Case Report/Vaka Sunumu

OVERTLY MANIFESTED DIABETIC KETOACIDOSIS AFTER TREATMENT OF CYSTIC INSULINOMA

KİSTİK İNSÜLİNOMA TEDAVİSİ SONRASI ORTAYA ÇIKAN DİYABETİK KETOASİDOZ

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Abstract

The coexistence of insulinoma and diabetes is rare and has been reported in diabetic patients whose hypoglycemic symptoms were explained by the presence of insulinoma. Furthermore, in non-diabetic insulinoma patients, diabetes and transient diabetes has been reported postoperatively. But post operative new onset diabetes presented with diabetic ketoacidosis (DKA) is extraordinary rare. We report a case in which insulinoma surgery led to DKA which is the most common acute hyperglycemic complication of diabetes. Although surgical treatment of insulinoma has been reported to cause diabetes mellitus, the present case suggests that it may cause acute complications without previous history of diabetes mellitus.

Key words: Insulinoma, Diabetes Mellitus, Diabetic Ketoacidosis

Özet

İnsülinoma ve diyabetin aynı hastada birlikteliği nadirdir ve hipoglisemik semptomları insülinoma varlığı ile açıklanabilmiş diyabetik hastalarda ropor edilmiştir. Ek olarak, non-diabetik insülinoma hastalarında postoperatif dönemde diyabet ve geçiçi diyabet ropor edilmiştir. Ancak postoperatif dönemde diyabetik ketoasidoz ile presente olan yeni tanı diyabet oldukça nadir bir durumdur. Bu raporda bir insülinoma cerrahisinin, diyabetin en sık hiperglisemik komplikasyonu olan DKA'a yol açtığı bir olguyu sunmaktayız. Her ne kadar insülinomanın cerrahi tedavisinin diyabete yol açtığı bidirilmişse de, bu olgu sunumu, bu durumun, daha önce diyabet öyküsü olmayan hastalarda, diyabetin akut komplikasyonlarına da yol açabileceğini ortaya koymaktadır.

Anahtar kelimeler: İnsülinoma, Diyabetis Mellitus, Diyabetik Ketoasidoz

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Introduction

Insulinoma is the most common cause of endogenous hyperinsulinemic hypoglycemia in adults. While its incidence is estimated at four per one million person-years (1), the coincidence of insulinoma and diabetes is an extremely rare event limited to only a few reports (2). Here, we report case of a patient who was diagnosed with diabetic ketoacidosis within 13 days after simple enucleation of insulinoma.

Case report

A seventy one year old caucasian man was admitted to our clinic due to intermittent general weakness, cold sweating, chilling, abdominal pain and decreased mental status. He has had these symptoms for nearly one year. Admission labs revealed hypoglycemia with a plasma glucose level of 2.2 mmol/L. These symptoms were relieved after intravascular administration of glucose solution. A 72-h prolonged fasting test was done. At the sixth hour of the fasting hypoglycemia symptoms were occurred. While the symptoms were present, laboratory findings revealed a low blood glucose level (1.6-2.8 mmol/L), and high insulin/c-peptide levels (40-55 μIU/mL and 5.0 ng/mL respectively.). Endocrine examinations to exclude other causes of hypoglycemia, such as hypopituitarism and adrenal insufficiency, were normal. He had no history of diabetes mellitus. Abdominal computed tomography (CT) scan was done and demonstrated approximately 15x25 mm, hypodense, cystic mass in the head of the pancreas (Figure 1).

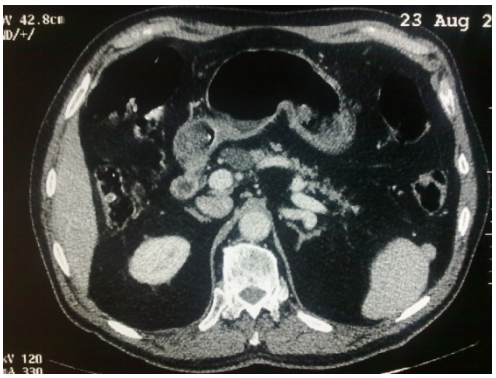

Figure 1. Abdominal computed tomographic (CT) scan was done and demonstrated approximately 15x25 mm, hypodense, cystic mass in the head of the pancreas.

Pathologic diagnosis was consistent with insulinoma. On the 4th postoperative day, intravenously injected 10% dextrose solution was stopped. On the 13th postoperative day, fasting plasma glucose, insulin, and C-peptide levels were 24.5 mmol/L, 14.9 μU/mL, and 2.3 ng/mL, respectively. His urine ketone was 100 mg/dL. He had mild acidosis. He had no symptoms of pancreatic exocrine insufficiency; however, hyperglycemia persisted even after recovery from surgery. The patient subsequently developed overt diabetes. The patient was admitted to the ICU for new-onset diabetes mellitus with diabetic ketoacidosis. Shortly after initiation of saline and regular insulin drip, his blood glucose decreased below 16.6 mmol/ L. Premixed insulin (70% NPH and 30% regular) 36 U/day was initiated and he had not any further hypoglycemic events. His current HbA1c is 8.1 %.

Discussion

Hypoglycemia is a common clinical entity, most frequently due to a complication of treatment for diabetes (3). Insulinoma is the most common cause of organic hyperinsulinemic hypoglycemia. Diagnosis of insulinoma could be difficult if the functional activity is incomplete, possibly leading to blunted symptoms of hypoglycemia and failure of laboratory investigations to provide evidence of hyperinsulinemia (4).

Pancreatic endocrine tumors are rare lesions, with a reported incidence of four cases per 1 million patients a year (1). Of these lesions, insulinomas are the most common. It is well-known that most cystic pancreatic lesions are pseudocysts or retention cysts following an inflammatory, traumatic, obstructive or infective problem (5). Reports of cystic endocrine tumors of the pancreas are uncommon in clinical practice, rating from 0.7 to 3.4% of all pancreatic cystic neoplasms (6). Eighty to ninety percent of insulinomas are < 2 cm in size and the lesions are distributed equally throughout the head, body and tail of the pancreas (7). Thus, localization diagnosis before operation is important. A ultrasonography, CT, endoscopic ultrasonography, percutaneous transhepatic portal vein sampling selective intra-arterial pancreatic stimulation and also somatostatin receptor scintigraphy have been used for tumor localization. Recently it is told that the adenomas that cannot be showed with any other techniques could determine some new techniques like dual phase helical CT (8).

Surgery is recommended therapy in insulinomas as the tumors are often soliter and related to benign adenomas. For small and benign characteristic adenomas enucleation is enough and distal pancreatectomy may be suitable for the lesions which are located on the corpus and on the tail of the pancreas. Complications of pancreatic resection include pancreatic leak, intraabdominal fluid collection, pleural effusion, pancreatic pseudocyst, bleeding, and diabetes . Diabetes can develop after pancreatic surgery depending on the extent of resection (9). A case reported after pancreatic wedge resection had been reported (9). The authors tought that this condition was related to insulinoma which masked the diabetes before the surgery. In a retrospectif study that include 125 distal pancreatectomy patients, ten (8%) new-onset diabetes mellitus had been reported(10).We think the reported case in this paper is very extreme due to presence of a cystic insulinoma, lack of resection and occurence of diabetic ketoacidosis after enucleation of the mass.

Although the coincidence of insulinoma and diabetes is extremely rare, clinicians should be attentive for the masked diabetes mellitus and related complications after resection or enucleation of the pancreatic mass.

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