



## Liver Nodules after Percutaneous Transhepatic Biliary Drainage: A Case Series

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### Abstract

Although liver granulomata mimicking metastatic nodules have been reported previously, these have not been related to previous percutaneous transhepatic cholangiography and biliary drainage. We describe four cases where necrotising granulomata, apparently secondary to previous PTBD, have necessitated liver biopsy and frozen section examination at the time of subsequent planned cancer resection, to exclude tumour metastases. Necrotising granulomata were diagnosed on frozen section in 3 patients, but in one, frozen section offered a diagnosis of malignancy with necrosis, but paraffin sections showed features of a necrotising granuloma. Knowledge of this potential pitfall, with surgeons and pathologists being aware of these lesions caused by PTC, should help prevent misinterpretation.

**Keywords:** Pancreaticobiliary cancer; Liver nodules; percutaneous transhepatic cholangiography; Liver granulomata; Metastases; Frozen section

### Introduction

Percutaneous Transhepatic Cholangiography (PTC) is an interventional radiological technique for both diagnostic imaging and therapeutic decompression (Percutaneous Transhepatic Biliary Drainage - PTBD) of the proximal biliary tract in patients with proximal biliary obstruction or when Endoscopic retrograde cholangiopancreatography (ERCP) fails in patients with distal obstruction. Recognized complications of PTC include sepsis, haemorrhage and pneumothorax. We describe four cases where necrotising granulomata, apparently secondary to previous PTBD, have necessitated liver biopsy and frozen section examination at the time of subsequent planned cancer resection, to exclude tumour metastases.

### Case Presentation

#### Patient 1

A 59-year-old woman who presented with obstructive jaundice due to a pancreatic cancer underwent PTC and stenting after having an unsuccessful attempt at ERCP. A pancreaticoduodenectomy was planned, but during the intra operative assessment, a sub capsular liver lesion was identified and a biopsy was taken for frozen section examination querying liver metastasis from a pancreatic cancer. A significant level of difficulty was associated with the interpretation of the frozen histology, and malignancy with necrosis was considered. Hence, resection was not performed. However, the paraffin sections of the lesion showed necrosis surrounded by epithelioid histiocytes and macrophages, histological appearances consistent with a necrotising granuloma. The patient subsequently underwent a successful pancreaticoduodenectomy a few weeks later, with the diagnosis being well differentiated adenocarcinoma of the pancreas.

#### Patients 2-4

A 44-year-old man, a 40-year old man and a 60-year-old woman who presented with obstructive jaundice and weight loss had PTC and stenting after a failed ERCP. During the intraoperative assessment for a planned pancreaticoduodenectomy, sub capsular liver lesion was identified in each of the three patients and a frozen section was sent querying either a scar or metastatic disease. The frozen section from each patient showed the presence of a necrotising granuloma and a subsequent paraffin section confirmed the presence of a well-defined granuloma. The first two

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patients underwent a successful pancreaticoduodenectomy with adenocarcinoma of the ampulla and adenocarcinoma of the distal bile duct being final diagnoses respectively. In the fourth patient, the pancreaticoduodenectomy was abandoned as trial dissection revealed that the tumour was locally advanced and, therefore, unrespectable.

## Discussion

Common aetiologies of liver granulomata include tuberculosis, sarcoidosis, primary biliary cirrhosis, drug reactions and foreign bodies. Liver granulomata mimicking liver metastases have been reported previously although; these cases were not related to PTC1, 2. The present series comprises the first reported cases of necrotising granulomata in the liver secondary to prior instrumentation of the liver and leading to intraoperative histological assessment. Irrespective of the cause in the cases mentioned, this entity is highlighted as a potential pitfall in frozen section interpretation, which can lead to over staging of otherwise respectable disease having a significant effect on patient's management. Several reasons

can contribute to false interpretation of this lesion as malignant including the macroscopic appearance of a sub capsular liver lesion, the presence of a known primary malignancy that is being operated, localised necrosis, macrophages and histiocytes that can mimic single tumour cells and finally time pressure. In addition, these histological findings could lead to another misleading interpretation including a possible diagnosis of infection such as tuberculosis. Knowledge of this potential pitfall, with surgeons and pathologists being aware of these lesions caused by PTC, should help prevent misinterpretation.

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