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Primary Hyperparathyroidism Revealed by Acute Pancreatitis: Report of Three Cases

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Abstract

Primary hyperparathyroidism (PHPT) is a common endocrine disorder characterized by inappropriate parathyroid hormone (PTH) secretion leading to chronic hypercalcemia. Acute pancreatitis is a rare but potentially severe complication of PHPT. We report three cases in which acute pancreatitis was the revealing manifestation of primary hyperparathyroidism. These observations emphasize the importance of systematically investigating metabolic causes, particularly hypercalcemia, in cases of acute pancreatitis with no obvious etiology.

Keywords: Primary Hyperparathyroidism; Acute Pancreatitis; Hypercalcemia; Parathyroid Hormone; Parathyroidectomy

Introduction

Primary hyperparathyroidism (PHPT) is defined by excessive and inappropriate secretion of parathyroid hormone (PTH), resulting in hypercalcemia and hypophosphatemia [1]. The most frequent cause is a solitary parathyroid adenoma, followed by multiglandular hyperplasia and, rarely, parathyroid carcinoma [2].

Acute pancreatitis is an uncommon complication of PHPT, with a reported prevalence of less than 1% in most series [3]. The pathophysiological link between hypercalcemia and pancreatic inflammation remains controversial, although experimental data support a role for calcium-mediated activation of pancreatic proteolytic enzymes [4].

We report three cases of acute pancreatitis revealing primary hyperparathyroidism to highlight diagnostic challenges and therapeutic implications.

Case Reports

Case 1

A 78-year-old woman with no significant past medical history presented to the emergency department with acute abdominal pain associated with bilious vomiting.

Abdominal computed tomography (CT) revealed acute pancreatitis classified as stage C according to the Balthazar classification.

Etiological workup showed severe hypercalcemia (147 mg/L), hypophosphatemia (19 mg/L), and markedly elevated PTH levels (397 pg/mL), confirming the diagnosis of primary hyperparathyroidism.

Case 2

A 60-year-old man with no significant medical history was hospitalized for the management of primary hyperparathyroidism.

During hospitalization, he developed epigastric pain associated with vomiting. Laboratory investigations revealed a markedly elevated serum lipase level. Abdominal CT scan confirmed acute pancreatitis classified as stage A.

Case 3

A 56-year-old woman with a history of chronic kidney disease presented with acute abdominal pain, vomiting, and diffuse bone pain.

Biochemical evaluation revealed hypercalcemia with elevated PTH levels, consistent with

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Table 1: Clinical, Biological, and Radiological Characteristics of the Patients.

Characteristics	Case 1	Case 2	Case 3
Age (years)	78	60	56
Sex	Female	Male	Female
Relevant medical history	None	None	Chronic kidney disease
Mode of presentation	Acute pancreatitis	Acute pancreatitis	Acute pancreatitis
Serum calcium	Elevated	Elevated	Elevated
Serum phosphate	Low	Low	Low
PTH level	Elevated	Elevated	Elevated
Pancreatitis stage (CT)	C	A	A
Treatment	Parathyroidectomy	Parathyroidectomy	Parathyroidectomy
Outcome	Favorable	Favorable	Favorable

primary hyperparathyroidism. Abdominal CT scan demonstrated acute pancreatitis stage A.

Management and Outcome

Parathyroid localization studies (neck ultrasound and technetium-99m sestamibi scintigraphy) confirmed parathyroid adenoma localization in all three patients.

All patients underwent parathyroidectomy, with favorable clinical and biochemical outcomes, including normalization of serum calcium levels and no recurrence of pancreatitis during follow-up (Table 1).

Discussion

Epidemiology and Pathophysiology

The association between primary hyperparathyroidism and acute pancreatitis is rare but well documented [5]. Several mechanisms have been proposed to explain this association, including calcium-induced activation of trypsinogen within pancreatic acinar cells, leading to autodigestion and inflammation [6].

Diagnostic Considerations

Acute pancreatitis may represent the initial manifestation of PHPT, as observed in our cases. In the absence of common etiologies such as gallstones, alcohol abuse, or hypertriglyceridemia, serum calcium measurement should be systematically performed [7].

Therapeutic Impact of Parathyroidectomy

Parathyroidectomy is the definitive treatment for PHPT and not only corrects hypercalcemia but also reduces the risk of recurrent pancreatitis [8]. The favorable outcomes observed in our patients support early surgical intervention.

Conclusion

Although rare, acute pancreatitis may reveal underlying primary hyperparathyroidism. Systematic assessment of serum calcium levels is crucial in patients with acute pancreatitis of unclear etiology. Early diagnosis and parathyroidectomy allow favorable outcomes and prevent recurrence. Multidisciplinary management is essential to optimize patient care.

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