A 49-year-old female was admitted to our hospital due to upper abdominal pain with lower back pain for half a month. The patient reported a 1 year history of "duodenal ulcer" and was treated with conventional oral omeprazole. She had no family history of cancer. Physical examination on admission revealed no positive signs. The laboratory findings were as follows: serum CA72-4 was 11.32 U/mL (normal range < 8.2 U/mL), and all other tumor markers were in the normal range. Computed tomography (CT) showed low density of the pancreatic tail with multiple liver metastases (Figure 1). The magnetic resonance imaging (MRI) showed a tumor of about 4.3 cm in the pancreatic tail, showing long T1 mixed T2 signal with multiple liver metastases (Figure 2). The 18Fluorine-FDG PET-CT showed high metabolism in the pancreatic tail but without high metabolism in the liver metastases (Figure 3). Gastroscopy suggested chronic superficial gastritis and multiple ulcers in the duodenum. According to the results of additional serological examination, gastrin was > 1,000 pg/mL (normal range 25-100 pg/mL).

Palliative surgery (distal pancreatectomy, splenectomy, and partial hepatectomy) was performed on the 18th of September, 2015. Postoperative pathological results showed high proliferative activity of pancreatic tail neuroendocrine tumor (gastrinoma) with multiple liver metastases (Ki-67, 25%). Postoperative recovery was uneventful. She was discharged on the 8th day after surgery.

Postoperatively, the patient was treated with proton pump inhibitor (PPI). One month later, the repeat serum gastrin level was still > 1,000 pg/mL. Considering the liver metastases had the ability to secrete gastrin, the patient started to receive therapies, and cytotoxic chemotherapy. Based on the recommendation of the updated guidelines and the results from the CLARINET study and PROMID trial, lanreotide and octreotide are both appropriate options for gastrinomas with liver metastasis. If the clinical symptoms of hormone hypersecretion cannot be relieved by SSA and liver metastases grow rapidly, then molecularly targeted therapies and cytotoxic chemotherapy can be taken into consideration.

For postoperative treatment, it can be divided into two parts. One is systemic treatment, including somatostatin analogs (SSA), molecularly targeted therapies, and cytotoxic chemotherapy. Based on the recommendation of the updated guidelines and the results from the CLARINET study and PROMID trial, lanreotide and octreotide are both appropriate options for gastrinomas with liver metastasis. If the clinical symptoms of hormone hypersecretion cannot be relieved by SSA and liver metastases grow rapidly, then molecularly targeted therapies and cytotoxic chemotherapy can be taken into consideration.
The other option is hepatic-directed therapies, which includes bland hepatic arterial embolization, radioembolization, and chemoembolization. The hepatic-directed therapies in general are an effective approach for debulking the liver metastases.

In conclusion, the present study reported a case of a 49-year-old female patient diagnosed of gastrinoma with liver metastasis, who was treated by palliative surgery (distal pancreatectomy, splenectomy, and partial hepatectomy). For functioning NET, primary tumor resection combined with debulking of metastasis are effective approaches. Postoperative treatment is essential for the functioning NET metastases.

FIGURES

FIGURE 1
Preoperative multiphasic computed tomography (CT) showed low density of the pancreatic tail with multiple liver metastases. In the arterial phase and portal phase, the primary site was not enhanced, while the liver metastases were significantly enhanced. The arrows point to the tumors.

FIGURE 2
Preoperative multiphasic magnetic resonance imaging (MRI) showed a tumor of about 4.3 cm in the pancreatic tail with multiple liver metastases. They both showed long T1 mixed T2 signal. The arrows point to the tumors.

FIGURE 3
Preoperative ¹⁸F-fluorine-FDG PET-CT showed high metabolism (max standardized uptake value = 5.3) in the pancreatic tail, while high metabolism was not observed in the liver metastases. The arrows point to the pancreatic tail tumor.
FIGURE 4
Postoperative multiphasic magnetic resonance imaging (MRI) showed that the liver metastases are currently stable at 15 months.

REFERENCES


