CASE REPORT

Parathyroid adenoma: rare cause of acute recurrent pancreatitis.

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Received:
Sep 18, 2020

Accepted:
Dec 22, 2020

www.ispghan.org

INTRODUCTION

Acute recurrent pancreatitis (ARP) is defined as at least 2 distinct episodes of acute pancreatitis (AP) along with complete resolution of pain (1-month pain-free interval between the episodes) or serum pancreatic enzyme levels normalization before the subsequent episode of pancreatitis irrespective of a specific time interval between AP episodes.[1] Risk factors related to ARP are genetics [mutations in cystic fibrosis transmembrane conductance regulator (CFTR), cationic trypsinogen (PRSS1), pancreatic secretory trypsin inhibitor (SPINK1), chymotrypsin C (CTRC) and carboxypeptidase 1 (CPA1) genes], obstructive (pancreatic divisum, annular pancreas) and metabolic including hypertriglyceridemia and hypercalcemia. Genetics and bilio-pancreatic structural /obstruction are most common risk factors for ARP.[2] Pancreatitis due to hypercalcemia is rare in adults and pediatric data is available in the form of patchy case reports only.[2-6]Here we are reportinghyperparathyroidism as a rare curable cause of ARP which highlight the importance of thorough detailed clinical examination (parathyroid swelling) and screening investigation (serum calcium and triglyceride) in ARP.

CASE REPORT

A 14-year-boy presented with severe upper abdominal pain associated with non-bilious vomiting for 2 days. He had similar episode of mild acute pancreatitis 4 month back diagnosed on the basis of typical abdominal pain, high amylase (>3times) and bulky pancreas on ultrasonography. Child was pain free from last 3 months. There was no family history of pancreatitis and gallstones and also no history of trauma, hepatobiliary system involvement in form of jaundice, fever, pale stool andpruritus. Examination showed average built child[weight 48 kg (50th percentile), height 150 cm (10thcentile), BMI of 21.3 kg/m^2]. His general physical and systemic examination was normal except for slight prominence of right side of neck and tenderness in epigastrium.

Investigations revealed raised serum amylase 615 U/L (normal 30-110 U/L), lipase 1515 U/L (normal 0-160U/L), serum calcium 12.68mg/dL(normal 9-10.5 mg/dL), serum ionized calcium 7.09 mg/dL (normal 4.8-5.52 mg/dL) and serum parathyroid hormone 109 pg/mL (normal 10-55pg ml). Serum 25-hydroxy vitamin D 14.8 ng/mL (normal 20-80 ng/mL) was borderline low. Rest biochemistry investigations were normal Hb-14.4g/dL (normal 13-17g/dL), TLC 11800/mm3 (normal 4000-11000/ mm3), platelet counts 4.56 lakh/mm3 (normal 1.5-4.5 lakh/mm3), serum creatinine 0.62mg/dL (normal 0.6-1.2 mg/dL), 24-hours urine protein 153.6mg (normal <150 mg), 24-hours urine creatinine 0.74gm (normal 0.5-2 gm), 24-hours urine calcium 270.3 mg (normal 100-300 mg), serum phosphate 3.19 mg/dL (normal 2.4-4.4 mg/dL), serum magnesium 1.95mEq/L (normal 1.4-2mEq/L), fasting blood sugar 84 mg/dL (70-100 mg/dL), serum sodium 136 mmol/L (normal 136-145 mmol/L), serum potassium 4.7 mmol/dL (normal 3.5-5.1 mmol/dL) and normal serum lactic dehydrogenase, serum uric acid serum triglyceride, thyroid function test and liver function test). Echocardiography showed small incidental atrial septal defect of 2mm with normal pulmonary artery pressures and cardiac functions and dimensions. Abdominal ultrasonography showed bulky pancreas and mild ascites but no feature suggestive of chronic pancreatitis in the form main pancreatic or side branches ductal dilatation, calcification or atrophic pancreas. Child was initially managed conservatively with intravenous fluid, nil per orally and analgesic as per standard protocol

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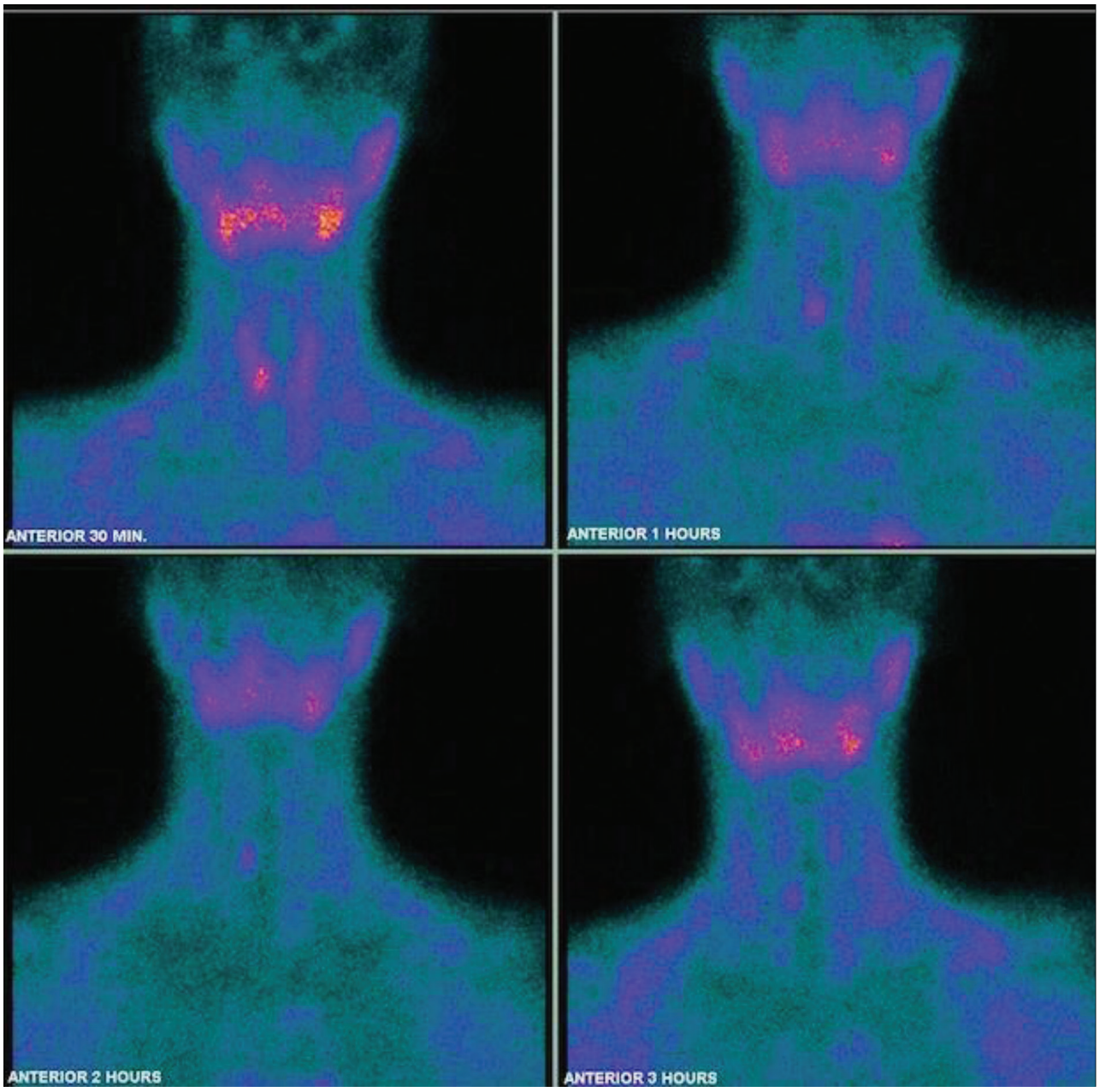

Figure 1: Radio-isotope dual phase parathyroid scan showed uniform radiotracer uptake in early images (30min) & persistence of radiotracer in lower pole of right lobe in delayed images (1, 2 and 3 hours).

of mild acute pancreatitis. Child did not have any feature of organ failure and complications of acute pancreatitis in the form of acute fluid collection. We suspected hypercalcemia due to hyperparathyroidism as one of plausible explanation of ARP based on clinical examination, hypercalcemia and increased serum parathyroid hormone level. Normal serum magnesium and urine calcium are pointer against the diagnosis of familial hypocalciuric hypercalcemia. Radio-isotope dual phase parathyroid scan revealed focal area of abnormal increased tracer uptake at lower pole of right lobe of thyroid gland at 30-minute image and minimal washout in delayed images (1-3 hours) suggestive of parathyroid tumor Figure-1. Ultrasonography of neck was normal and no subperiosteal changes were noted in x-ray both hands. Based on above findings, child underwent focused parathyroidectomy. Single grey brown tissue piece measuring 2x0.8 cm was removed, which was confirmed as parathyroid in frozen section. Procedure was well tolerated except mild hoarseness of voice and urinary retentionwhichimproved after 24 hours of surgery. Miami criteria was satisfied as 10 minutes post-surgery, there was decline in more than 50% of serum parathyroid hormone as compared to pre excision serum parathyroid hormone level (109 pg/ml to 33pg/mL).[7] Serum calcium levels 18-hourpost-surgery was 9.19 mg/dL. Following removal of focused, a > 50% PTH drop at 10 min indicates removal of the abnormal parathyroid glands Histopathology showedsheets of monomorphic cells with central nucleus, ill-defined cell margins were separated by thin walled vessels and thick fibrous septa, focal areas of acini formation by cells. These all features were suggestive of parathyroid adenoma. In last 14 months of erratic follow up, child did not have any episode of pancreatitis and serum calcium level remained normal.

DISCUSSION:

Here we are reporting hypercalcemia due to parathyroid adenoma as a rare cause of ARP. First case was reported in 1940 by Smith and Cook. Adult study showed hyperparathyroidism asa cause of acute pancreatitis in 0.4% (5/1475) cases. In children only patchy case reports are available.[3-6] Recent pediatric studies showed genetic and idiopathic as most common etiology of ARP and none of the patients had hyperparathyroidism as a risk factor of ARP in their series.[2, 8] Hypercalcemia as one of the metabolic disturbance in primary hyperparathyroidism accelerates intra-pancreatic conversion of trypsinogen to trypsin which causes the pancreatic damage. In hyperparathyroidism associated pancreatitis acute management of pancreatitis episodes remain same but once acute attack resolves, patients should undergo elective parathyroidectomy to definitively treat the primary hyperparathyroidism. In childhood/adolescent primary hyperparathyroidism, single parathyroid adenoma is most common cause (196 of 213; 92%)[9] which is due to gene mutation in one fifth of cases [10] but in this case we did not screen for gene mutation (CDC73, MEN-1). Post surgical recurrence can occur especially in genetic mutated patients that highlighted the importance of genetic testing and meticulous follow-up in this group of patients. In our case, child came twice in 14 month follow up and he was asymptomatic with normal serum calcium at last visit then lost to follow up. Unfortunately genetic testing in child and family members including serum calcium level in family members could not be done because of erratic follow-up and financial constraint. This case report emphasizes the importance of baseline metabolic screening especially serum calcium in all patients of acute or recurrent acute pancreatitis. Though genetic and idiopathic are most common etiology of ARP but timely detection of these rare metabolic disturbance can permanently cure the pancreatitis.

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