Cutaneous Metastasis of Pancreatic Carcinoma by Percutaneous Fine Needle Aspiration Biopsy

Jin-Hwan Kim, M.D., Mu-Hyoung Lee, M.D., Choong-Rim Haw, M.D.

Department of Dermatology, Kyung Hee University College of Medicine,
Seoul, Korea

The cutaneous metastasis of pancreatic carcinoma by this technique is rarely reported in the literature.

A 67-year-old woman was evaluated for left-sided abdominal pain and a palpable abdominal mass. Abdominal CT confirmed the presence of a solid mass involving the pancreas. Ultrasonically guided percutaneous aspiration biopsy was performed. About six month later, the patient was readmitted with a tender tumor mass at the site of the previous aspiration biopsy. Physical examination disclosed a 4 × 4 cm sized firm, tender tumor mass on the abdomen. Histopathological findings of the tumor mass are consistent with metastatic lesions from a pancreatic carcinoma.

We report a case that suggests cutaneous metastasis of pancreatic carcinoma by fine needle aspiration biopsy. (Ann Dermatol 7;(2)206–209, 1995)

Key Words: Cutaneous metastasis, Pancreatic carcinoma, Percutaneous fine needle aspiration biopsy

The pancreas is a difficult organ to evaluate for neoplasia because of its symptoms occurring little and late. Fine needle aspiration biopsy for cytodiagnosis of deep malignant tumors has a high positivity of tissue samples as well as a low risk of serous complications. There have been 3 cases of cutaneous metastases from pancreatic carcinoma by this technique reported in the literature(1,2,3).

REPORT OF A CASE

A 67-year-old woman was evaluated for left-sided abdominal pain and a palpable abdominal mass for six months in November 1992. Physical examination was negative except for an epigastric mass. The result of the following laboratory tests were within normal limits or negative complete blood count, blood sugar, liver function test, urinalysis, stool examination and electrocardiogram. The serologic tests were normal values for sodium, potassium, chloride, calcium, phosphate, magnesium and uric acid. The carcinoembryonic antigen and CA19-9 levels were normal range. The results of roentgenographic examinations demonstrated the followings: hypertensive heart change on chest X-ray, unremarkable on simple abdominal X-ray, colonic diverticulosis on colon study. Abdominal ultrasonography disclosed a solid mass in the tail of the pancreas, and CT confirmed the presence of a solid mass involving the tail of the pancreas with direct invasion of splenic vessels and superior mesenteric vessels. This finding suggested pancreatic carcinoma. However there was no evidence of hepatic and pulmonary metastasis on CT findings. Gastroscopy revealed mild gastritis with no evidence of tumor invasion. Ultrasonically guided percutaneous aspiration biopsy performed with a 21-gauge needle. Histopathological findings of the biopsy specimen showed atypical ductal cell clust consistent with a pancreatic origin. The patient refused chemo-therapy for pancreatic carcinoma and took analgesics symptomatically.

About six months later, the patient was readmitted with a tender tumor mass at the site of previous aspiration biopsy. Physical examination
Fig. 1. 4 x 4 cm sized round tumor mass on left abdomen. Center of the tumor is covered with a crusted patch, and erythematous patch shows on the periphery.

Fig. 2. Close-up view of the tumor. The tumor is protruded on the abdominal wall.

Fig. 3. The abdominal ultrasonography findings show a pancreatic carcinoma in the tail (between arrows), the skin tumor in the abdominal wall (between arrowheads), and the pancreatic carcinoma invading the superior mesenteric artery.

Fig. 4. Epidermis is normal, and dermis shows variable sized glandular structures between collagen bundles (H & E stain, ×40).

DISCUSSION

Most malignant tumors can produce cutaneous metastasis, but cutaneous metastasis is a rare occurrence, reported in 0.2 to 9 percent of autopsies in patients with known cancer. Metastatic sites vary with the site of the primary neoplasm and are not neoplasm-specific. Cutaneous metastasis is generally, a late occurrence in the course of the disease. In general, the incidence of cutaneous metastasis is related to the frequency of the
primary cancer. Primary sites are stomach (31.2%), lung (28.9%), large intestine (7.9%), pancreas (7.9%), in men, and breast (34.8%), stomach (13%), lung (13%), uterine cervix (13%) in women in Korea'. Cutaneous metastases are often round in appearance and solid and firm in texture'. In general the histologic appearance of the metastatic lesion is similar to the primary site, although it may be more atypical and less well-differentiated'. Metastatic cells from the gastrointestinal tract often contain mucin. The mucin-containing cells in the metastases may consists of a glandular formation'. Our case also showed atypical mucin-containing cells in the dermis.

Vascular and lymphatic channels are considered to be the most common modes of metastasis for visceral carcinoma. In addition, metastases result from iatrogenic implantation'. Occurrence of iatrogenically introduced metastasis is reported in sites of previous trauma, inflammation or irradiation'. Traumatized, inflamed tissue may enhance the implantation and the growth of the tumor, although the mechanism for this phenomenon is unclear'. Grenier' reported a case of metastatic adenocarcinoma from a skin graft donor site. He proposed that the metastatic susceptibility of altered skin was explained by three mechanism: (1) elaboration of chemotactic factors at the site of injury, (2) increased blood flow and hypercoagulation as a result of the inflammation, (3) fibrovascular proliferation at the injured site that can proliferate and support the growth of malignant cells.

Needle aspiration biopsy is a technique for cytologic diagnosis of malignant neoplasms. Sampling of superficial lesions in the breast, lymph nodes, and prostate has usually been by direct vision. More recently, deeper lesions in the thorax or abdomen have been aspirated under radiological guidance'. Although the needle path frequently traverses major vessels and hollow viscera, local complications due to the trauma of the needle path have been infrequently recorded''

This widespread acceptance of fine needle aspiration biopsy is due to the high yield of positive tissue samples as well as the low risk of serious complications'. Kim' reported 77% incidence of positive cytologic diagnosis by fine needle aspiration biopsy in pancreatic carcinoma and there was no significant complication on this procedure. He concluded that percutaneous fine needle aspiration biopsy can be recognized as the most useful method for accurate diagnostic evaluation of the pancreatic mass. Cutaneous metastasis of pancreatic carcinoma by fine needle aspiration biopsy has been reported on three previous occasions'. All these cases were developed 3 to 6 months after aspiration biopsy and our case was developed 6 months later. Previous cases had a solitary nodule about 1 cm diameter. Our case was also a solitary nodule, but larger than the previous cases. It is remarkable that two of the previous cases were repeated trials of biopsy. So the risk of metastasis is probably related to the number of needle passes'. But our case had only one pass of the needle. Experimental
evidence on needle-track seeding is scanty.
Animal studies using highly malignant tumor in susceptible mice showed dissemination $10^6$ and $10^9$ cells along the track seeding and this could result in implantation. However for implantation to occur in man at least $10^6$ cells have been required to achieve tumor growth. Host defenses presumably prevent metastatic implantation in most individuals. For a definitive confirmation diagnosis of cutaneous seedings, invasive techniques are required, such as laparotomy or autopsy. We could not perform these invasive techniques. However the skin tumor was developed at the site of the aspiration and ultrasonographic findings showed no evidence of direct invasion. Cutaneous metastasis of pancreatic carcinoma by the fine needle aspiration biopsy was likely in this case.

The cutaneous metastasis by fine needle aspiration biopsy is very rare in pancreatic carcinoma. Thus, it is unnecessary to limit the use of this technique, but it may be necessary to restrict repeated trials of biopsy in order to minimize the risk of needle tract implantation as well as that of local traumatic sequelae.

REFERENCES


