading, cribriforming is absent or minimal.[4,5] Mitoses are absent or only sparsely present. The stroma may show a desmoplastic or myxoid alteration.[3] The pattern of BCP cannot be classified under the Gleason scheme and is not known to correlate with outcome. According to general consensus, the specific markers for BCP are high molecular weight Keratin and Cytokeratin 14. Usually, staining for PSA is negative. Other investigators have reported the use of Ki-67 index and Bcl-2 protein for diagnosis of malignancy.

Although most reported BCP are of indolent behavior, there are reports of local recurrence and metastases.[1-3] Of interest is that metastases often involve the liver, lung, and bowel but not bone, as is commonly observed in prostate adenocarcinoma.[3] From published data, local recurrence occurred in 8/64 patients. Metastases developed in 12/64 patients. Median follow-up was one year (range 0-19 years) and 27/64 (42.2%) had >one-year follow-up. Following treatment, there was no evidence of disease recurrence in 38/64 (59.4%). Radiotherapy or chemotherapy may be helpful, but published results are inconsistent.[2,5] There was local-regional nodal involvement in our patient. We opted for aggressive combined chemo-radiation despite his age. He tolerated treatment well and remained disease-free until death from an unrelated cause 25 months later. Usually, surgery is used when disease is confined to the prostate, but where disease extends beyond the prostate, radiotherapy can be considered. With more extensive disease and regional nodal involvement, chemo-radiation is reasonable. To our knowledge, this is the only case of BCP treated successfully with combined chemo-radiotherapy to complete remission.

Our review of the literature indicates that BCP is a rare tumor with clinical-pathological features distinct from classical prostate adenocarcinoma. Whilst surgery has been mainly used, our case showed that combination chemo-radiotherapy is an alternative and/or additional treatment option for BCP.

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