

Serous Cystadenoma Fine Needle Aspiration

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Case

This is a 40 year old engineer who underwent screening abdominal ultrasound in a foreign country and was found to have a pancreatic cystic lesion in the head of the pancreas. The patient denied abdominal pain, weight loss, jaundice, or a history of pancreatitis.

Screening laboratory tests were normal except a total serum bilirubin was slightly increased at 1.5 mg/ml. The serum amylase was 92 units/liter. An abdominal CT scan demonstrated an irregular low attenuation lesion in the head of the pancreas. The pancreatic-biliary ducts and pancreatic parenchyma were normal. The lesion was interpreted as an intraductal papillary mucinous neoplasm. A surgical consultation recommended an endoscopic ultrasound (EUS) with fine needle aspiration (FNA) of the pancreatic cystic lesion.

The EUS demonstrated a normal upper GI endoscopy examination. The EUS examination revealed a large complex cystic lesion with evidence of micro and macro-cyst morphology. A fine needle aspiration readily retrieved clear, non-viscous, yellow-tinged fluid that was sent for cytology, amylase and CEA. Immediately following the passage of the 22 gauge FNA needle into the cyst, a small intra-cystic arterial bleeding source was noted in the wall of the cyst. In order to reduce the amount of bleeding, intracystic injection of epinephrine (4ml of 1:10,000) was administered. However, after removal of the FNA needle, another site of bleeding in the wall of the cyst occurred. Over 5-10 minutes, the bleeding stopped and the patient was admitted for observation. The patient experienced two days of abdominal pain relieved with intravenous narcotics. Ampicillin 1 gr iv and gentamicin 80 mg iv was given. An abdominal CT scan demonstrated a moderate amount of blood within the cyst cavity. (*see video clip*).

Laboratory testing in the hospital revealed a transient increase in the WBC to 16,600 and a hct of 45%. The serum amylase peaked at 170 units/L and returned to normal range within 48 hours. With resolution of abdominal pain, the patient was discharged. Subsequently, the cyst fluid analysis demonstrated a CEA level of 0.2 ng/ml and an amylase concentration of 48 units/L. The cyst fluid cytology was benign and the only cell present was foamy histiocytes. No mucin was present in the fluid by cytologic examination. The findings were thought to be diagnostic of a serous cystadenoma, therefore conservative follow up was recommended. In follow-up a surgical consultation recommended a pancreatic head resection.



Video 1: An abdominal CT scan demonstrated a moderate amount of blood within the cyst cavity

Discussion

Self-limiting mild bleeding due to EUS-FNA has been reported to occur in as many as 4% of cases but most of them are clinically insignificant.¹ Heavier bleedings are rare, but they may occur due to shearing of the mucosa by the needle and due to injury of adjacent vessels when examining restless patients. Two episodes of clinically significant bleedings were described after EUS-FNA of pancreatic lesions, with one resulting in death.² Acute extraluminal bleeding at the site of the EUS-FNA is also rare, with a reported frequency of 1.3%, but no clinically recognizable consequences.³ Patients with highly vascularized lesions such as neuroendocrine tumors, metastases as well as patients with cystic pancreatic lesions may be at greater risk.

Acute intracystic bleeding is the most common complication of pancreatic cystic lesion FNA. The episodes usually transpire without serious consequences, except a possible transient increase in abdominal pain. In a prospective study of EUS-FNA of pancreatic cystic lesions in 50 patients, three (6%) cases of acute intracystic bleeding were identified. None of the three patients with acute intracystic bleeding were taking a nonsteroidal anti-inflammatory drug, including aspirin during the week preceding EUS-FNA.⁴

The diagnosis of serous cystadenomas is often dependent upon cyst fluid analysis (low CEA and amylase) because of the lack of adequate cytologic material in the cyst fluid.⁵ Since the epithelium of serous cystadenomas is very vascular, the passage of needles through the wall may be complicated by bleeding. Intracystic bleeding is readily recognized during procedure as a gradually expanding hyperechoic area adjacent to the needle puncture within cyst cavity. The bleeding is usually transient and results in few symptoms.⁶ Post procedure hyperamylasemia is also common and may reflect transient pancreatitis. The preferred management is monitoring.⁷ Acute intracystic bleeding appears to resolve spontaneously. If the patient notes significant abdominal pain, follow-up imaging should be performed in order to determine the volume of bleeding within the cyst cavity. If bleeding does not cease during short period of EUS observation, EUS-guided intracystic injection of epinephrine may be performed.³

References:

1. Voss M., Hammel P., Molas G., et al., *Value of endoscopic ultrasound guided fine needle aspiration biopsy in the diagnosis of solid pancreatic masses.* **Gut**, 2000; 46(2):244-9.
2. Gress FG., Hawes RH., Savides TJ., et al., *Endoscopic ultrasound-guided fine-needle aspiration biopsy using linear array and radial scanning endosonography.* **Gastrointest Endosc**, 1997;45(3):243-50.
3. Affi A., Vazquez-Sequeiros E., Norton ID., et al., *Acute extraluminal hemorrhage associated with EUS-guided fine needle aspiration: frequency and clinical significance.* **Gastrointest Endosc**, 2001; 53(2):221-5.
4. Varadarajulu S. and M.A. Eloubeidi, *Frequency and significance of acute intracystic hemorrhage during EUS-FNA of cystic lesions of the pancreas.* **Gastrointest Endosc**, 2004;60(4):631-5.
5. Huang P., Staerckel G., Sneige N., et al., *Fine-needle aspiration of pancreatic serous cystadenoma: cytologic features and diagnostic pitfalls.* **Cancer**, 2006;108(4):239-49.
6. Lee L.S., Saltzman JR., Bounds BC., et al., *EUS-guided fine needle aspiration of pancreatic cysts: a retrospective analysis of complications and their predictors.* **Clin Gastroenterol Hepatol**, 2005;3(3):231-6.
7. Fernandez-Esparrach G., Ginès A., García P., et al., *Incidence and clinical significance of hyperamylasemia after endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA) of pancreatic lesions: a prospective and controlled study.* **Endoscopy**, 2007;39(8):720-4.