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Case Report

Primary mucinous adenocarcinoma of the prostate: a case report and literature review

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Abstract: We present a case of primary mucinous adenocarcinoma of the prostate. A 55-year-old male with no previous history of malignancy presented to our hospital with difficult defecation and anus distention; on magnetic resonance imaging scan of the pelvis, we found a prostate tumor. A transrectal ultrasound-guided needle biopsy confirmed the diagnosis. The patient underwent radical prostatectomy. Primary mucinous adenocarcinoma of the prostate is rare and progressive. It is important to determine the clinical behavior and to find the optimal therapy.

Keywords: Mucinous adenocarcinoma, prostate cancer, case report

Introduction

Mucinous adenocarcinoma (MC) of the prostate gland is rare and one of the least common morphologic variants of prostatic carcinoma. MC was defined as at least 25% of the tumor consisting of pools of extracellular mucin with an extraprostatic tumor site ruled out [1]. MC is currently considered an aggressive disease, and at the International Society of Urological Pathology Consensus Conference on Gleason Grading of Prostatic Carcinoma in 2005, it was suggested that these tumors should be classified as Gleason score 8 (4+4) [2]. We report one case of a primary mucinous adenocarcinoma of the prostate. And we also performed a literature review of previous cases.

Case report

A 55-year-old man with no previous history of malignancy presented to our hospital with difficult defecation and anus distention. On digital rectal exam (DRE), a firm mass was felt on wall of the rectum. There were no palpable lymph nodes. No tumor found in colonoscopy exams. CT scan did not show any evidence of colonic lesions nor visceral or lymph node metastases. The magnetic resonance imaging (MRI) revealed a 4.3 × 4.1 cm mass replacing the prostate gland, which appeared cystic mass with complete capsule. The right seminal vesicle was obvious enhancement following contrast administration (**Figure 1**). Abdominal ultrasound was performed which revealed a large mass was replaced the prostate gland. There was no obvious lymphadenopathy or distant metastases. The patient's serum prostate-specific antigen (PSA) level was 1.89 ng/mL, and all the other serum tumor markers examined (carbohydrate antigen 19-9 [CA19-9], carcino-embryonic antigen [CEA], alpha-fetoprotein [AFP], lactate dehydrogenase [LDH] and prostate-specific acid phosphatase values) were within normal ranges.

The patient received radical prostatectomy. Histopathology of the operation specimens showed foci that consisted of pools of mucin (**Figure 2A**). Immunohistochemical study revealed diffuse staining with CK20, CDX2, CK7, CEA (**Figure 2B**). Cells were negative for all other antibodies tested, including PSA, PSAP, Uroplakin, GATA. Villin antibody was suspicious. After treatment, the patient was free of recurrence within 47 months.

Discussion

Mucinous adenocarcinoma of the prostate gland is one of the least common morphologic variants of prostatic carcinoma. The prognosis

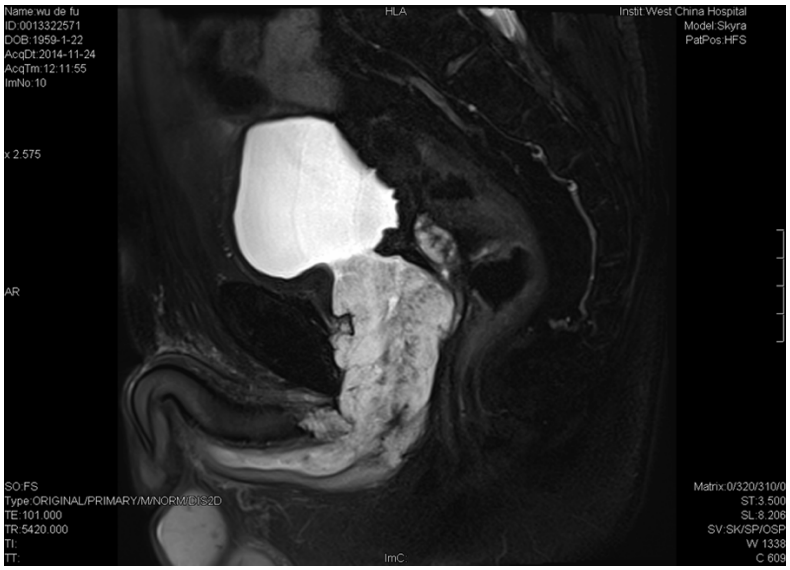

Figure 1. MRI Sagittal T2-weighted image: the prostate gland almost entirely was replaced by the tumor mass. It was appeared cystic mass with complete capsule. The right seminal vesicle was obvious enhancement following contrast administration.

of this variant of prostate cancer remains controversial. Osunkoya et al present 47 cases (1991 to 2006) of mucinous carcinomas treated by radical prostatectomy. Mean patient age at diagnosis was 56 years (range: 44 to 69 y) [3]. The mean preoperative prostate-specific antigen (PSA) level was 9.0 ng/mL (range: 1.9 to 34.3 ng/mL). Clinical stages were T1c (34 cases), T2a (7 cases), and T2b (6 cases). The mean follow-up for those without progression was 5.6 years (median 6 y, range: 1 to 15 y). One patient (2.1%) progressed 3 years after his radical prostatectomy (5 y actuarial progression-free risk 97.2%). The predicted mean 5-year PSA progression-free risk for nonmucinous prostate cancer with the same PSA and postoperative findings as in the current study was 85.4%. This study confirms that mucinous adenocarcinoma of the prostate treated by radical prostatectomy is not more aggressive, and possibly even less aggressive than nonmucinous prostatic adenocarcinoma. Lane et al also reported a series of patients with mucinous adenocarcinoma at prostatectomy thatwas treated at a single institution from 1987 to 2005 [4]. Radical prostatectomy specimens with mucinous features were identified from a database of 3613 consecutive patients. They confirmed the diagnosis of MC in 14 patients reviewed each case again. The median overall follow-up was 6.4 years. Mucinous adenocarcinoma appears to behave clinically in a similar fashion to conventional adenocarcinoma (nonmucinous prostatic adenocarcinoma), with no statistically significant difference in biochemical failure or survival. Rhee et al presented a long-term survival case of prostate MC [5]. A 65-year-old man presented with hematuria, postcoital bleeding, and mucoid-appearing prostatic secretions. Cystoscopy revealed a prostatic wall cavity with gelatinous material exuding from the lesion. Extensive transurethral resection was performed, with approximately 37 g of tissue retrieved. Flexible sigmoidoscopy was performed to 60 cm, revealing no lesions, and stool was negative for occult blood. The pathologic diagnosis was mucinous adenocarcinoma of the prostate. The patient underwent uncomplicated radical prostatectomy. Sections of the prostatectomy specimen showed foci that consisted of pools of mucin, some of which contained malignant prostate glands. The patient was disease free of fifteen years.

The main treatment option for MC is radical prostatectomy but rare investigators also choose hormone therapy (HT) or/and radical radiotherapy (RT). Guler et al reported a patient with an extremely large prostate MC that was successfully treated with HT and RT and showed a complete response by MRI and dynamic contrast-enhanced MRI [6]. He is 60-year-old male patient with complaints of urinary obstruction, rectal pain, and constipation over the previous year. The serum prostate-specific antigen (PSA) level was 0.8 ng/mL. The patient was diagnosed as prostate mucinous adenocarcinoma and was treated with 46 Gy of external beam RT to the pelvic lymph nodes, prostate, and seminal vesicles with a 32-Gy boost dose to the prostate and seminal vesicles, for a total dose of 78 Gy in 39 conventional fractions with a 3-dimensional conformal RT technique. HT, including bicalutamide 50 mg/d orally plus 10.8 mg goserelin acetate

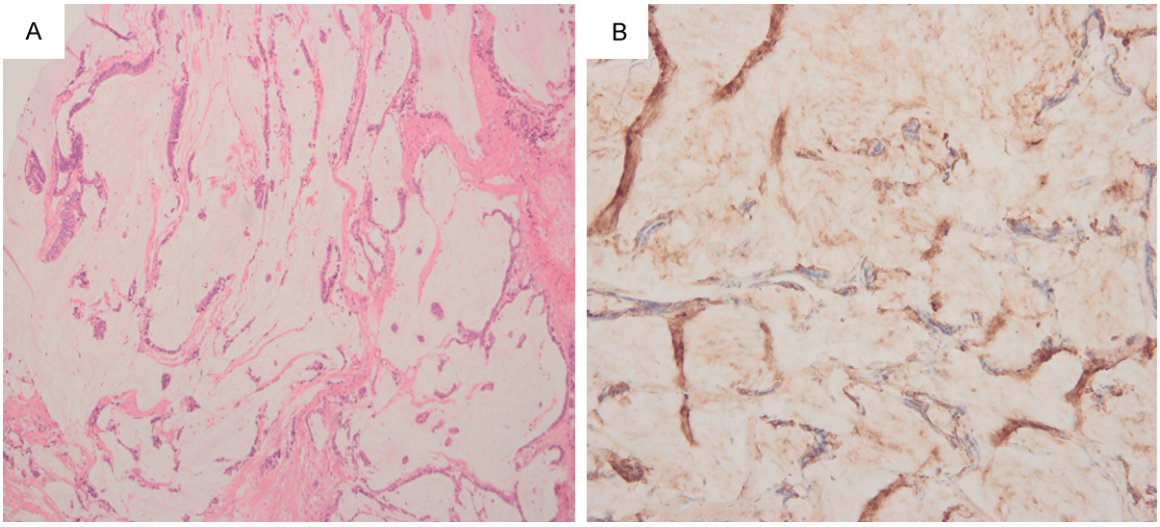

Figure 2. A: HE (hematoxylin-eosin) staining: adenocarcinoma with extensive mucin. (original magnification × 100); B: Immunoperoxidase staining: membrane-associated CEA reactivity (CEA antibody, original magnification × 200).

implant every 3 months, was given concurrently. The patient received adjuvant HT for 24 months and was alive with no evidence of disease 26 months after RT.

Our case treated with radical prostatectomy. The patient was still free of disease after 3 years follow up. The main treatment choice for MC is still radical prostatectomy. However, hormone therapy (HT) or/and radical radiotherapy may be the potential options.Based on the follow up data of other researchers' cases and ours, it seems that MC is not the most badly pathological type of prostate cancer. But we need to gather more data to help determine the clinical behavior and to find the optimal therapy for this rare malignant disease.

Disclosure of conflict of interest

None.

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