

Case Report

Endoscopic Ultrasound Assisted Etiological Localization in Acute Pancreatitis

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Abstract

Hyperparathyroidism is an uncommon cause of pancreatitis and one should look for its telltale evidence on history (renal stone disease) and investigations (hypercalcemia). Endosonography has an upcoming role in the management of acute pancreatitis, especially in the presence of fluid collection. We report a case of parathyroid adenoma related acute pancreatitis complicated with pseudocyst, which was managed with percutaneous drainage and endosonographic localization of the adenoma to the left parathyroid gland. This patient underwent sestamibi scanning, which confirmed its presence and underwent surgical excision of the adenoma. Endosonography should be included in the work up of patients with unclear etiology and thyroids should be routinely scanned for parathyroid adenomas. One should always look outside the box to get clues for diseases inside the box.

Keywords: endoscopic ultrasound; hyperparathyroidism; acute pancreatitis

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INTRODUCTION

Acute pancreatitis is a common disorder of pancreas resulting from inflammation involving the exocrine pancreas resulting in a systemic inflammatory response syndrome with or without local complications of necrosis and fluid collection. Alcohol and gall stones form the common etiologies and a reasonable conclusion can be drawn upon the etiology in 90% of the cases. Hyperparathyroidism forms a small subset of etiology in acute pancreatitis, which may be missed out in the early course due to variable effects of the disease process on calcium and parathyroid hormone metabolism. Bess *et al.*¹ proposed that hyperparathyroidism and pancreatitis are more of a chance association than specific etiology since its incidence is found to be the same in both hyperparathyroid patients and general population. However, several case reports and case series have proposed hypercalcemia as a cause of acute pancreatitis with variable incidence.

Endosonography has an upcoming role in the management of acute pancreatitis. In the acute setting, it is

useful in qualifying the type of collection viz. pseudocyst vs walled off pancreatic necrosis and also provides a vessel free approach for drainage of collections more so if they are non-bulging in the stomach. Contrast enhanced endosonography has an upcoming role in the detection of pancreatic necrosis. In our experience of the management of pseudocysts, endosonographic localization of the thyroid gland seemed to be feasible and an easy technique for locating parathyroid adenomas. We hereby report such a case detected during routine endosonography.

CASE REPORT

A 45-year-old lady presented with acute epigastric pain radiating to the back associated with vomiting, abdominal distension, constipation and obstipation. She had a history of surgery for renal stone disease. Clinical examination revealed epigastric tenderness with ileus. She had elevated amylase and bulky pancreas with fat standing and collection on initial computed tomography (CT) of the abdomen. Ultrasonography revealed no evidence of gall stones, lipid profile was normal. Her serum calcium was 11.2 mg/dl and phosphate was normal. In her later course, she developed an epigastric lump which on CT appeared to be a pseudocyst (Fig. 1) along with evidence of renal stone disease (Fig. 1, arrow). She underwent endoscopic ultrasound (EUS) to qualify the collection and its

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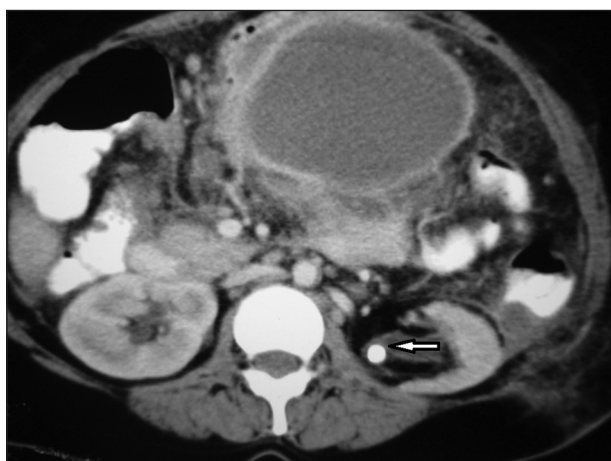


Figure 1. Contrast enhanced computed tomography image of the abdomen revealing a pseudocyst in the lesser sac with evidence of renal stone disease (arrow).

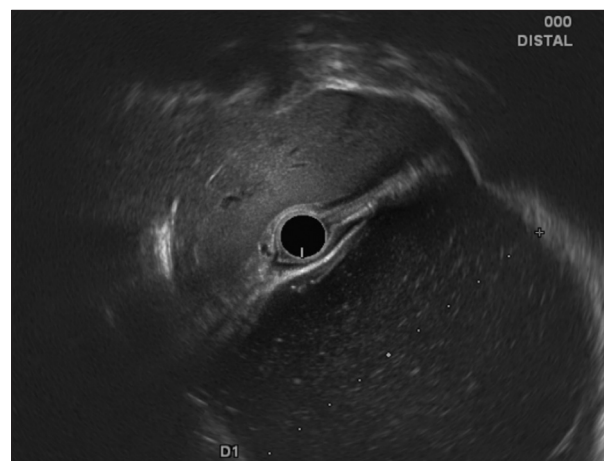


Figure 2. Radial echoendoscopic image showing evidence of a well encapsulated collection with echogenic contents and no significant solid debris suggestive of a pseudocyst.

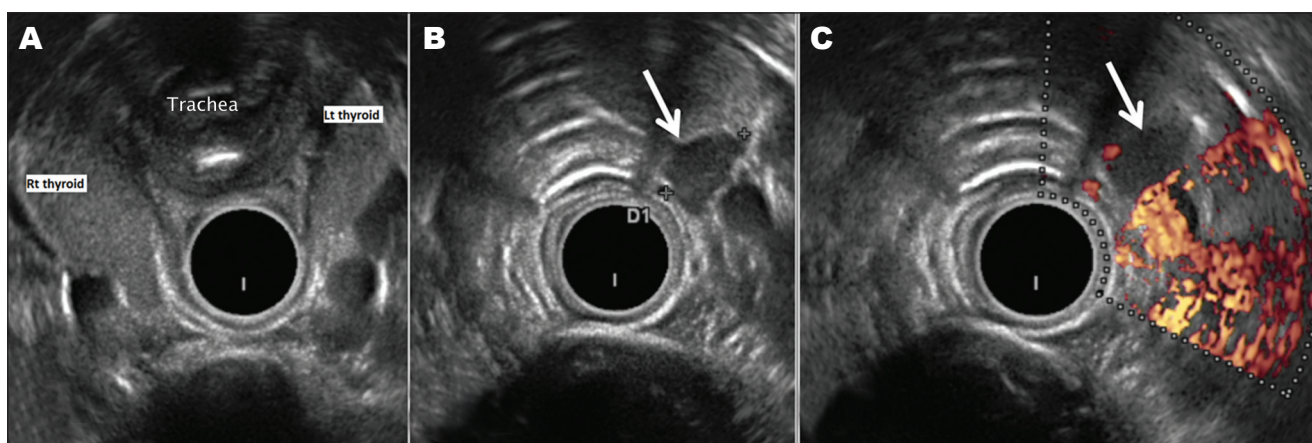


Figure 3. A: Radial echoendoscopic image showing trachea with both lobes of the thyroid; B: A 1 cm hypoechoic nodule is seen in the inferior aspect of the left thyroid gland marked with a white arrow; C: On power Doppler, this lesion does not show vascularity.

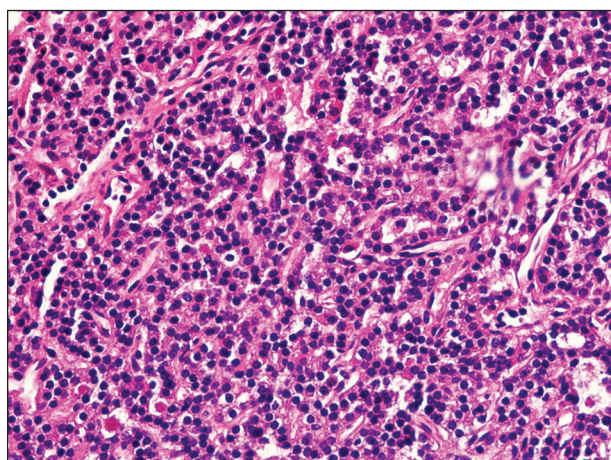


Figure 4. Photomicrograph showing evidence of monomorphic hypercellular nodule composed of chief cells suggestive of parathyroid adenoma

contents (Fig. 2) which showed well encapsulated collection with echogenic contents and no significant solid debris. During withdrawal of the echoendoscope, a 1 cm hypoechoic

nodule was noted in the inferior aspect of the left thyroid gland with no vascularity (Fig. 3, white arrow). Sestamibi imaging confirmed the presence of parathyroid nodule in the left cervical region. She underwent surgical excision of the left parathyroid nodule which on histopathology showed evidence of monomorphic hypercellular nodule composed of chief cells (Fig. 4). Final diagnosis was confirmed to be parathyroid adenoma causing hyperparathyroidism induced acute pancreatitis. EUS assisted etiological work up as well as localization of the disease could be feasible which minimized the surgical requirement of this patient.

DISCUSSION

Hyperparathyroidism is an uncommon cause of pancreatitis and one should look for its telltale evidence on history (renal stone disease) and investigations (hypercalcemia). The standard protocol for diagnosing parathyroid tumors is ultrasonography of the neck with image guided fine needle aspiration to establish the nature of parathyroid lesions. Lesions can also be localized with the help of sestamibi radio

nucleotide scintigraphy and both these investigations could be complementary in guiding the surgeons for adequate resection. Endosonography has an upcoming role in acute pancreatitis specially to qualify the collections and is actively pursued in many centers for their management. During withdrawal of the echoendoscope through the neck region/cervical esophagus, thyroid glands could be easily scanned for the presence of adenomas. These lesions are small, around a centimeter and hence can easily be missed out unless one looks for them carefully.

The routine usage of endosonography for the management of hyperparathyroidism is sparsely reported.^{2,3} Its role in the management of hyperparathyroidism related acute pancreatitis is not reported in the literature until date. We hereby report its usage for the first time in literature for the management of acute pancreatitis. Both radial and linear echoendoscopes are useful for scanning the thyroid glands. Since the location of the scope is at a strategic position near the cervical esophagus, adequate sedation and local anesthetic should be used to avoid discomfort to the patients. While using the radial echoendoscopes, both the lobes of thyroid gland are seen to embrace the trachea in a single view and may be oval or oblong in shape. With the linear echoendoscope, the thyroid lobes are seen separately once at a time in a linear oblong shape along the long axis of the image. On rotation or torquing the scope across the trachea, both lobes can be scanned from apex to lower end. Other hypoechoic structures which could mimic nodules are the branches of the great vessels which can be differentiated on color/power Doppler imaging. These lesions

are also amenable for EUS guided fine needle aspiration using a 22G needle. The only limiting factor for adequate visualization of these glands is cooperation from the patient since the presence of endoscope tip in the cervical esophagus stimulates gag reflex.

We recommend that Endosonologists should routinely scan the thyroid to look for parathyroid adenomas in acute pancreatitis with unclear etiology. Its use can be extended to detect parathyroid adenomas,² localize the tumor,² which helps the surgeon in excision and localize the ectopic ones in the mediastinum.³ Endosonography can also be used to localize pancreatic neuroendocrine tumors in multiple endocrine neoplasia associated hyperparathyroidism. Furthermore, endosonography could be useful in obtaining tissue for cytology from parathyroid nodules, which could confirm the diagnosis.³ One should always look outside the box to get clues for diseases inside the box.

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