

Prostate Mucinous Carcinoma Treated With Definitive Radiotherapy and Hormonal Therapy: Case Report and Review of the Literature

Ozan Cem Guler,¹ Cem Onal,¹ Gurcan Erbay,² Nebil Bal³

Clinical Practice Points

- Prostate mucinous carcinoma (MC) is a rare variant of prostate adenocarcinoma that is characterized by large pools of extracellular mucin, which by definition compose at least 25% of the tumor volume.
- Prostate MC has 3 subtypes. The most common variant is pure MC; primary signet ring cell carcinoma and MC with signet ring cell are less common variants and are more aggressive than pure MC.
- Because of the rarity of prostate MC and conflicting reports regarding the behavior of the disease, the optimal treatment strategy is not clear. Most series report the efficacy of surgery.
- We report a rare case of a patient with a large prostate MC that was treated successfully with hormone therapy (HT) and radiotherapy (RT). Treatment response was assessed by dynamic contrast-enhanced magnetic resonance imaging (MRI).

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Introduction

Mucinous adenocarcinoma (MC), also called colloid adenocarcinoma, is a rare variant of prostate adenocarcinoma. MC has an incidence of less than 1% and is considered a high-grade lesion with a poor prognosis.^{1,2} The main treatment option for MC is radical prostatectomy, but radical radiotherapy (RT) is preferred in some rare cases. Although the treatment outcomes of patients who underwent surgery have been reported, there is little information on the role of RT and concurrent adjuvant hormone therapy (HT),³ especially in the English literature.

Here, we report a patient with an extremely large prostate MC that was successfully treated with HT and RT and showed a complete response by magnetic resonance imaging (MRI) and dynamic contrast-enhanced MRI.

Case Report

A 60-year-old male patient was referred to our hospital with complaints of urinary obstruction, rectal pain, and constipation over the previous year. His medical history included diabetes mellitus for 17 years and previous cerebral stroke without any sequelae. On digital rectal examination, the prostate was extremely large, causing almost complete obstruction of the rectum, but the patient reported no pain. The prostate tissue was elastic, and other physical examination findings were normal. The serum prostate-specific antigen (PSA) level was 0.8 ng/mL, which was within normal limits. Cystoscopy with transurethral resection was performed and the histopathologic findings were consistent with mucinous adenocarcinoma. The patient was considered inoperable and was referred to our clinic for definitive RT. Computed tomography of the chest and abdomen and a bone scan did not demonstrate any metastatic disease. Computed tomographic scans of the pelvis showed liquid collection over the periprostatic area, but no collection was observed on transrectal ultrasonography. Pelvic MRI indicated a mass with mucinous components that originated from the posterior and anterior lobes of the prostate and compressed the rectum (Fig. 1, A and B). Invasion of the seminal vesicle and mesorectal fascia was also observed. The histopathologic specimens were reviewed at our institution. Histopathologic examination revealed atypical epithelial cells with a cribriform pattern and mucin in tissues with a Gleason score of 8 (4 + 4), which was verified by immunohistochemical

¹Department of Radiation Oncology

²Department of Radiology

³Department of Pathology

Baskent University Faculty of Medicine, Ankara, Turkey

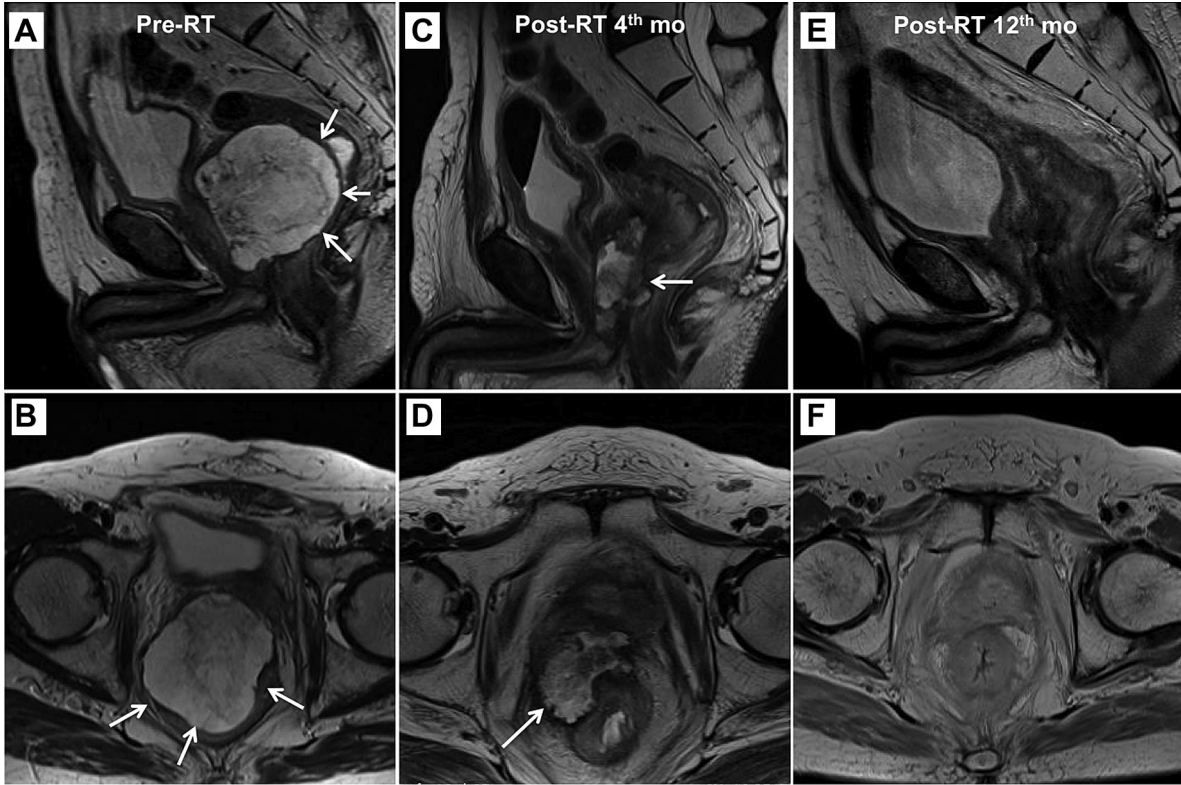
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Address for correspondence: Cem Onal, MD, Department of Radiation Oncology, Baskent University Faculty of Medicine, Adana Research and Treatment Centre, 01120 Adana, Turkey

Fax: +90-322-3444445; e-mail contact: hccmonal@hotmail.com

A Case of Prostate Mucinous Carcinoma

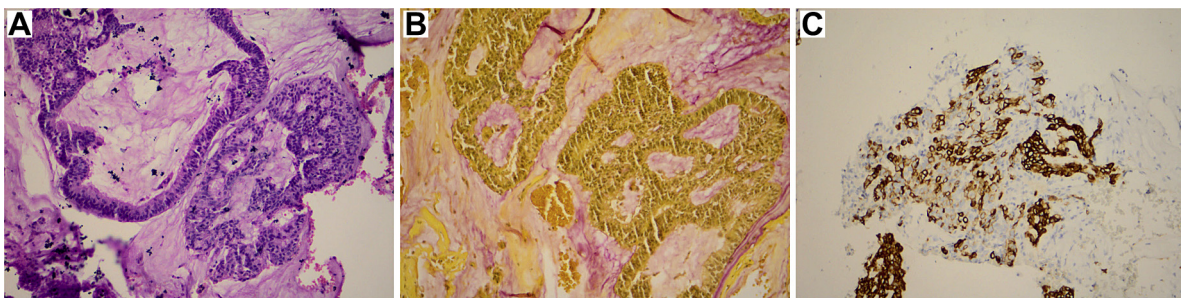
Figure 1 (A and B) T1-Weighted Sagittal and Axial Images of Large Prostate Compressing the Rectum (Arrows) and Invading Surrounding Organs. At 4 Months After Radiotherapy (RT), Shrinkage of the Prostate and Regression of Tumor is Seen on Sagittal and Axial MR Images. (C and D) Residual Tumor Invading the Prostate Capsule is Located on the Right Side of the Prostate (Arrow). (E and F) Marked Regression of Tumor and Shrinkage of the Prostate was Observed 1 Year After Completion of RT



staining (Fig. 2). The patient was diagnosed with high-risk prostate cancer 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 a 10.8-mg goserelin acetate implant every 3 months, was given concurrently. He presented with Radiation Therapy Oncology Group grade II gastrointestinal system toxicity diarrhea, which dissipated shortly after medication. Serum PSA levels had decreased

Figure 2 (A) Prostate Biopsy Specimen Showing Atypical Epithelial Cells With Cribriform Pattern Within Mucin Lakes (Hematoxylin and Eosin, $\times 200$). (B) Positive Mucicarmine Staining Within Mucin-Containing Areas (Mucicarmine, $\times 200$). (C) Positivity of Atypical Epithelial Cells for Pancytokeratin (Pancytokeratin, $\times 200$)



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