Prostate cancer is the second most common cause of cancer death among US men. Metastasis typically occurs in the bone, lymph nodes, liver, and thorax. This case highlights a patient who was suspected of having prostate cancer several years before presenting to the emergency department with back pain and an umbilical hernia of increasing size. Gross examination revealed fixed masses on the abdominal wall that appeared malignant on computed tomographic imaging. The umbilical mass was a Sister Mary Joseph nodule (SMJN), which is sometimes found in patients with advanced, metastatic abdominal cancer. An SMJN is most commonly suggestive of gastrointestinal or gynecologic cancer, but it is a rarely reported finding in the context of prostate cancer. SMJN is a frequently missed finding that may delay further investigation for malignant neoplasms. This case reinforces the importance of this physical examination finding and provides evidence for adding prostate cancer to the list of possible diagnoses for patients who have an SMJN.

The National Cancer Institute estimates that nearly 200,000 new cases of prostate cancer and more than 30,000 deaths will occur in the United States in 2020. The 5-year survival rate from 2009-2015 in the United States was 98%. Of the cases described during this period, 6% were metastatic at the time of diagnosis and had a 30.5% 5-year survival rate. A review of 74,826 patients with metastatic prostate cancer showed that the most common sites of metastasis are bone, lymph nodes, liver, and thorax. The name Sister Mary Joseph nodule (SMJN) originated from Julia Dempsey, also known as Sister Mary Joseph, who was a nun and an assistant to William J. Mayo, MD. She first described the nodule’s association with intra-abdominal malignant neoplasms. SMJN is a cutaneous, periumbilical nodule that varies in color and can mimic an umbilical hernia. Development of an SMJN is due to metastasis of visceral tumors to the umbilicus, possibly from hematologic, lymphatic, or contiguous spread. Physicians should consider primary malignancies of local tissue, such as vitelline or urachal remnant adenocarcinomas, and dermatologic cancers. This case highlights the finding of an SMJN found in a patient with an advanced case of prostate cancer.
A 72-year-old man with a medical history of hypertension presented to the emergency department (ED) with back pain, left hip pain, and an enlarging umbilical hernia. He reported constant aching in his lower back and hip pain for the past few weeks that was worse at night, radiated down the leg, and was not relieved with changing position. He denied fever, chills, weakness, numbness, or incontinence of the bowel or bladder. His umbilical hernia had been present for slightly longer than the pain, and he reported an increase in size during the past 5 months. He also described other masses on his abdomen. He had been to an ED 4 and 9 months before the current admission and was treated conservatively for acute back pain. His medical record did not mention abdominal masses. Results of radiographic imaging of the left hip and lumbar spine from his ED visit 4 months earlier were unremarkable.

The patient did not have a primary care physician and was unable to provide much information regarding his medical history. The patient had been evaluated by a urologist for lower urinary tract symptoms approximately 8 years before. At that time, his prostate-specific antigen was 25.2 ng/mL. The patient’s treatment plan was to pursue a prostate biopsy, but he never followed up.

Physical examination showed that the patient was afebrile, hemodynamically stable, frail, and cachectic. He had point tenderness of multiple vertebrae and along the right iliac crest. Adjacent tissue was cool with fibrotic texture. The patient’s neurologic examination findings were unremarkable. Abdominal examination revealed multiple, large, solid masses located along his abdominal wall, including an SMJN. The masses were mildly tender, fixed, and irregularly shaped (Figure 1).

The patient’s prostate-specific antigen level was greater than 5000 ng/mL. Computed tomography (CT) of the patient’s chest, abdomen, and pelvis showed innumerable solid pulmonary nodules, solid adrenal nodules, pelvic lymphadenopathy, and prostatomegaly that measured 4.5 cm × 5.6 cm × 5.5 cm, with invasion into the bladder and pelvis. CT also revealed many solid nodules attached to the abdominal wall and the umbilicus. Magnetic resonance imaging of the spine revealed multiple compression fractures and spinal cord compression at multiple levels. A head CT was significant for multiple lytic lesions in the parietal region of the skull, with no masses in the brain (Figure 2).

CT-guided biopsy of the left iliac crest confirmed the suspected diagnosis of metastatic adenocarcinoma of the prostate and an SMJN. The patient received high-dose dexamethasone for spinal cord compression and flutamide for 1 week. After 1 year of treatment with abiraterone acetate, prednisone, and triptorelin pamoate, the patient’s prostate-specific antigen level was greater than 5000 ng/mL. His back and hip pain had improved, and the abdominal wall masses, including the SMJN, had nearly resolved.

Discussion
A review of 113 patients revealed a distribution of primary tumors that formed an SMJN as 47.8% gastrointestinal, 35.4% gynecologic, and 4.4% hematologic. The remaining primary cancers were not specified. We found 8 published cases of biopsy-proven SMJN due to prostatic adenocarcinoma.5-13 Wronski et al14 mentioned that this lesion is sometimes unnoticed by patients and physicians, including radiologists.14

In our review of the literature, SMJNs developed either during or after prostate cancer treatment and were likely biopsied because of concern for recurrence.
However, our patient had evidence of metastatic disease at the initial visit and primarily included bone metastasis. A bone biopsy confirmed the diagnosis of prostate cancer; however, a biopsy of the SMJN was not pursued because it would not have changed management. In this case, the significance of the SMJN finding was that earlier recognition of the lesion may have prompted an earlier metastatic evaluation.

Conclusion

SMJNs are a crucial physical examination finding of intra-abdominal malignant neoplasms. Prostate cancer should be added to the list of differential diagnoses a physician should consider for patients with an umbilical mass, particularly with concurrent back pain.

References