Prostate Cancer Associated with Hemorrhagic Cyst: Findings on Transrectal Doppler Sonography

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Cysts in the region of the prostate are common and may present as either intraprostatic or periprostatic. However, a hemorrhagic cyst in this area is unusual. A 62-year-old man was transferred to our hospital for elevated serum prostate-specific antigen (502 ng/mL). A digital rectal examination revealed a non-tendered fluctuation over the prostate, masquerading as an abscess-like lesion. The urine was sterile. Transrectal sonography revealed a cystic lesion over the apical portion of the prostate. On color and power Doppler appearance, mildly increased vascularity but asymmetric distribution was found. With the patient's consent, about 20 mL of sterile, non-coagulant, dark, bloody fluid was aspirated under sonographic guidance. After aspiration, the prostate outline returned to a near normal but existed as an echo-heterogeneous entity. Bilateral sextant biopsy was simply performed thereafter and pathology showed adenocarcinoma from each core (Gleason score, 4 + 5/10). Hormonal therapy was administered because of multiple bony metastases. However a cyst in this area is unusual. We herein report a newly diagnosed prostrate cancer associated with a hemorrhagic cyst which was masquerading as a abscess-like lesion. The Doppler transrectal sonographic appearance of this particular case of prostate cancer is also described.

KEY WORDS — cyst, hemorrhage, prostate neoplasm, transrectal ultrasound

Introduction

Cysts in the region of the prostate are common and may present as either intraprostatic or periprostatic [1]. However, a hemorrhagic cyst in this area is unusual. Herein we have described a Doppler transrectal ultrasonographic (TRUS) appearance of a hemorrhagic cyst in a newly diagnosed prostate cancer, and have reviewed the literature.

Case Report

A 62-year-old man was transferred to our hospital for elevated serum prostate-specific antigen (502 ng/mL). Medical history revealed neither a recent febrile condition nor other systemic complaints other than voiding problems. Digital rectal examination (DRE) revealed a non-tendered fluctuation over the prostate without any local heat which was masquerading as
an abscess-like lesion. The patient’s urine was sterile. TRUS revealed a cystic lesion over the apical portion of the prostate measuring $2.0 \text{ cm} \times 3.1 \text{ cm} \times 3.9 \text{ cm}$ (Fig. 1). There was a low echoic content within the cyst and several scattered hypoechoic lesions in the solid portion of the prostate. In addition, each zone was not clearly distinguished. On color and power Doppler appearance, mildly increased vascularity but asymmetric distribution was found (Fig. 2). Doppler spectral analysis showed similar values of peak systolic and resistive indexes from four sites, including capsular, urethral branches and the margin of the hemorrhagic cyst (Fig. 3). With the patient’s consent, about 20 mL of sterile, non-coagulant, dark, bloody fluid was aspirated under sonographic guidance. After aspiration, the prostate outline returned to near normal but existed as an echo-heterogeneous entity (Fig. 4). Bilateral sextant biopsy was simply performed thereafter and pathology showed adenocarcinoma from each core (Gleason score, $4+5/10$).

**Discussion**

A decade ago the hypoechoic lesion within the peripheral zone was conventionally thought to be the classical presentation of prostate cancer under TRUS examination [2]. In order to detect early prostate cancer, systematic random biopsy has become
mainstream. Fewer prostate cancers were seen from gray-scale 2-D images and may have been solely seen as a hypoechoic lesion or other suspicious sonomorphologic lesion [3]. In contrast, advanced prostate cancers frequently present as a diffusely heterogeneous echo pattern under TRUS as well as a firm or hard consistency on DRE. Therefore the existence of such a hemorrhagic cyst may exhibit a
Prostate Cancer Associated with a Hemorrhagic Cyst

Since a hemorrhagic cyst is rare or unusual in managing prostatic diseases such as prostate cancer, prostatitis, or benign prostatic hyperplasia, it is difficult to determine the cause of hemorrhage via sonographic examination. Although the real cause was not known in this case, it is most likely the cyst has developed dependently upon the cancer—maybe a fast and aggressive growing cancer caused bleeding into the cystic lesion. In a study of color Doppler flow imaging of 10 cases of multilocular cystic lesions of the kidney, Hirai et al reported that the color display in the lesion well reflects its vascularity in all patients. A pulsatile wave with a large maximum flow velocity was found at the septum and the solid component of renal cell carcinoma, rather than other benign cystic lesions [6]. Our case demonstrated that a pulsatile wave, higher pulsatile index and peak systolic velocity existed at the margin of the cyst on Doppler spectral wave form analysis. Similar values of peak systolic velocity and resistive index were noted when compared with three other portions. Thus, such a Doppler appearance might provide the clue for an underlying prostate cancer after excluding the possibility of an infectious entity such as an abscess.

In conclusion, we reported the gray 2-D and Doppler appearance of transrectal ultrasound in metastatic prostate cancer simultaneous with a hemorrhagic cyst. Doppler spectral wave form showed a pulsatile wave at the margin of the cyst and similar values of peak systolic velocity and resistive index with other portions. Since its rarity and unclear pathogenesis, it is still necessary to collect more case to investigate.

References


Fig. 4. Twenty mL of non-coagulant, dark, bloody fluid was aspirated out under sonographic guidance. After aspiration, the prostate outline returned to a near normal but existing as an echo-heterogeneous entity.