A Case of Colon Cancer Metastasizing to the Spleen

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Abstract

A case of colon cancer metastasizing to the spleen is reported. The patient was a 43-year-old man who was laparotomized under the diagnosis of colon cancer. The tumor of the transverse colon showed a small ulcer and polypoid projections. Poorly differentiated adenocarcinoma was noted in the mucosa. Marked tumor metastasis was found in the parenchyma of the spleen and the peripancreatic, portahepatic, mesenteric and periaortic lymph nodes. The literature on the incidence and mechanism of metastasis to the spleen was reviewed, and metastasis to the spleen was found to be not infrequent at a late or advanced stage of cancer.

Introduction

The spleen is rarely involved by metastatic carcinoma (Rosai, 1981), especially by colon cancer, and its occurrence is a late manifestation of widely disseminated disease metastasizing to multiple organs (Herbut and Gabriel, 1942). Clinical reports of isolated metastases in the spleen found during surgery are rarer than those found at autopsy. This paper reports a case of colon cancer metastasizing to the spleen.

Case Report

The patient was a 43-year-old man admitted to the hospital with a chief complaint of abdominal distention which had lasted for a month. On admission, he was found to have resistance in the left upper quadrant of the abdomen, but he was in a good state of nutrition and neither anemic nor edematous. There was no sign of enlargement of the liver, spleen or lymph nodes upon physical examination. Urine was normal according to a qualitative analysis. The complete blood count showed no anemia; the hemoglobin was 10.2 g/dl and the white cell and thrombocyte counts were 5,400 and 28,300, respectively. Data on liver function were normal. Routine roentgenograms of the chest showed no abnormalities and a skeletal survey showed no evidence of bone metastases. The roentgenologic examination of the upper gastrointestinal tract showed multiple hemispheric filling defects in the ascending portion of the duodenum and dilatation of the whole duodenum. A barium enema revealed a narrowing, 10 cm in length, in the transverse colon near the splenic flexure. The wall was ragged on the air contrast study. There were two small niches at the end of the narrow lesion. A small ulcer on the anal side of the narrow lesion in the transverse colon was observed by endoscopy. The ulcer was sur-
rounded by a slightly reddish mucosa and its fundic portion was covered with a white coat. Histological diagnosis of the biopsy from this small ulcer was "undifferentiated carcinoma of the colon."

**Operative Findings and Procedures**

On laparotomy there was no ascites. A mass in the left upper quadrant was found to be a hard large tumor of the transverse colon which was infiltrating into the greater omentum. Small white nodules were scattered on the surface of the tumor. The pancreas was involved by this tumor, and the mesenteric and paraaortic lymph nodes were markedly enlarged. Macroscopically the spleen was seen to have a smooth surface and not to be involved. This tumor was not resectable, and gastrojejunostomy and ascendosigmoidostomy were performed. The patient tolerated this procedure but died with abdominal and pleural malignant effusion one month after the operation.

**Pathologic Findings at Autopsy**

On the serosal surface of the mesenterium in the abdominal cavity, small whitish nodules were scattered. The mesenteric lymph nodes were markedly enlarged. In the retroperitoneum, clusters of paraaortic lymph nodes were noted. The stomach was pale and covered by mucous material. Markedly enlarged lymph nodes were noted along the greater curvature. The mucosa of the duodenum was not remarkable. On the serosal surface, large lymph nodes caused incomplete obstruction of the duodenum. The small intestine was not remarkable. Neoplastic growth was noted in the mucosa of the transverse colon. The tumor of the colon showed a small ulcer surrounded by polypoid projections with invasion on the serosal surface (Fig. 1). Carcinoma metastases were seen in the regional lymph nodes, bilateral pleural cavities and the spleen. Small whitish nodules were noted beneath the capsule of the spleen. On the cut surface,
Fig. 2: Nodular metastases on the cut surface of the spleen.

Fig. 3: Metastatic tumor in the parenchyma of the spleen. The features of the tumor are similar to poorly differentiated adenocarcinoma.
Fig. 4: Histologic findings of the original cancer in the transverse colon. The tumor cells are markedly pleomorphic, having narrow dark cytoplasm and large hyperchromatic nuclei. A sheet of tumor cells in a cord-like arrangement is seen.

Fig. 5: Marked intralymphatic invasion of cancer cells.
the nodules were varied in size and scattered in the parenchyma (Fig. 2). The features of the tumor were similar to those of the colon tumor (Fig. 3). The portohepatic lymph nodes were enlarged and merged together, measuring 2.5 cm in maximum diameter. Other findings of the liver were not remarkable. The peripancreatic lymph nodes were enlarged. The cut surface of the spleen was whitish in color and well demarcated from the pancreas parenchyma. Grossly, the pancreas was not remarkable. Histologically, tumor cells of the transverse colon were markedly pleomorphic, having narrow dark cytoplasm and large hyperchromatic nuclei (Fig. 4). Marked intralymphatic invasion was often seen (Fig. 5). Intercellular argentaffin fibrils were not observed in sections stained by the silver method.

Discussion

Many investigators have stated that secondary tumors in the spleen are rare (Herbut and Gabriel, 1942; McClure and Park, 1975; Harmon and Dacorso, 1975). Harmon and Dacorso (1975) stated that the spleen is unfavorable to the development of secondary tumors. Warren and Davis (1934) suggested that the rhythmic changes in the size of the spleen due to its contractibility squeeze out the tumor embolus and prevented its lodging in the spleen. Knox (1922) suggested that the absence of afferent lymphatics to the spleen as well as phagocytic activity and humoral anticancer substances contribute to the low frequency of splenic metastasis.

Miller and Milton (1975) showed that the acceptance of metastases of mouse mammary carcinoma is retarded in the spleen in contrast to the liver where metastasis occurs easily. It is presumed that the spleen, a mass of reticuloendothelial tissue, is infertile soil for the seeds of cancer. Gabizon et al. (1976) investigated the behavior of spleen cells from tumor-bearing mice by means of an in vivo adaptive neutralization test and reported that these spleen cells showed specific tumor-inhibitory activity at the first stage of tumor growth and then tumor-enhancing activity at the second stage.

On the other hand, Berge (1974) reported that the incidence of metastatic carcinoma of the spleen was 7.1% in a uniformly examined postmortem series. The difference in results concerning the incidence of metastatic carcinoma in the spleen between clinical subjects and the postmortem series may be caused by the difference in the condition of the patients at the time of examination. Berge (1974) reported that microscopic metastases in the spleen were found in 50% of all subjects who had metastases in five or more organs.

Metastatic spleen carcinoma is thought to be a late manifestation of widely disseminated carcinoma, as seen in our case. The biological malignant potential of the tumor may be another important factor in the occurrence of cancer metastasis. In the case presented here, histologic examination revealed a poorly differentiated adenocarcinoma with marked intralymphatic invasion, which is thought to be uncommon in colonic cancer. A strong potential for malignancy in this patient, as proven by the rapid aggravation leading to death, may have induced metastasis to the spleen.

References


