

A Case of Giant Mucinous Cystic Neoplasm of the Pancreas Resected with Laparoscopic Surgery

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Abstract

We report a case of giant mucinous cystic neoplasm (MCN) of the pancreas that was successfully treated with laparoscopic surgery. A 29-year-old woman was admitted to our hospital for evaluation of an abdominal tumor that had been detected during a routine medical examination. The tumor was diagnosed as an MCN of the pancreas. We performed laparoscopic distal pancreatectomy and splenectomy. The patient could begin oral feeding 3 days after the operation. No complications occurred either during or after surgery. The outcome in this patient was excellent, with cosmetically acceptable small scars in the skin. Therefore, laparoscopic distal pancreatectomy may become a therapeutic option for patients with large MCNs of the pancreas.

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Key words: laparoscopic surgery, distal pancreatectomy, mucinous cystic neoplasm

Introduction

Cystic tumors of the pancreas have attracted attention because of the variety of histopathological manifestations and the risk of malignant transformation^{1,2}. Mucinous cystic neoplasms (MCNs) of the pancreas occur predominantly in the body and tail of the pancreas and mainly in younger women. Early resection of MCNs of the pancreas is recommended because of the risk of malignant transformation^{3–6}. We report a large MCN of the pancreas in a young woman which was successfully resected with laparoscopic distal pancreatectomy.

Case

In October 2007, a 29-year-old woman was admitted to our hospital with an abdominal tumor and abdominal fullness. The tumor has been detected 6 months earlier during a routine examination. The patient had no family history of cancer and did not smoke or drink alcohol. A soft, tender, fixed mass (15 × 15 cm) was palpable through the wall of the upper abdomen. The results of other physical examinations were normal.

The results of hematologic, general biochemical, and urine examinations on admission, including the following tumor markers, were within the normal

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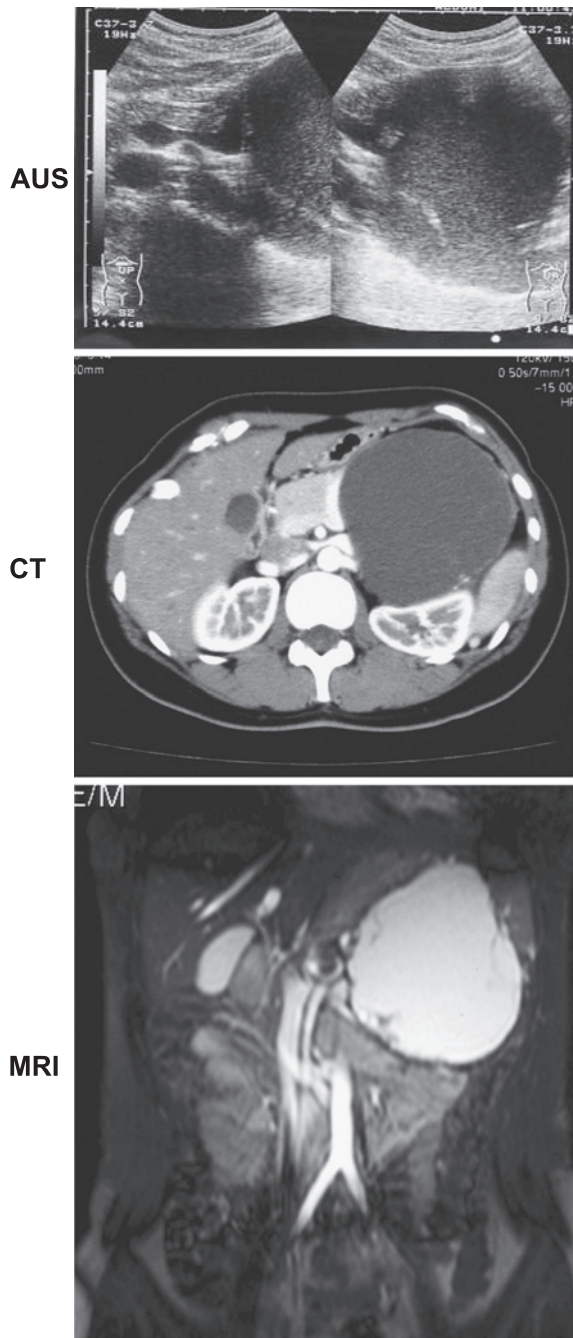


Fig. 1 On abdominal ultrasonography, computed tomography, and magnetic resonance imaging, the 15-cm-diameter tumor was seen as a cystic lesion with many septae and without a solid component. The tumor was diagnosed as a mucinous cystic adenoma of the pancreas.

ranges: carbohydrate antigen 19-9, Duke pancreatic monoclonal antigen type 2, and carcinoembryonic antigen.

Diagnostic Images

Abdominal ultrasonography showed a hypoechoic cystic tumor in the body and tail of the pancreas. Dynamic computed tomography and magnetic resonance imaging revealed a 15-cm-diameter cystic tumor that had many septa and a thin cystic wall with partial calcification. No solid lesions were seen in the cyst (**Fig. 1**). The tumor was preoperatively diagnosed as a large mucinous cyst adenoma of the pancreas. Considering the balance between radicality and cosmetic results, we decided to perform laparoscopic distant pancreatectomy and splenectomy.

Operative Findings

The patient underwent the operation in the right lateral recumbent, but almost supine, position. The operation began with the insertion of 4 ports (3 12-mm-diameter ports and 1 15-mm-diameter port.) in the abdomen. While carefully guarding against rupture of the tumor, we divided the body of the pancreas and the spleen. The root of the splenic artery was ligated with clips. The splenic vein was simultaneously cut and coagulated with laparoscopic coagulating shears (Harmonic ACE; Ethicon Endo-Surgery, Cincinnati, OH, USA). We resected the pancreatic body with a stapler (Endo Gia Reticulator 60-4.8; Covidien, Mansfield, MA, USA) inserted via the 15-mm-diameter port (**Fig. 2**). We made an effort to operate the stapler as slowly as possible to prevent the stump from bleeding and from leaking pancreatic juice. The resected specimen was sealed in a plastic bag (Endocatch II, Covidien). To remove the resected tissue, a small incision (4 cm) was made on the flank region, where the wound would be less noticeable from the anterior view. We crushed the spleen with blunt grasping forceps, and drained the cystic contents from the tumor by means of a suction tube. Particular attention must be paid to prevent the contents from flowing out of the bag in such cases. The operation lasted 339 minutes, and there was little bleeding.

On macroscopic examination, the tumor had a

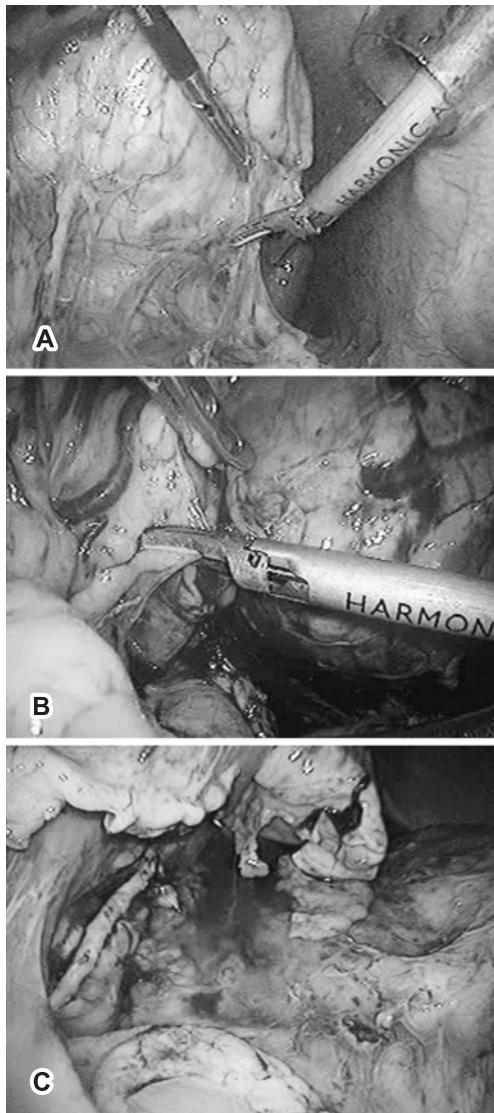


Fig. 2 While carefully guarding against rupture of the tumor, we resected the body of the pancreas and spleen, as shown in **A** and **B**.

We resected the pancreatic body with a stapler inserted through the port at the navel, as shown in **C**.

patterned, indented surface with a thick capsule, and no invasion of surrounding structures was recognized. Draining of the cystic contents of the tumor did not hinder pathological examination. The pathological diagnosis was mucinous cystic adenocarcinoma in situ (stage 0)⁷. There was no evidence of vascular or lymph-node invasion (**Fig. 3**). Carcinoma in situ coexisted in parts of the cystic wall. The ovarian stromal tissue was seen in portions of the tumor.

The patient was able to start oral feeding by 3

days after the operation and was discharged 7 days after surgery. There were no complications either during or after the operation. The scar is hardly visible (**Fig. 4**).

Discussion

MCNs occur predominantly in women and usually involve the body and tail of the pancreas^{1,2,5}. We report a large MCN (15 cm) that was successfully treated with laparoscopic surgery. Since the early 1990s, about more than 400 cases of laparoscopic distal pancreatectomy have been reported worldwide⁸⁻¹⁰. The safety and radicality of this procedure have been confirmed by comparison with open laparotomy^{3,8,10,11}. The overall conversion ratio has been reported to be 5% to 25%. The overall morbidity rate is estimated to be 35%, including 15% of patients in whom a pancreatic fistula develops. No deaths have been reported⁸⁻¹². In addition, laparoscopic distal pancreatectomy is associated with reduced intraoperative blood loss and shorter hospital stays.

MCNs have been defined pathologically as tumors arising from the pancreas^{1,13}. In almost all cases, the tumors are discovered after they have become large. Although the tumors have low potential for malignant transformation, that can spread to the lymph nodes draining the pancreas. Although MCNs can undergo malignant transformation, radical resection can be achieved by sufficient dissection^{2,4,6,13}. In the operation for the large tumor in the present patient, we took note of the patient's position, the size of the trocars, and the method of extraction of the organ through a small incision. The surgery was performed with the patient in the right lateral recumbent, but almost supine, position. In general, the position of the patient for laparoscopic distal pancreatectomy is the right lateral recumbent position at an angle of about 60 degrees. Nonetheless, we chose the right lateral recumbent, almost supine, position to more easily approach the pancreatic head because the tumor was large. Because all 4 trocars used to create the abdominal ports were larger than 12 mm, any forceps or laparoscope could be inserted through all the ports.

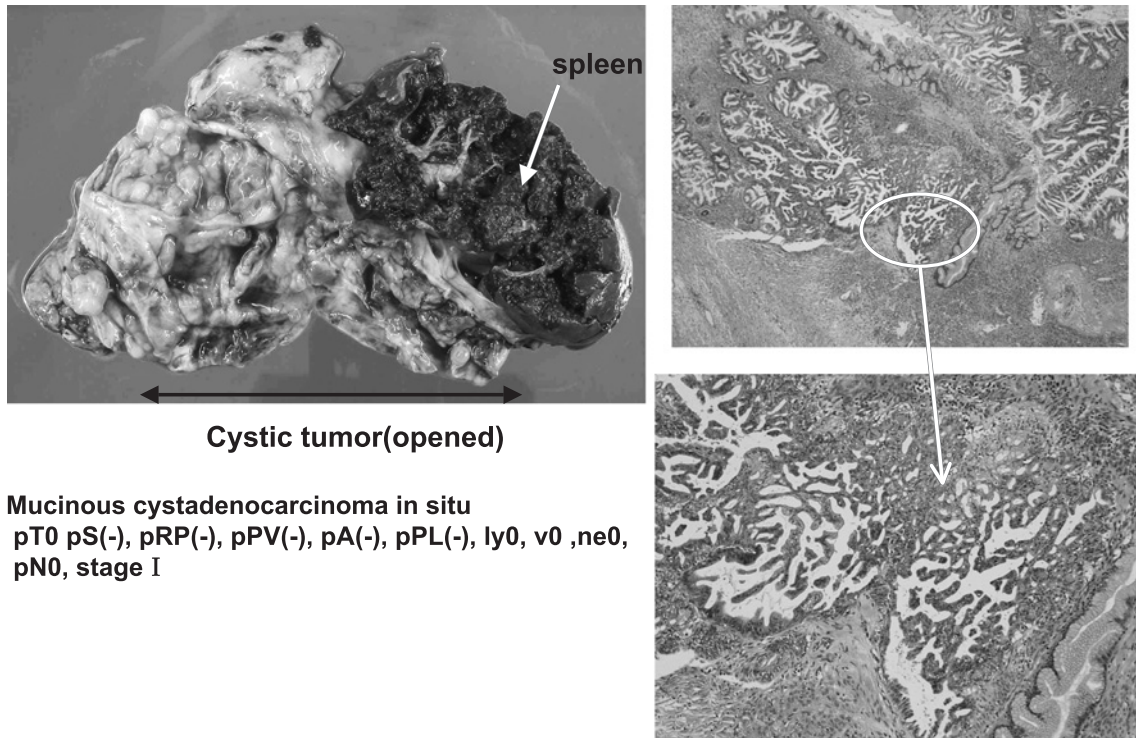


Fig. 3 The pathological findings were mucinous cystic adenocarcinoma in situ. No vascular or lymph node invasion was noted.



Fig. 4 The scars are hardly noticeable compared with those of laparoscopic cholecystectomy.

Recently, many cases of MCN resection with preservation of the spleen have been reported; however, in the present case, preserving the spleen was difficult because of the large size of the tumor and because of the MCN principally having malignancy¹⁴. Open laparotomy for patients with such large tumors would entail abdominal incisions up to 20 cm long. We believe the present case to be the first documented case of successful laparoscopic resection of a bulky tumor larger than 10 cm in diameter. Although a consensus about this operation

has not been reached, we believe, on the basis of curability and cosmetic aspects, that the procedure is appropriate. This operative method could become the procedure of first choice for patients with large MCNs.

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