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Abdominal and back pain in a 65-year-old patient with metastatic prostate cancer

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Abstract

Objective: Prostate cancer remains the second leading cause of cancer-related deaths, and African American men are affected with this disease disproportionately in terms of incidence and mortality. The purpose of this article is to present a case report that illustrates the importance of a careful evaluation, including a comprehensive historical review and appropriate physical and laboratory assessment, of a patient with back pain and seemingly unrelated symptoms.

Clinical Features: A 65-year-old African American man presented to a chiropractic clinic after experiencing lower back pain for 1 month. The digital rectal examination was unremarkable, but the serum prostate-specific antigen was markedly elevated. A suspicion of metastatic prostate cancer resulted in subsequent referral, further diagnostic evaluation, and palliation.

Intervention and Outcome: The patient was referred for medical evaluation and palliation of his condition. Spinal decompression surgery of the thoracic spine was initiated, resulting in weakness and paresthesia in the lower limbs bilaterally. The patient died because of the complications associated with the medical interventions and the disease about 12 months after the referral.

Conclusion: Chiropractic physicians should maintain a high degree of suspicion for catastrophic causes of back-related complaints, such as metastatic prostate cancer. The Prostate Cancer Prevention Trial Risk Calculator, a research validated instrument, should be used in the assessment of prostate cancer risk. Performance of the digital rectal examination and of the prostate-specific antigen determination remains integral in the clinical assessment of the health status in aging men, with or without back pain.

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Introduction

Prostate cancer is the most frequently diagnosed cancer in men. It is the second-leading cause of cancer death in men, second only to lung cancer. An estimated 192 280 new cases of prostate cancer will occur in the United States during 2009 along with an estimated 27 360 deaths.[1] The incidence rates are significantly higher in African Americans compared with other ethnic groups. In addition, death rates in African American men remain more than twice as high as that in whites.[1] Prostate cancer is largely a disease of the elderly. Between 2001 and 2005, the median age at diagnosis for white men was 68 years; and the median age at death was 80 years. The median age at diagnosis for African American men was 65 years, and the median age at death was 77 years. The number of both African American and white men diagnosed before the age of 50 years is small; approximately 2.5% of white men diagnosed with prostate cancer are younger than 50 years, whereas approximately 5.2% of African American men are younger than 50 years at the time of diagnosis.[2]

Routine screening for the detection of prostate cancer remains controversial. The primary screening procedures for detecting prostate cancer are the prostate-specific antigen (PSA) blood test and the digital rectal examination (DRE). The American College of Preventive Medicine and the United States Preventive Services Task Force conclude that there is insufficient evidence to support the recommendation for routine screening for the detection of prostate cancer.[3,4] In addition, the United States Preventive Services Task Force recommends that screening for prostate cancer not be performed in men 75 years or older.[4] The American Cancer Society recommends that health care providers discuss the potential benefits and limitations of prostate cancer early detection testing with men and offer the PSA blood test and the DRE annually, beginning at age 50 years, to men who are at average risk of prostate cancer and who have a life expectancy of at least 10 years. Those men who indicate a preference for testing after this discussion should be tested. Men at high risk of developing prostate cancer (African Americans or men with a close relative diagnosed with prostate cancer before age 65 years) should have this discussion with their provider beginning at age 45 years. Men at even higher risk (because they have several close relatives diagnosed with prostate cancer at an early age) should have this discussion with their provider at age 40 years.[1,5]

As primary care practitioners, chiropractic physicians routinely evaluate and therapeutically manage patients with complaints of back pain and associated symptoms. The initial evaluation of such patients requires a patient-centered, systematic, and comprehensive review of historical data. Taking his or her cue from information gathered through the historical interview process, the physician tailors the physical examination accordingly. Laboratory testing and/or special diagnostic imaging procedures are included in the examination process, as warranted. Individual state licensure or jurisdictional restrictions pertaining to the chiropractic profession will dictate the level and types of services a chiropractic physician can provide, but the responsibility to appropriately manage patients' health-related matters can never be waived. The purpose of this article is to present a case report that illustrates the importance of a careful evaluation, including a comprehensive historical review and appropriate physical and laboratory assessment, of a patient with back pain and seemingly unrelated symptoms.

Case report

A 65-year-old African American man presented to a chiropractic clinic having experienced low back pain for approximately 1 month. The patient attributed the onset of this complaint to "working out" at the gym. However, he could not point out a specific exercise maneuver that initiated the pain. He described the pain in his lower back as a "dull ache" that was constant and relieved by sitting or lying recumbent. He denied being awakened by the pain during the night. No positions or activities increased the intensity or altered the character of the lower back pain. The patient had not sought care from any other provider, nor had he been taking any medications for pain relief for this condition. In addition to the lower back pain, the patient also complained of being "constipated." He stated that he had not had a bowel movement in the past 5 days before the initial office visit. He admitted to experiencing constant abdominal discomfort and an associated discomfort located posteriorly in the region between the shoulder blades. He attributed these symptoms to a "build up of gas" in his body, but he correlated the onset of his symptom of constipation with the addition of a self-selected regimen of Slim-Fast meal replacement shakes (Unilever, Englewood Cliffs, NJ) to his diet. He stated that he was attempting to facilitate weight loss by the incorporation of these meal

replacement shakes to his dietary plan. Some relief of the abdominal discomfort and the pain between the shoulder blades was afforded by the passage of flatus. These symptoms were reported as being increased by leaning forward or bending at the waist. He inquired of the therapeutic benefit of colon irrigation as a possible remedy for these later symptomatic complaints. It was noted that about 2 weeks prior, the patient had visited an emergency department because of a sudden onset of "abdominal pain." Evaluation at the emergency department revealed that the patient had experienced a "urinary tract infection" and had been "passing kidney stones." The emergency department physician had prescribed for the patient levofloxacin, cyclobenzaprine, and ibuprofen for prophylaxis. In addition to seeking assistance with the previously mentioned symptoms, the patient requested that a "full physical examination" be performed to give him assurance of his health status before he embarked on an extensive travel itinerary. The patient reported that he last had his prostate evaluated 2 years ago at a local Veterans Affairs Medical Center and was told his DRE and PSA test were "normal."

A review of the patient's past medical history revealed a previous history of high blood pressure (not medicated), duodenal ulcer, hemorrhoidectomy for external hemorrhoids, benign prostatic hyperplasia (treated with Prostata, *Pygeum africanum* [GVI, Costa Mesa, CA]), urinary frequency, asymptomatic varicose veins in the lower extremities, and gonorrhea infection (contracted while in his 20s). The patient had smoked 1 pack of cigarettes per week for 7 years, but had quit 13 years ago. He drank alcohol infrequently. The patient was sexually active and was HIV negative. His exercise consisted of walking 3 miles at least 3 times each week. The patient had been retired from the United States Navy as an officer for 7 years. His family history was positive for type 2 diabetes mellitus (mother), heart disease (father, died of myocardial infarction at age 77 years), hypothyroidism (mother), and high blood pressure (father and numerous relatives of the father).

The patient was a well-nourished man in no apparent distress. He stood 69.5 in tall and weighed 194 lb. His gait appeared normal, and he walked without support. Vital signs were normal except for a pulse rate of 104 beats per minute and blood pressure of 146/78 mm Hg. There was a palpable symmetrical arrhythmia detected when the radial pulse was assessed. There was no apparent lymphadenopathy in the cervical, supraclavicular, or inguinal/groin regions. Bruits were not detected in the carotid arteries, abdominal aorta, or the renal and femoral arteries. A careful inspection of the patient revealed no rashes, abnormal skin discolorations, lesions, ecchymosis, swelling, edema, or joint deformities. Palpation of the back (from the thoracic area to the sacrum) did not elicit any tenderness or noticeable discomfort. Active motions of the trunk were full and essentially pain-free. However, it was noted that extension of the trunk relieved the patient's lower back pain. There was very mild discomfort reported at the end range of forward flexion of the trunk. The symptom of lower back pain was localized to the midline at approximately the L4-L5 spinal vertebral levels. No orthopedic or provocative testing could reproduce or exacerbate the patient's symptoms in the lower back and scapular regions. A rectal examination, which included anoscopy and a DRE, did not reveal pathology. The prostate gland palpated as being nontender, about 3 finger breadths in width; and its consistency was assessed as being firm with no apparent endurations or nodules. The stool on the examining finger tested negative for occult blood.

Results of urinalysis showed trace blood and 5 red blood cells per high-power field (reference range, 0-3). The hemogram indicated low hemoglobin and hematocrit values: 12.9 g/dL (reference range, 14.0-18.0) and 38.4% (reference range, 42.0%-52.0%), respectively. Total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, and triglycerides were reported as 243 mg/dL (reference range, 110-200), 36 mg/dL (reference, 36-60), 164 mg/dL (reference range, 0-129), and 109 mg/dL (reference range, 1-199), respectively. Alkaline phosphatase was 242 U/L (reference range, 39-117), and PSA was 173.2 ng/mL (reference, range 0-4). The electrocardiogram tracing revealed indication of an old posterior myocardial wall infarct and regularly occurring preventricular contractions after every fourth regularly occurring QRS complex. This finding is usually associated with coronary artery disease. Visual analog scale measurements corresponding to the patient's lower back pain and the pain between the shoulder blades were 46 and 47 mm, respectively.

On the basis of the historical, physical, and laboratory evaluations, a working diagnosis of metastatic prostate cancer was determined. The patient was referred to a urological oncologist for further diagnostic assessment and therapeutic management. Subsequently, metastasis to the lumbar spine was confirmed. A magnetic resonance imaging was performed and revealed evidence of metastatic cancer extension into midthoracic region spinal canal, resulting in spinal cord compression at the level of T6-T7, with impingement

of the spinal cord, as well as evidence of metastatic disease in the bone at that level. Biopsy of the prostate revealed poorly differentiated adenocarcinoma with a Gleason score of 9. Spinal decompression surgery of the thoracic spine was performed followed by adjuvant radiation therapy sessions and antiandrogen hormonal therapy (flutamide). The patient did not recover sufficiently from the surgery, which resulted in lower limb weakness and paresthesias bilaterally. The patient died because of complications of the medical therapy and the disease approximately 1 year after the initial referral. It should be noted that before the patient saw the oncologist, the patient received a session of colonic irrigation to help ameliorate his symptoms of constipation. He reported complete resolution of the pain between the shoulder blades and the abdominal pain immediately after the procedure. There were no observed or reported untoward effects as a result of the single session of colonic irrigation.

Discussion

Prostate cancer is diagnosed in very few people younger than 50 years (<0.1% of all patients). The mean age of patients with this disorder is 72 to 74 years, and about 85% of patients are diagnosed after age 65 years.[6] Early prostate cancer usually has no specific symptoms. Lower urinary tract symptoms may be present, but these are neither specific nor sensitive enough to diagnose prostate cancer. Lower urinary tract symptoms are more specific to another condition known as *benign prostatic hyperplasia* and should not be correlated directly to the presence of prostate cancer.[7] However, with more advanced disease, individuals may experience weak or interrupted urine flow; inability to urinate or difficulty starting or stopping the urine flow; the need to urinate frequently, especially at night; blood in the urine; or pain or burning with urination. Advanced prostate cancer commonly spreads to the bones, which can cause pain in the hips, spine, ribs, or other areas.[1,8] A recent population-based, case-control study demonstrated a strong association of impotence and prostate cancer. Impotence was considered to be an important and early marker for prostate cancer.[9] Other symptoms, such as constipation and abdominal pain, have not be implicated as being significantly associated with the diagnosis of prostate cancer.

Assessing risk factors is an important consideration in the evaluation of chronic degenerative diseases, especially prostate cancer. The only well-established risk factors for prostate cancer are age, race/ethnicity, and family history of the disease. African American men and Jamaican men of African descent have the highest prostate cancer rates in the world. Familial predisposition may account for 5% to 10% of prostate cancers. Diets high in animal fat may also be a risk factor.[1] Prior sexual practices (increased number of sexual partners), exposures to sexually transmitted microbial agents, and history of prostatitis play a significant role in the natural history of prostate cancer in black men.[10] The recently developed risk calculator (available at www.compass.fhcrc.org/edrnnci/bin/calculator/main.asp) derived from analysis of results from the Prostate Cancer Prevention Trial, which integrates family history of prostate cancer, DRE findings, PSA test result, age, ethnicity, and history of prior prostate biopsy with a negative result, is said to allow clinicians the ability to assess a patient's individual risk of prostate cancer.[2,11]

Screening for prostate cancer has been a controversial subject in the realm of preventive health care. The PSA and the DRE have remained the primary tools used for screening and early detection of prostate cancer for over 2 decades. The controversy surrounding screening for prostate cancer stems from the fact that there has not been demonstrable evidence that mass screening programs for the detection of prostate cancer have resulted in a significant reduction in the morbidity or the mortality associated with the disease. Adding to the debate, various guidelines and screening recommendations offered on behalf of individual health care organizations have not indicated a consensus of opinion.[1,3-5] Although routine screening for prostate cancer is controversial, the controversy is decreased when we consider screening in African American men or men with African ancestry. African American men suffer disproportionally from the disease, having a 50% higher incidence and a 2-fold greater mortality than do white men.[12]

Although the PSA and the DRE may not be ideal screening tools, they are the centerpieces of 2 large prospective randomized clinical trials (Prostate, Lung, Colon, and Ovary screening trial in the United States and the European Randomized Study of Screening for Prostate Cancer in Europe).[13,14] Preliminary results of these trials were issued earlier this year. Unfortunately, it is unlikely that we will learn much about screening in individuals of African decent from either trial because of the low recruitment and participation of this group in these clinical trials. It is recommended that continued education and screening in hopes of early detection of

prostate cancer in African American communities should continue until the true culprit of this disparity in morbidity and mortality is identified.[12]

More than 90% of all prostate cancers are discovered in the local and regional stages. The 5-year relative survival rate for patients whose tumors are diagnosed at these stages approaches 100%. This survival rate has been attributable to earlier diagnosis and improvement in treatment.[1] Unfortunately, the prognosis for advanced disease or metastasis is poor, with no promise of a cure. One study found that, for the two thirds of men who presented with early-stage prostate cancer, death from heart disease and from other cancers was more common than death from prostate cancer.[15]

Bone metastasis is a common form of metastatic disease among patients with prostate cancer. It is reported that 65% to 80% of men with metastatic disease have bone metastasis. In addition, as many as 20% of men who are newly diagnosed as having prostate cancer already have bone metastases. Bone metastases are complicated by significant morbidity, including skeletal-related events (SREs), which are local irreversible changes and include pathologic fracture, bone surgery, radiation therapy to the bone, and spinal cord compression. Medically treating SREs for these patients annually cost more than $12 000 (mean 1-year cumulative costs associated with SREs per patient). These events negatively affect quality of life and present a challenge for the goals of palliative therapy, which include managing these patients' pain, preventing further deterioration, and preserving quality of life.[16]

A quantifiable risk of prostate cancer exists at any level of PSA, making it impossible to establish a cutoff for PSA below which the risk of prostate cancer is negligible.[17] Biopsy-detected prostate cancer, including high-grade cancers, is not rare among men with PSA levels of 4.0 ng/mL or less—levels generally thought to be in the reference range.[18] The importance of an adequate clinical examination is essential to detecting prostate cancer. A normal PSA level alone cannot eliminate the possibility of a diagnosis of prostate cancer. Relying on PSA alone will result in up to 2.2% of prostate cancers remaining undetected. This may have considerable medicolegal consequences into the future should these men develop clinically apparent prostate cancer. Therefore, DRE and PSA should be interpreted as being collaborative, rather than competitive, in the detection of prostate cancer.[19,20] Paradoxically, results of a previous study suggested that prostate carcinomas with established malignant potential are more likely to be identified in black than in white men with PSA elevation as the only indication of malignancy.[21] However, it is not recommended that performing PSA determinations alone be performed in this population.

A DRE allows the examining physician to examine the contour, firmness, symmetry, and presence of nodules or endurations of the prostate. A DRE is a useful screening tool to detect prostate cancer, but it can miss cancer that is confined to the prostate; so this means that it misses nearly half of the cases of prostate cancer. When combined with a PSA test, an accurate DRE improves the detection of prostate cancer. An abnormal DRE may detect prostate cancer that is higher grade and different from that detected by PSA tests. Anatomically, the prostate is divided into different zones. The peripheral zone is the most common site of malignancy; and this may be palpable, unlike malignancies in the transition zone, which may not be palpable but can manifest as obstructive urinary symptoms.[22]

There is a significant concern for micrometastatic disease beyond the local-regional area in patients who present with PSA greater than 20 ng/mL. This concern is intensified in the subset of patients who have PSA greater than 50 ng/mL. In this challenging clinical situation, the utility of aggressive local and regional therapy is unclear. Appropriate options for initial treatment may include either radical radiation with adjuvant androgen suppression or androgen suppression alone. In addition, the clinical criteria for the appropriate integration of radical prostatectomy in this patient population are unknown.[23] Gerstenbluth et al[24] have shown that alone, serum PSA of at least 20 ng/mL had a positive predictive value of 87%. When the PSA was increased to greater than 50 ng/mL, a positive predictive value of 98.5% accuracy in predicting the presence of prostate cancer on tissue biopsy was obtained. These findings suggest that a tissue biopsy to confirm the presence of prostate cancer may be foregone, and proceeding directly to treatment is warranted.

Conclusion

Prostate cancer, a leading cause of morbidity and mortality in aging men, is still an enigma in terms of its natural history. It affects African American men disproportionately in terms of prevalence and mortality, compared with white/European men. Although mass screening for the detection of prostate cancer remains

controversial, the clinical encounter between the physician and the patient ultimately determines the course of action through shared decision making.

Metastatic prostate cancer carries a poor prognosis, with estimated survival being between 12 to 24 months after the initial diagnosis. There is no hope for cure. Palliative care for relief of pain and other complications related to disease extension to areas beyond the confines of the prostate gland is the primary therapeutic goal.

Chiropractic physicians are educated and trained to provide primary care–related services, as well as specialty care. As such, chiropractic physicians should maintain a high degree of suspicion for catastrophic causes of back-related complaints, such as metastatic prostate cancer. The Prostate Cancer Prevention Trial Risk Calculator, a research validated instrument, should be used in the assessment of prostate cancer risk. Performance of the DRE and of the PSA determination remains integral in the clinical assessment of the health status in aging men, with or without back pain.

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