INVASIVE CARCINOMA OF PROSTATE
PRESENTING AS RECTAL CARCINOMA

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ABSTRACT—Prostate carcinoma occasionally can present with rectal obstructive symptoms and
an annular constricting lesion of the rectum. Discriminating between primary rectal carcinoma and
prostate carcinoma locally invasive to the rectum is of obvious importance because of the different
treatments and prognoses. History and physical examination play only a marginal role in differen-
tiating between these two lesions. The diagnosis of prostatic malignancy in patients in this circum-
stance can be supported by an elevated serum acid phosphatase as well as a bone scan that demon-
strates a pelvic/vertebral distribution of bony metastases. The rectal mucosa is usually spared, and a
barium enema often will demonstrate tapered margins as opposed to a tumor edge in primary rectal
malignancy. Excretory urography often demonstrates hydronephrosis. Rectal biopsy with immuno-
histochemical staining for prostate specific antigen can direct the origin of a poorly differentiated
adenocarcinoma to the prostate. Treatment involves hormonal manipulation with estrogen therapy
or orchiectomy. Radiation therapy to the obstructed rectum has provided satisfactory palliation
when hormonal manipulation fails.

We report on a patient with prostatic car-
cinoma who presented with symptoms simulating rectal carcinoma.

Case Report
A sixty-seven-year-old black man with
marked urinary hesitancy, poor stream, tenes-
mus, constipation, and intermittent diarrhea
was admitted to the urology service. Past medi-
cal history was significant for a right nephrec-
tomy for renal cell carcinoma and interstitial
nephritis in his remaining kidney. Physical ex-
amination was remarkable only for marked ten-
derness and induration of the anal verge which
prevented adequate digital examination. Aside
from decreased renal function, his initial labo-
atory profiles were normal. Urodynamic eval-
uation was consistent with bladder outlet ob-
stuction. Rectal examination under anesthesia
revealed a hard, obstructing, submucosal, an-
nular lesion of anus and rectum to beyond tip of
examing finger. The surgical consultant, with
a presumed diagnosis of primary rectal car-
cinoma, performed a rectal biopsy.

Histopathologic examination showed normal
ano-rectal mucosa with underlying tumor. Car-
cinoma cells were arranged in sheets and freely
infiltrated the muscularis. Tumor cells were
large with pleomorphic nuclei and large nu-
cleoli. Occasional signet ring forms were seen
(Fig. 1A). No intracellular mucin was identi-
fied. Immunoperoxidase staining for prostate
specific antigen (DAKO Corporation, Califor-
nia) via the peroxidase-antiperoxidase tech-
nique was positive in approximately half the tu-
mor cells (Fig. 1B), and on this basis, the
malignancy was interpreted as a poorly dif-
ferentiated adenocarcinoma of prostatic origin.

Serum acid phosphatase was 21.4 (normal 0–
5). Hepatic transaminases as well as alkaline
Phosphatase were elevated. Carcinoembryonic antigen was normal. Barium enema demonstrated an extrinsic mass causing rectal compression which was further delineated by computerized tomography (Fig. 2). Bone scan was positive for metastatic disease.

With a final diagnosis of prostate carcinoma locally invading the rectum and metastatic to bone, a transurethral prostatectomy and an orchietomy were performed. Histopathologic examination of the prostatic specimen showed poorly differentiated adenocarcinoma which was present in only 1 of the 225 prostatic chips. Morphologic structure was identical to the rectal biopsy specimen. The patient was placed on a regimen of parenteral nutrition and external beam radiation to his obstructed rectum. He had a satisfactory response, and on discharge had normal function of bowel and bladder and tolerated a regular diet.

**Comment**

Rectal obstruction most commonly is caused by primary rectal carcinoma. The bowel can be involved secondarily via direct invasion, intraperitoneal seeding, or embolic metastases by a neoplasm originating elsewhere. Prostate adenocarcinoma occasionally can directly invade the rectum or rectosigmoid causing partial or complete obstruction and confusing the origin of the primary neoplasm. A histopathologic examination of the lesion without consideration of clinical factors can result in an incorrect
diagnosis of primary rectal carcinoma. Differentiating between a primary rectal lesion and one that is secondary to prostate carcinoma is fundamental because the treatment for each is so different. A fixed pelvic mass that originates from the colon has an ominous prognosis whereas nearly 80 per cent of prostate carcinomas are responsive to palliative hormonal manipulation.

Pelvic carcinomas involving the rectum typically present with abdominal pain, bleeding, tenesmus, constipation, and intermittent diarrhea, as do primary rectal carcinomas. Obstruction may occur in any location from the proximal rectosigmoid to the anal verge. Physical examination is not rewarding in terms of determining the origin of the primary. Histopathology in both primary prostate carcinoma invasive to the rectum and primary rectal carcinoma usually is poorly differentiated adenocarcinoma, and often only immunohistochemical staining for prostatic specific antigen and prostatic acid phosphatase can differentiate between the two entities.

Carcinoma of the prostate most commonly is found in the posterior lobe and can extend through the capsule to involve Denovillier fascia. Insinuation between the two layers of Denovillier fascia can result in circumferential seeding of carcinoma around the rectum. Ultimately, fascial penetration and involvement of the rectal wall can occur. The muscularis layer of the rectum affords some protection against mucosal invasion, but the tumor can, on rare occasions, penetrate the rectal mucosa.

Rectal involvement from a prostatic primary has been characterized into three types reported by Lazarus: (1) a protruding anterior rectal mass which compresses or occludes the rectal lumen without penetrating the mucosa; (2) an annular rectal stricture with circumferential infiltration of the rectum or rectosigmoid without penetrating the mucosa; and (3) an anterior rectal mass with ulceration and penetration of the rectal mucosa.

The annular rectal stricture is the most common type of presentation and is manifested by a circumferential, asymmetric stricture of the proximal rectum or rectosigmoid with solitary distal rectal involvement being less common.

Fry, Amin, and Harbrecht have reviewed 13 patients with symptomatic rectal obstruction secondary to prostate carcinoma. They suggest that the presence of an intact rectal mucosa usually signifies a primary prostate carcinoma. Excretory urography was the most consistently positive study, typically demonstrating ureteral obstruction. Osteoblastic metastases and elevated serum acid phosphatase were other common findings. Comparison of the histopathology of the prostate biopsy to that of the rectal biopsy confirms the common histologic origin of the tissue and eliminates the possibility of synchronous primary lesions. Gengler, Baer, and Finby studied 8 patients with rectal and sigmoid involvement secondary to carcinoma of the prostate and reported that the barium enema revealed tapered margins in secondary carcinoma and a tumor edge in primary rectal carcinoma. Last, immunohistochemical staining techniques are key in the discrimination.

Palliative treatment for prostate carcinoma with rectal involvement consists of a trial of androgen deprivation. External beam radiation therapy to the obstructed rectum has provided satisfactory palliation when hormonal manipulation fails. Severe obstruction may require a proximal colostomy, but an initial trial of non-residue producing enteral or total parenteral nutrition during radiation therapy is recommended. Green reported a 90 per cent complete or partial response in 11 patients with obstructive rectal symptoms from prostate adenocarcinoma who received 6,000–7,000 rad to the rectum.

It behooves us to be alert to the possibility of prostate carcinoma in the patient presenting with rectal obstructive symptoms and/or a rectal mass. Before radical resection of the rectum is performed for apparent primary rectal carcinoma, the possibility of direct extension from prostate carcinoma must be ruled out.

References