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Liver hilar tuberculous lymphadenitis successfully diagnosed by laparoscopic lymph node biopsy



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ABSTRACT

INTRODUCTION: Liver hilar tuberculous lymphadenitis is extremely rare. A case of liver hilar tuberculous lymphadenitis mimicking lymph node metastasis of anal canal cancer that was successfully diagnosed by laparoscopic lymph node biopsy is reported.

PRESENTATION OF CASE: A 49-year-old man with a past medical history of pulmonary tuberculosis suffering from anal canal cancer with left inguinal lymph node metastasis underwent laparoscopic anterior perineal resection and left inguinal lymph node dissection in February 2010. Subsequently, he underwent dissection of right inguinal lymph node metastases from anal canal cancer twice in February and October 2013. In July 2014, follow-up computed tomography (CT) showed a 26 mm × 23 mm lesion with calcification on the anterior side of the portal vein in the hepatoduodenal ligament. He had no jaundice. Positron emission tomography with 2[18 F]-fluoro-2-deoxy-d-glucose (FDG-PET) revealed a mass with high uptake. Suspecting a lymph node metastasis from anal canal cancer, laparoscopic lymph node biopsy was performed. Histopathological and polymerase chain reaction (PCR) examinations yielded a diagnosis of tuberculous lymphadenitis. No evidence of recurrence of cancer has been seen during the 5 years of follow-up after the surgery for anal canal cancer.

DISCUSSION: FDG-PET imaging is rarely useful for differentiating cancer from tuberculosis lesions. Laparoscopic lymph node biopsy is a safe, effective alternative to open surgical biopsy.

CONCLUSION: Tuberculous lymphadenitis should be included among the differential diagnoses of liver hilar lymphadenopathy in patients with a history of tuberculous. Laparoscopic lymph node biopsy is useful for the diagnosis of undiagnosed lymphadenopathy.

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1. Introduction

Tuberculosis is a potential systemic disease that can affect any organ or system of the body. Abdominal tuberculosis is rare and accounts for 12–25% of all extrapulmonary tuberculosis cases [1,2]. The incidence of abdominal tuberculosis has been increasing over the last 20 years, especially in tuberculosis endemic areas [3], developing countries, immunocompromised patients, and due to increasing antibiotic resistance of *Mycobacterium tuberculosis*. A rare case of liver hilar tuberculous lymphadenitis mimicking lymph node metastasis of anal canal cancer that was successfully diagnosed by laparoscopic lymph node biopsy is reported.

2. Case presentation

A 49-year-old man visited our hospital for follow-up of anal canal cancer. He had a history of pulmonary tuberculosis at 38 years of age treated with oral antituberculous agents, and early gastric cancer treated with laparoscopic-assisted distal gastrectomy at 40 years of age. With a diagnosis of anal canal cancer and left inguinal lymph node metastasis, he underwent laparoscopic anterior perineal resection and left inguinal lymph node dissection in February 2010. Pathological findings led to a diagnosis of advanced anal canal adenocarcinoma (T2N3M0 stage IIIB according to the TNM classification). He then underwent right inguinal lymph node dissection twice in February 2013 and October 2013. The pathological findings of these lymph nodes were compatible with metastasis of anal canal adenocarcinoma. In July 2014, follow-up computed tomography (CT) showed a 26 mm × 23 mm lesion with calcification on the anterior side of the portal vein in the hepatoduodenal ligament (Figs. 1 and 2). He had no jaundice and produced no sputum. Chest and abdominal radiographs were nor-

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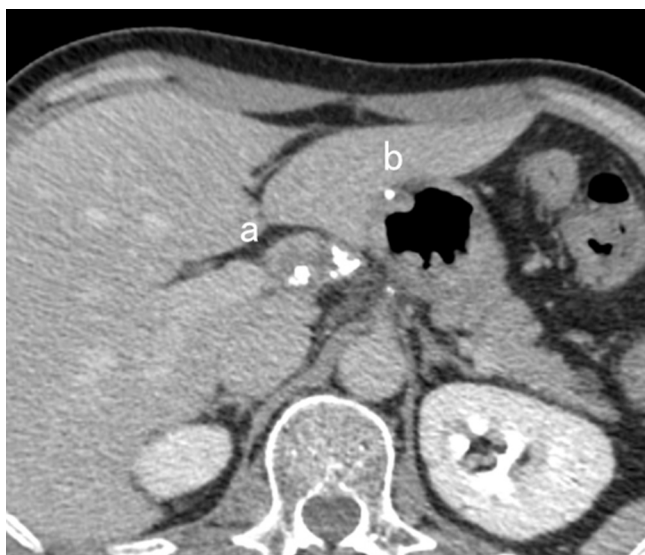


Fig. 1. Abdominal computed tomography: (a) calcified lymph node mass in the hepatic hilum; (b) surgical staple of previous gastric surgery.



Fig. 2. Abdominal computed tomography: (a) calcified lymph node mass in the hepatic hilum; (b) surgical staple of previous gastric surgery.

mal. Routine laboratory tests demonstrated total bilirubin (T-Bil) of 0.6 mg/dL (normal 0.4–1.4 mg/dL), aspartate aminotransferase (AST) of 22 IU/L (normal 10–33 IU/L), and alanine aminotransferase (ALT) of 28 IU/L (normal 6–35 IU/L), with normal levels of inflammatory markers. Serum levels of carcinoembryonic antigen (CEA), carbohydrate antigen (CA) 19-9, and squamous cell carcinoma antigen (SCC) were within normal limits throughout the course. Positron emission tomography with 2[18 F]-fluoro-2-deoxy-d-glucose (FDG-PET) revealed a mass with a maximum standardized uptake value (SUVmax) of 4.48, consistent with the CT scan findings (Fig. 3). Suspecting a lymph node metastasis from anal canal cancer or gastric cancer, laparoscopic lymph node biopsy was performed. Intraoperative laparoscopic observation showed severe adhesions around the hepatoduodenal ligament because of the previous gastric surgery. An enlarged lymph node adhered firmly to the common hepatic artery (CHA) and the left hepatic artery (LHA) and was carefully dissected (Fig. 4). No other lymph node swelling or suspected lesions of metastases of cancer were found in the abdominal cavity. The operative time was 214 min.

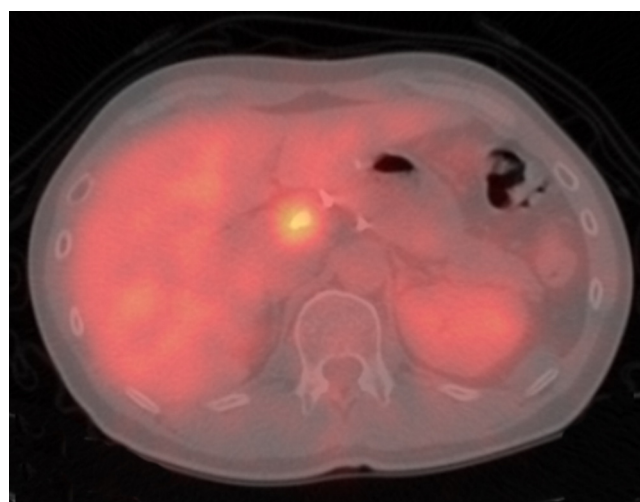


Fig. 3. Positron emission tomography with 2[18 F]-fluoro-2-deoxy-d-glucose (FDG) shows a mass with SUVmax of 4.48 (arrow), consistent with the CT scan findings.

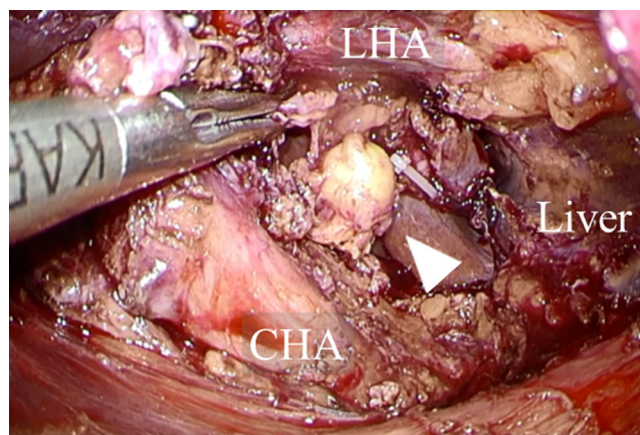


Fig. 4. Intraoperative laparoscopic observation shows that an enlarged lymph node (arrow head) is adhered firmly to the common hepatic artery (CHA) and the left hepatic artery (LHA).

Blood loss was minimal. Histopathological examination revealed an epithelioid granuloma with caseous necrosis within its center and yielded a suspected diagnosis of tuberculous lymphadenitis (Fig. 5). The diagnosis was confirmed with polymerase chain reaction (PCR) examination and the positive result of the quantiferon test. After an uneventful postoperative recovery, he was treated with quadruple antituberculous therapy. He remained well, and no evidence of recurrence of cancer has been seen during the 5 years of follow-up after the surgery for anal canal cancer.

3. Discussion

The clinical course of this patient suggests two important clinical issues. First, tuberculous lymphadenitis should be included among the differential diagnoses of lymph node adenopathy in cancer patients with a history of tuberculosis. Liver hilar lymphadenitis is uncommon and difficult to differentiate from other entities such as cholangiocarcinoma, and many cases require surgery, histology, and bacteriological confirmation to reach a definitive diagnosis. Only 11 resected cases, including the present case, with detailed information on patients with liver hilar lymphadenitis have been reported in the well-documented English literature [4–10] (Table 1). To the best of our knowledge, this report is the first to describe liver hilar tuberculous lymphadenitis diagnosed

Table 1
Surgical cases of liver hilar lymph node tuberculous in the English literature.

First author	Ref.	Year	Age (y)	Sex	Symptom	History of tuberculosis	Preoperative diagnosis	Surgery	Outcome
Roy	[4]	1964	53	F	Jaundice	–	Cholangiocarcinoma	Tumor excision	11 Months alive
Kohen	[5]	1973	21	F	Fever Jaundice	–	NA	T-tube drainage	7 Months alive
Ratanarapee	[6]	1991	38	F	Jaundice	–	Cholangiocarcinoma	T-tube drainage	5 Years alive
Lee	[7]	1994	27	M	Hematemesis	+	Portal vein hypertension by enlarged lymph nodes	Splenorenal shunt ligation of coronary vein	3 Years alive
Poon	[8]	2001	20	M	Jaundice	+	Malignancy Tuberculous	Anastomosis of the segment III duct to a Roux en Y loop	2 Years alive
Poon	[8]	2001	34	M	Weight loss Jaundice	+	Tuberculous Malignancy	Laparoscopy percutaneous biliary drainage	2 Months alive
Saluja	[9]	2007	35	M	Anorexia	NA	GB cancer	Cholecystectomy	NA
Saluja	[9]	2007	70	M	Jaundice	NA	GB cancer	T-tube drainage Cholecystectomy	NA
Saluja	[9]	2007	55	F	Jaundice	NA	Cholangiocarcinoma	Hepatojejunostomy	NA
Fernández Muínelo	[10]	2013	29	M	Jaundice Abdominal pain	–	Malignancy	Cholecystectomy lymph node enucleation	9 Months alive
Present case		2015	49	M	None	+	Metastasis of anal canal cancer	Laparoscopic lymph node biopsy	7 Months alive

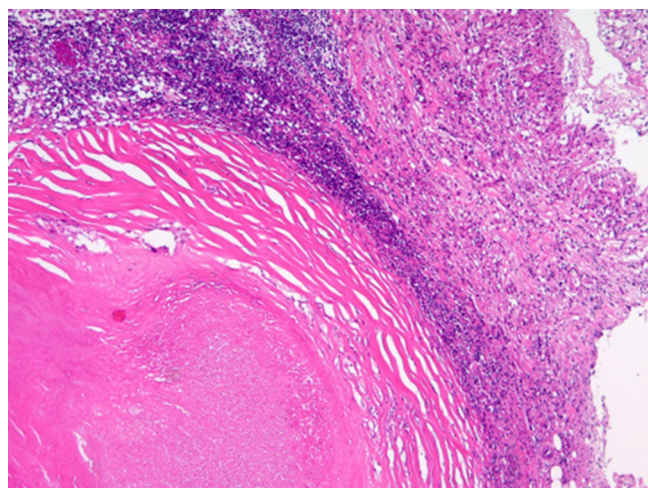


Fig. 5. Pathological examination shows an epithelioid granuloma with caseous necrosis within its center and yielded a suspected diagnosis of tuberculous lymphadenitis. The diagnosis was confirmed with polymerase chain reaction (PCR) examination.

by laparoscopic surgery. A review of previously reported cases revealed that liver hilar tuberculous lymphadenitis occurs most frequently in young to middle age, with a median age of 35 years (range, 20–75 years). Most patients developed jaundice (8/11, 73%), though the present case had no symptoms. Half of the patients (4/8, 50%) had a history of tuberculosis. The diagnosis of tuberculous lymphadenitis was established before surgery in only 2 of 11 cases (2/10, 20%). The remaining diagnoses were cholangiocarcinoma, gallbladder carcinoma, metastasis of cancer, and portal vein hypertension. Surgical procedures included lymph node excision, T-tube drainage with cholecystectomy, and biliary bypass. All the patients had good prognoses. It was not possible to preoperatively diagnose liver hilar tuberculous lymphadenitis because the present patient with a medical history of advanced anal canal cancer underwent right inguinal lymph node dissection twice previously, though he had a history of pulmonary tuberculosis. In the present case, tuberculous lesions in the abdomen were clearly detected by FDG-PET with a high SUVmax value. The previous reports [11,12] showed

that FDG-PET imaging is rarely useful for differentiating cancer from tuberculous lesions, because both conditions have increased uptake of the FDG metabolite.

The second important clinical point is that laparoscopic lymph node biopsy is useful as a diagnostic modality for undiagnosed lymphadenopathy. Ultrasound (US) or CT-guided fine needle aspiration (FNA) may be useful for preoperative diagnosis because it allows samples to be taken for bacteriology and cultures, but it has the disadvantage of disseminating potentially malignant or tuberculous cells [12]. In practise, the diagnosis is often established at operation or even after surgery by histology or PCR-based assay, as in the present case. With the progress of surgical techniques and devices, laparoscopic lymph node biopsy has become an option for patients with undiagnosed lymphadenopathy. Diulus et al. [13] reported that laparoscopic lymph node biopsy is a safe effective alternative to open surgical biopsy in their 30 retrospective cases. The pathological findings in this case indicated that the patient without jaundice did not need surgical intervention, but laparoscopic lymph node biopsy seemed to provide less blood loss, a shorter duration of hospitalization, and good cosmetic results, and also proved useful in diagnosis.

4. Conclusions

Tuberculous lymphadenitis should be included among the differential diagnoses of liver hilar lymphadenopathy in patients with a history of tuberculosis. Laparoscopic lymph node biopsy is useful in the diagnosis of undiagnosed lymphadenopathy.

Conflict of interest

The authors declare no potential conflict of interest.

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Author contributions

Each author participated in writing the manuscript and all agreed to accept equal responsibility for the accuracy of the content of the paper.

Consent

Written informed consent was obtained from the patients for the information to be included in our manuscript. His information has been de-identified to the best of our ability to protect his privacy.

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