Progressive Slurring of Speech and Difficulty Reading in a 62-Year-Old Male

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A 62-year-old male with controlled hypertension, coronary artery disease, and borderline diabetes presented to the emergency room after experiencing a gradual one-month progression of slurring of speech and difficulty reading. The patient maintained his vital signs throughout his ambulance ride to the hospital and was clinically stable at time of arrival to the emergency department.
INTRODUCTION OF FINDINGS

Figures 2 and 3 demonstrate an intra-axial enhancing lesion within the left temporal lobe with mild effacement of the surrounding sulci, mild mass effect, and no midline shift. Figures 1 and 4 demonstrate an intra-axial complex lesion containing components of subacute blood and hemosiderin.

FINAL DIAGNOSIS

Metastatic small cell cancer of the prostate gland.

DISCUSSION

Prostate cancer is second only to lung cancer as the leading cause of cancer-related deaths in men. Approximately 1 in 10 men will have a clinical diagnosis of prostate cancer in their lifetime.1 The specific etiology of prostate cancer is unknown. However, a man’s risk of developing prostate cancer is related to many factors; the primary risk factor being advanced age. Prostate cancer is uncommon in men younger than 45 but becomes more prevalent after age 50. Thirty percent of men more than 50 years of age, and 70% of men more than 80 years old will develop prostate cancer.2,3

Early prostate cancer can be asymptomatic or present with symptoms of urinary and/or sexual dysfunction. These symptoms include polyuria, dysuria, nocturia, urinary hesitancy, and hematuria. In addition, because of the prostate’s intimate relation to other anatomic structures, such as the vas deferens, men with prostate cancer may also develop sexual dysfunction, i.e. erectile dysfunction or painful ejaculation. Over time, prostate cancer may enlarge and invade adjacent organs, or the tumor cells may metastasize via the bloodstream or lymphatic system. Prostate cancer spreads to the lungs in about 50% of patients with metastatic disease and to the liver in about 25% of those with metastases. Furthermore, 90% of prostatic metastases involve the spine, with a predilection for the lumbar spine.4,5

Initial screening for prostate cancer typically begins at age 50. Screening examinations include the digital rectal exam (DRE) and the prostate specific antigen (PSA) test. Other tests that can be used to directly or indirectly evaluate for disease include: transrectal ultrasound, cystoscopy, and urodynamic tests. Definitive diagnosis of prostate cancer is obtained via tissue sampling through transrectal biopsy or transperineal biopsy. Moreover, to evaluate for metastatic disease, imaging tests, such as CT and bone scans, may be performed. Ultimately, patients with suspected CNS metastasis should be promptly evaluated and treated.

The vast majority of prostate malignancies are adenocarcinomas. However, approximately 4% of prostate cancers exhibit transitional cell morphology and <2% have neuroendocrine characteristics. Neuroendocrine classification in prostatic malignancy includes conventional adenocarcinoma with focal neuroendocrine differentiation, carcinoid and carcinoid-like tumors, and small cell undifferentiated neuroendocrine prostate carcinoma. Small cell carcinoma of the prostate is believed to originate from epithelial cells of prostatic ducts and acini, as well as the endothelium of the prostatic urethra. Neuroendocrine tumors of the prostate have a much greater tendency to become metastatic than adenocarcinomas.6 It is imperative to accurately diagnose small cell carcinoma and avoid its common misdiagnosis as poorly differentiated adenocarcinoma, as both the prognosis and therapeutic modalities vary greatly.6

Patients rarely present with neurologic symptoms as the initial manifestation of metastatic prostate cancer. When spinal and/or brain metastasis does occur, it is most likely the result of late, disseminated disease and/or failure of diagnosed cancer to respond to hormone-deprivation therapy. Overall, cancer metastasis to the central nervous system (CNS) is rare, and presentation with a solitary brain metastasis as the only site of prostate cancer spread is even rarer. But, because neurologic complications of metastatic prostate cancer require prompt treatment, physicians should consider prostate cancer metastasis in the differential diagnosis of new-onset low back pain or headache in men more than 50 years of age.7 Patients can also present with nonfocal neurologic symptoms related to intracranial hypertension.8

The most common intracranial sites of prostate cancer metastasis are the leptomeninges (67%), cerebrum (25%), and cerebellum (8%).10 Prostate cancer has been shown to metastasize by following the venous drainage system through the lower paravertebral plexus, or Batson’s plexus; brain metastases are the result of contiguous spread. Nevertheless, because of the protective layer of the dura mater, subdural and intraparenchymal metastases from prostate cancer are rare. This is in contrast to other primary cancers, such as lung and breast tumors, which are more likely to have intraparenchymal metastases than leptomeningeal involvement.7

With brain metastasis, gadolinium-enhanced MRI is required to exclude or confirm. Compared with CT scanning, MRI is more sensitive in detecting multiple metastases, especially at the gray-white junction.11 Treatment options include surgical intervention, radiotherapy, hormonal therapy, or combinations of the aforementioned. Radiotherapy is the most common treatment for patients with multiple brain metastases or leptomeningeal involvement. Though treatment options are available, brain metastasis from prostate carcinoma is likely indicative of terminal event due to advanced, systemic disease. In addition, leptomeningeal carcinomatosis, the most frequent form of brain metastasis from prostate cancer, has a very poor prognosis. Surgical removal of a solitary lesion can extend survival, but overall, brain metastasis is associated with a poor prognosis. Unfortunately, once prostate cancer has spread to the brain, the one-year survival rate is 18%, with an average survival of 7.6 months.8,12

REFERENCES


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