A Young Gastric Carcinoma Patient with Umbilical and Scrotal Metastasis

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(Received February 16, 1981)

A 21-year-old gastric carcinoma patient who showed umbilical and scrotal metastasis is reported. Cutaneous metastases are seen in 3—4% of malignant tumors. The most frequent primary sites are the breast, lung, stomach, ovary, colon, uterus and kidney. Intraabdominal malignancies may produce umbilical metastasis. The primary cancer is usually in the stomach, colon, pancreas or ovary. Umbilical metastasis from the stomach seen in our case is known as Sister Joseph's nodule which is a sign of a poor prognosis. Metastatic scrotal carcinoma is a relatively rare condition which occurs by the hematogeneous pathway. However, in our case, direct invasion of tumor cells though the peritoneal cavity and along the lymphatic system of the spermatic cord was the most likely cause of scrotal metastasis.

(Key Words: Metastatic Tumor, Umbilical Metastasis, Sister Joseph's Nodule, Scrotal Metastasis)

PRESENTATION OF THE CASE

A 21-year-old man was admitted to our hospital because of fresh melena. Two months previously, he first noticed the fresh melena and an umbilical tumor. The symptoms gradually developed. One month previously, he underwent tumor resection in another hospital. A large gastric tumor with metastases to the retroperitoneum, colon and retrovesical excavation was found in laparotomy which was performed in the same surgery. The surgeon diagnosed an inoperable gastric tumor and the incision was sutured only after probe laparotomy. A pathological examination of the umbilical tumor which was removed in the surgery revealed a massive invasion of tumor cells. He was introduced to our hospital for treatment. (See Fig. 1.)

On examination the patient was a pale man who appeared in slightly poor health. No particular finding was observed on the face, head, neck, back and extremities. A surgical scar was seen on the median line of the abdominal wall from the epigastrium to the lower abdomen through the navel. No tumor or granules were seen on the abdominal surface. No significant features were obscured in the genitals.

His mother had a history of gastrectomy because of a gastric ulcer but his father and three brothers had no history of gastrointestinal disease. He had no history of gastrointestinal disease or other diseases.
Laboratory data revealed no abnormalities in liver and renal functions. No anemia, metabolic diseases or infectious diseases were found.

A barium meal examination and endoscopic examination (including biopsy) on the upper and lower gastrointestinal tract, $^{99}$Tc liver scintigraphy and angiography of the celiac, superior mesenteric and inferior mesenteric arteries were performed and clinically, he was diagnosed to have Borrmann IV type gastric cancer (signet ring cell carcinoma) with metastases to the colon, mesenterium, retroperitoneum and abdominal wall. (See Figs. 2 to 5)

Anti-cancer drugs were begun but no effect was obtained. One half month after admission, several granules were noticed on the abdominal surface and in the scrotum. The granules developed gradually to subcutaneous tumors 2 to 3cm in diameter. Tumor invasion into the abdominal wall and scrotum was rapid and severe. In the end stage, the scrotum was enlarged to $22 \times 17 \times 5$cm hard mass with an irregular surface and hemorrhagic ulceration. A neighboring lesion of the surgical scar became progressively hard and irregularly swollen like a plateau. He deteriorated gradually and died seven months after admission. (See Fig. 6.)
An autopsy disclosed that signet ring cell carcinoma originating in the antrum had invaded the whole stomach. It metastasized throughout the small intestine and colon, pancreas, gallbladder, parahepatic region, lung and subcutis of the abdomen and scrotum. The paragastric, parapancreatic, paraaortic, mesenteric and neck lymph nodes were also severely invaded, but no intrahepatic metastasis was seen.

COMMENTS

The incidence of gastric cancer in young persons (0–29 years old) is 1.2 to 3.7 percent among total gastric cancer patients. In young gastric carcinoma patients, types II, III and IV carcinoma in Borrmann's gross classification were often seen, but type I carcinoma was not reported in many papers. Pathologically, poorly differentiated adenocarcinoma and signet ring cell carcinoma were more common than well or moderately differentiated adenocarcinoma. Gastric carcinomas in the young were often
detected in the late stage. Therefore, prognosis was poor (3, 4). Our patient was a typical young gastric cancer case.

The skin is involved in metastasis in 3—4% of malignant tumors. Beerman cites the chest wall, axilla, abdomen and perumbilical and perigenital areas as sites of predilection for cutaneous metastasis. The most frequent primary sites are the breast, stomach, lung, uterus, large intestine, kidney, prostate gland, ovary, liver and bone. The likelihood of a visceral malignancy producing deposits in the skin is increased if the lesion is anaplastic. It is not uncommon for a tumor to spread along the plane of the surgical incision and produce nodules in the scar. Intraabdominal malignancy may produce umbilical metastasis. The primary cancer is usually in the stomach, colon, pancreas or ovary. Our patient had umbilical metastasis from carcinoma of the stomach. This condition is similar to or can be called Sister Joseph's nodule which is a sign of poor prognosis (1, 2, 5, 6, 7).

Metastatic carcinomas in the skin of the scrotum were mainly reported by urologists. The primary cancers in the reports were renal carcinoma, prostatic carcinoma, lung cancer and melanoma of unknown origin although the condition is relatively rare. It was said that the scrotum was not a site of cutaneous metastasis in two large studies of men with internal carcinomas but Weitzner suggested in his case report that the hematogeneous pathway was the most likely for scrotal metastasis (8). However, direct invasion of tumor cells through the peritoneal cavity and along the lymphatic system of the spermatic cord was thought to be the most likely cause of scrotal metastasis in our patient.

REFERENCES
Fig. 1  Microscopic pictures of the umbilicus resected in another hospital
Upper: Sectional finding of umbilicus of low magnification.
Lower: Microscopic picture of the same specimen. Massive invasion of signet ring cells is seen in the subcutaneous tissue. (×50)

Fig. 4  Endoscopic picture of the stomach
Giant rugae are seen in the lower half of the stomach. A light microscopic examination of the biopsied specimens revealed severe invasion of signet ring cell carcinoma.
Fig. 5  Romanoscopic finding
The lumen of the rectum is narrowed. Irregular mucosa is prone to bleeding. Polypoid changes are noted on the rectal mucosa.

Fig. 6  Macroscopic finding in autopsy
Subcutaneous tumor invasion along the suture line is seen on the abdominal wall. The scrotum is like a large hard mass because of tumor invasion.