

A Case of Rectal Cancer with Sternal Metastasis as Initial Presentation

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Colorectal cancer with bone metastasis as initial manifestation is a very rare event. We have reported a case of rectal cancer presenting with sternal metastasis. A 30 year-old man was evaluated due to pain in the sternal area with a bulging mass. History and physical examination did not suggest any specific disease. A radionuclide bone scan revealed increased uptake in the sternal area, right 6th rib, and sacrum. Microscopic examination of a biopsy specimen from the sternum showed metastatic adenocarcinoma. A barium enema and CT scan of the pelvis suggested carcinoma of the upper rectum. Adenocarcinoma of the rectosigmoid junction area was demonstrated by colonoscopic examination with biopsy. He received palliative transverse colostomy for obstruction without further treatment.

Key Words: Colorectal cancer, Sternal metastasis, Initial presentation

INTRODUCTION

Colorectal cancer frequently metastasizes to regional lymph nodes, the liver, lung, and peritoneum (Shallow et al., 1955). Bone metastasis is relatively uncommon and usually occurs in the disseminated disease (Besbeas and Stearns, 1978). The common sites of bone metastasis from colorectal cancer are vertebrae, the skull, pelvic bone, femur, and humerus

(Stein, 1940; Besbeas and Stearns, 1978). Cases in which the bone lesions produce the first manifestation are quite rare. We reports a case of rectal cancer with metastasis to the sternum as initial presentation.

CASE REPORT

A 30 year-old male was admitted to Ewha Womans University Medical Center because of chest pain in the sternal area on September 16, 1994. He had been in good health with no history of any specific disease until 20 days before admission, when chest pain developed. He was evaluated at another hospital, and underwent a radionuclide bone scan which showed abnormal findings, so he was transferred to our hospital.

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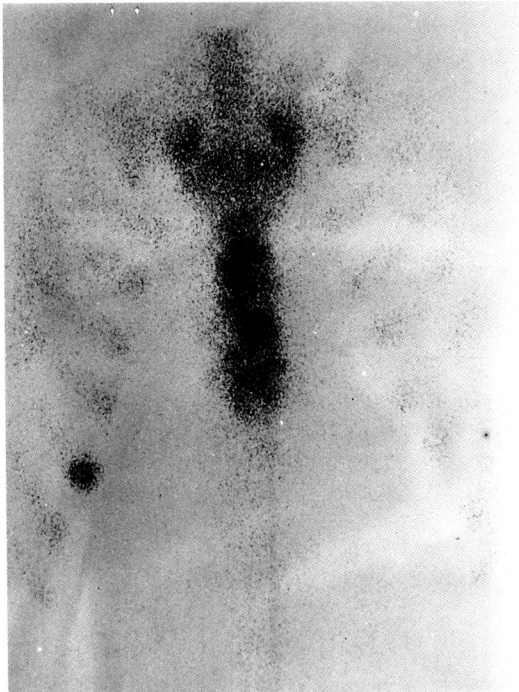


Fig. 1. Radionuclide bone scan shows increased uptake in the sternum and right 6th rib.

There was no history of weight loss, fever, abdominal pain, back pain, hematochezia, change in caliber of stool, and obvious bowel habit changes except for intermittent constipation of short duration. On physical examination, the patient appeared well. The head, neck, lung, heart, and abdomen were normal. No lymphadenopathy was found. There was an ill defined bulging mass in the midsternal area of the chest wall with tenderness. Rectal examination did not show any mass lesion.

Hematologic and biochemical examinations disclosed no abnormalities. The serum carcinoembryonic antigen level was 11.5ng/ml (normal value: < 5ng/ml). Chest X-ray was normal. A radionuclide bone scan, performed at another hospital, revealed findings of increased uptake in the the areas of the sternum, right 6th rib, and right sacrum, which suggested multiple bone metastasis (Fig. 1). A CT scan of the chest demonstrated an irregular cortical margin with adjacent periosteal soft tissue mass in the lower portion of the sternum (Fig. 2). On September 22, an open biopsy of the sternal mass was performed.

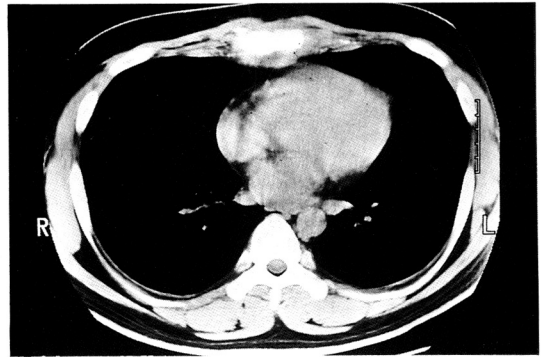


Fig. 2. CT scan of the chest reveals irregular cortical margin with periosteal soft tissue mass in the lower portion of the sternum.

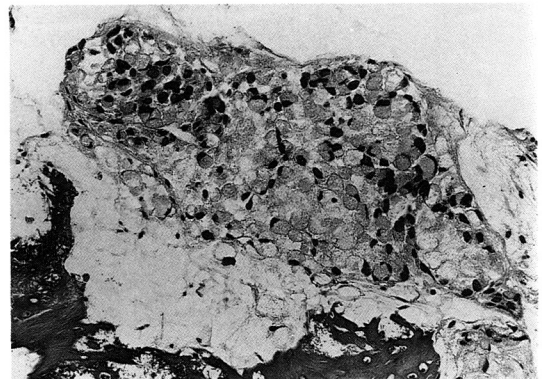


Fig. 3. Biopsy specimen of the sternum shows aggregating signet ring cells suggesting metastatic adenocarcinoma (Hematoxylin and eosin stain, X100).

Microscopic examination showed metastatic adenocarcinoma consisted of signet ring cells (Fig. 3). This finding suggested the gastro-intestinal tracts origin of the tumor. Therefore, an esophagogastroduodenoscopic examination was performed, which was normal except for mild gastritis. A barium enema revealed an annular constricting lesion of 5-6 cm length in the rectosigmoid junction area (Fig. 4). A CT scan of the pelvis showed a soft tissue mass in the upper rectum with enlargement of lymph nodes along the midsacral vessel, and there were no abnormalities in the liver (Fig. 5). A colonoscopic examination revealed a lesion with ulcerative annular narrowing about 5 cm length in the rectosigmoid junction area. Microscopic examination of the biopsy specimen from the lesion also showed adenocarcinoma (Fig. 6). We recommended palliative treatment including operation, radiotherapy,

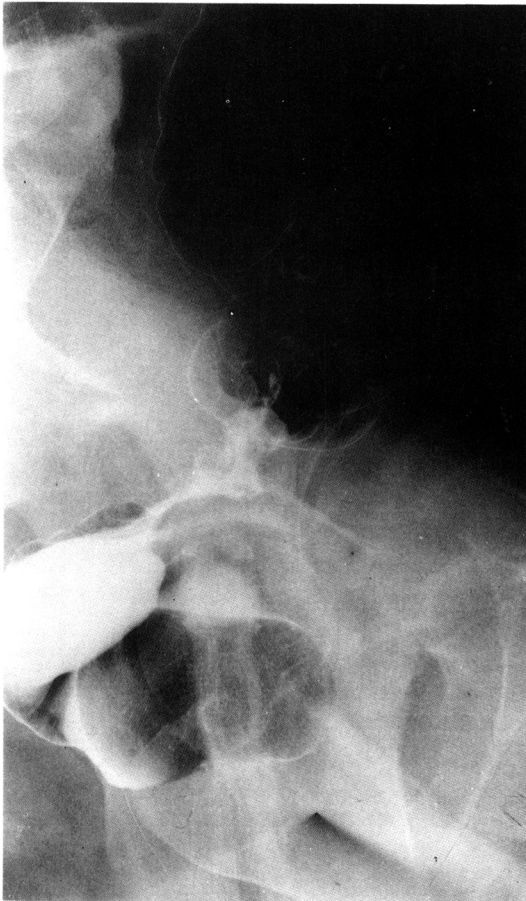


Fig. 4. Barium enema demonstrates annular constricting lesion in the rectosigmoid colon.

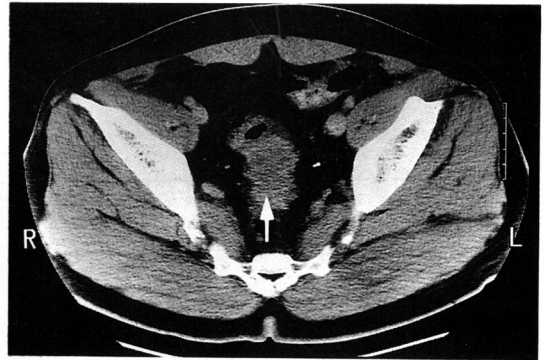


Fig. 5. CT scan of the pelvis shows soft tissue mass (arrow) in the upper rectum.

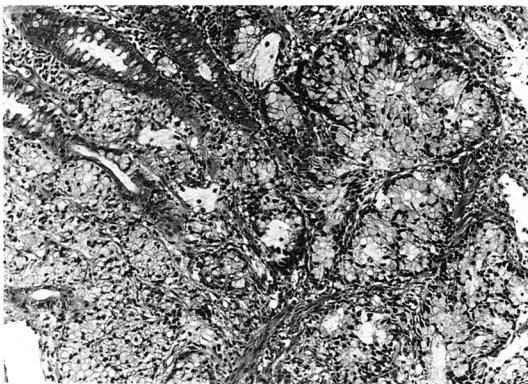


Fig. 6. Biopsy specimen from the rectum demonstrates moderately well differentiated adenocarcinoma composed of signet ring cells (Hematoxylin and eosin stain, X50).

and chemotherapy. However, the patient refused further treatment and was discharged.

About two months after discharge, he was readmitted to our hospital due to severe constipation. On December 22, a palliative transverse colostomy was performed to relieve the obstruction. At operation, a mass lesion was observed in the rectosigmoid junction with adhesion to the sacrum. The proximal sigmoid colon was moderately dilated. There were multiple lymph node enlargements on the aortic bifurcation. Both ureters were markedly dilated due to compression by the tumor.

DISCUSSION

Bone metastasis from colorectal cancer is infrequent and usually a late manifestation. Therefore, many studies on bone metastasis have been autopsy series. Incidences of bone metastasis from colon cancer have been reported between 0.6% and 5.1% (Buirge, 1941; Bertin, 1944; Abrams, 1950; Besbeas and Stearns, 1978). Rectal cancer metastasizes to bone more often, in 3.8 to 10.5% of cases (Aufses, 1930; Brown and Warren, 1938; Buirge, 1941; Bertin, 1944; Abrams, 1950; Besbeas and Stearns, 1978).

Bone metastases are hematogenous, probably through the veins. Tumor cells are believed to enter the venous system of Batson after direct invasion into the veins by the carcinoma (Batson, 1940; Besbeas and Stearns, 1978). The tumor cells are usually implanted on the following sites with red marrow and highly vascular area: the vertebrae, skull, proximal end of the femur and humerus (Stein, 1940; Ihle and

Mcbeath, 1973; Besbeas and Stearns, 1978). Our case showed a very unusual manifestation of initial presentation of bone metastasis, even though the patient had no symptom or sign of rectal cancer. Sternal metastases have been reported only in autopsy series with rare incidences (Aufses, 1930).

Our case belonged to a young age group (30 year-old). According to several reports, colorectal carcinoma in patients younger than 40 years of age demonstrated an aggressive behavior with advanced stage (Duke C or D) and poor prognosis (5-year survival rate: 23~30%), and a high incidence of undifferentiated and mucinous tumors (Behbehani et al., 1985; Domergue et al., 1988). The unusual manifestation of our case may be attributable to the young age of the patient and the aggressive behavior of the tumor.

In the past, it was difficult to detect bone metastasis in patients with colorectal cancer unless there were a suspicion or signs and symptoms suggesting bone involvement (Bertin, 1944). However, the recently widely used radionuclide bone scan is very effective in the early detection of bone metastasis (Besbeas and Stearns, 1978).

Our case suggests that routine use of radionuclide bone scan should be considered as a part of a routine pre-operative staging work-up for colorectal cancer, especially in young patients.

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