Metastatic Prostate Cancer Diagnosed by Bone Marrow Aspiration in an Elderly Man Not Undergoing PSA Screening

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Abstract
Prostate cancer screening by PSA testing remains controversial, particularly in the elderly. Practice guidelines from most clinical societies suggest discontinuing PSA screening at age 70 while the USPSTF recommends against screening at any age. Recent reports have demonstrated an increased incidence of metastatic prostate cancer, with men aged 75 or older accounting for roughly half of those newly diagnosed at an incurable stage. We herein describe the case of an elderly gentleman with no history of prostate cancer screening who presented with anorexia and back pain of unclear etiology. Evaluation with bone marrow aspiration revealed a diagnosis of metastatic prostate cancer.

Introduction
For men in the United States, prostate cancer is the second most common malignancy and the second leading cause of cancer death.1 PSA testing in previously unscreened populations is associated with earlier-stage disease at diagnosis and decreased cancer mortality when combined with effective therapy.2 Despite this, widespread screening with PSA remains controversial due to the high prevalence of prostate cancer, heterogeneity of disease aggressiveness in localized stages, morbidity of treatment, and previous tendencies to overtreat clinically indolent disease. As a result, there is widespread variability among clinical guidelines with respect to PSA screening recommendations. The United States Preventive Services Task Force (USPSTF) has advised against the use of PSA for screening purposes while the American Urological Association (AUA) and American Cancer Society (ACS) have called for evidence-based approaches to screening.3,4 Nevertheless, with declining rates of PSA testing, there has been an increased incidence of metastatic prostate cancer in the United States.4,5 Moreover, the majority of metastatic disease has been diagnosed in the elderly population, a group for which PSA screening would be discontinued under virtually all guidelines.5 We herein discuss the case of an elderly gentleman without a history of PSA screening who was diagnosed with metastatic prostate cancer at presentation.

Case presentation
A 78-year-old gentleman presented to his primary care physician with dull, intermittent lower back pain lasting 1 year. In the 2 months prior to presentation, the patient experienced anorexia, weight loss, and progressive weakness and fatigue. Initial laboratory evaluation revealed mild anemia, and an MRI of the spine demonstrated changes suggestive of a neoplastic process involving the lumbar spine, sacrum, and iliac bones. Serum protein electrophoresis demonstrated an M-spike with elevated free monoclonal lambda light chains. His clinical presentation ultimately triggered referral to oncology to rule out multiple myeloma or other bone malignancy.

As part of this workup, the patient underwent a skeletal survey which demonstrated osteoblastic changes in multiple locations. Bone marrow aspiration and biopsy revealed metastatic prostate cancer involving 60% of the bone marrow (Fig. 1). He was subsequently diagnosed with high-volume Stage IV prostate cancer. A PSA level obtained after analysis of the bone marrow aspirate was 258 ng/mL. He was started on androgen deprivation therapy for his metastatic prostate cancer.

Abbreviations: PSA, prostate-specific antigen; USPSTF, United States Preventive Services Task Force.

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Discussion

The USPSTF has progressively discouraged PSA screening. In 2008, the USPSTF published a Grade D recommendation which advised against the use of PSA screening in men aged 75 years or older; a 2012 update controversially expanded this recommendation to all men, regardless of age, race, or life expectancy.3 Prostate cancer screening and incidence have subsequently declined, with the largest decreases occurring between 2011 and 2012.4 Importantly, however, there was a significant increase in the incidence of distant-stage disease for patients aged 75 years or older between 2011 and 2012. Indeed, men aged 75 years or older, like the patient in the current report, are more likely than younger men to be diagnosed with metastatic disease and suffer from prostate cancer-specific mortality despite higher rates of death from competing causes.1 A possible explanation for this discrepancy could be the hesitancy to administer the PSA screening test for this elderly population, particularly in light of the rather definitive recommendations set forth by the USPSTF.

Recent developments in prostate cancer screening and in our understanding of localized disease suggest that current screening guidelines should be reconsidered. For instance, recent analysis of the 2009 Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial, which failed to show a mortality benefit with PSA screening, found that nearly 90% of the control group (i.e., subjects assigned to forgo PSA screening) did in fact undergo PSA testing during the study period.6 Furthermore, a growing understanding of which patients with localized disease benefit from treatment has allowed for increased use of active surveillance.4 Finally, more specific screening tests have emerged that may better identify clinically significant cancers.7 In light of such advancements in diagnostic testing, a growing emphasis on personalized medicine, and the emergence of additional data in recent years, it would be prudent to re-evaluate extant clinical guidelines for the screening and management of prostate cancer in the elderly.

Conclusion

Declining use of the PSA screening test has been associated with an increased incidence of metastatic prostate cancer, but it is unknown if a causal relationship between the two patterns exist. Men, particularly those aged 75 years or older, are increasingly being diagnosed with late-stage, incurable disease due to the lack of cancer detection earlier in the disease process. This case demonstrates the need for increased vigilance in detecting metastatic prostate cancer and urges reconsideration of current guidelines for prostate cancer screening.

Conflicts of interest

The authors do not report any disclosures or conflicts of interest.

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