Insulinoma Presenting with Psychiatric Manifestations: A Case Report

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Abstract

Insulinomas, the most common of pancreatic endocrine tumors, usually present with neuroglycopenic and adrenergic features. Chronic or long standing recurrent hypogycaemia can produce intellectual deterioration and neuropsychiatric manifestations. Diagnosis of insulinoma relies on clinical features along with laboratory tests and imaging investigations to aid in localization. A 32-year-old male who presented with prominent neuropsychiatric manifestations and received anti-epileptics as a case of epilepsy and was ultimately diagnosed as insulinoma is reported here. The patient experienced fasting hypoglycemia with neuropsychiatric manifestations; computerized tomography (CT scan) and magnetic resonance imaging (MRI) revealed a diffusely enhanced mass in the head area of pancreas which was histopathologically found to be an insulinoma after hand assisted laparoscopic enucleation. Surgical excision is the treatment of choice and is curative in most cases.

Key words: Insulinoma, Psychiatric Manifestation.

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Introduction:

Insulinomas are the most common of pancreatic endocrine tumors, with a reported incidence of four cases per 1 million patient-yr.[1] Common presentation is in between 30 and 60 yr of age, with a female preponderance (59%).[2,3] Most insulinomas are solitary, sporadic and less than 2 cm in diameter but are more likely to be multiple in patients with multiple endocrine neoplasia (MEN) type I.[1,4] Patients with insulinoma have symptoms of hypoglycemia resulting from neuroglycopenia and increased catecholamine release.

Neuroglycopenic symptoms are most common, including anxiety, dizziness, lightheadedness, personality changes, unusual behavior, confusion, incoherence, blurred vision, seizures, and coma. Sympathoadrenal signs and symptoms, such as palpitations, tremulousness, diaphoresis, and tachycardia, may also be present and are due to catecholamine release in response to low serum glucose levels.[5] Symptoms may be present from one week to as long as several decades prior to the diagnosis (1 month to 30 years, median 24 months).[6]

Diagnosis relies on clinical features along with laboratory tests and imaging investigations to aid in localization. Surgical excision is the treatment of choice and is curative in most cases. We report a 32-year-old male who was admitted to psychiatry ward initially due to prominent neuropsychiatric manifestations and received anti epileptics as a case of epilepsy. Finally, on finding recurrent low glucose level, he was referred to Endocrine Wing of department of Medicine of BSMMU and was diagnosed as insulinoma.

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Case Report:

A 32-year-old farmer was admitted in psychiatry ward of BSMMU with complaints of confusion, agitation, irritable mood and occasional convulsions; gradually developed over last six months. Further query revealed history of recurrent drowsiness, heavy sweating, weakness and confusion after hard work which recovered after taking some food over last three and half years. During previous six months he had suffered recurrent unconsciousness mostly on wakening in the morning; each time corrected by infusion of intravenous glucose.

He denied any of these symptoms occurring at night. About a year ago he suffered a convulsion with urinary incontinence and was treated with anti-convulsant drugs. He had no history of tongue bite or any amnesia. Over last six months his intellectual function deteriorated gradually. There was no history of diabetes mellitus or

intake of hypoglycaemic agents. His laboratory report revealed fasting hypoglycaemia [fasting plasma glucose (FPG) 1.7m mol/L]. He was then transferred to Endocrine medicine unit for proper management.

On examination, the body mass index (BMI) of the patient was 26 kg/m^2. The physical examination was unremarkable. He was a well developed and well nourished man, with a normal visual field examination. His abdomen was soft and nontender, with no palpable masses or organomegaly. There was no carotid bruit. On investigation, FPG and fasting plasma insulin (FPI) was 0.7 mmol/L and 48.2µU/ml respectively and plasma glucose and insulin 2 hrs after 75 gm glucose were 2.7m mol/L and 20.6µU/ml respectively. Haemoglobin was 13 gm%, renal function tests, liver function tests and serum electrolytes were within normal limits. Serum calcium level was 9.5 mg/dl. CT of the abdomen revealed a small diffusely enhancing mixed density lesion measuring about 2 x 1.5 cm in the head of the pancreas. Contrast enhanced magnetic resonance imaging (MRI) showed a roundish slightly enhancing area in the head of pancreas. There was no evidence of local invasion or metastases to the regional lymph nodes or liver. Patient was put on Diazoxide and frequent meal prior to definitive surgery. Later on Diazoxide was stopped due to postural hypotension.

Hand assisted laparoscopic enucleation of insulinoma was done and histopathology of the resected tissue showed a tumour made of uniform looking cells with rosette like appearance and central nucleus with finely dispersed chromatin.

The patient recovered gradually from post operative pancreatitis and hyperglycaemia; during which period he was treated with insulin for 3 weeks. On follow up (after about 2 months) the patient was free of symptoms; his FPG and FPI were 5.1mmol/L and 7.2µu/ml respectively. Now the patient is free of symptoms with medical nutrition therapy and living his normal life.

Discussion:

Though pancreatic tumours are rare, various aspects of insulinomas are reported in literature. This patient had the classical symptom complex (Whipple's triad) of insulinoma at the onset of his illness: 1. Low blood glucose level (40-50 mg/dl), 2. Symptoms of hypoglycaemia (confusion, anxiety, stupor, convulsions, coma), and 3. Dramatic reversal of CNS abnormalities by glucose administration[7]. The long time interval between the onset of symptoms and the diagnosis is also reported in other cases[6,8]. The patient was erroneously put on anti epileptic/ anti convulsant whereas the seizures were the complications of severe hypoglycaemia. Chronic or long standing recurrent hypogycaemia can produce intellectual deterioration and neuropsychiatric manifestations. A similar case presenting with psychiatric feature was reported by Pandey et al[7].

Hypoglycaemia is a common medical emergency. It is most common in those with diabetes receiving insulin or oral hypoglycaemics, but also occurs in patients with liver disease, renal insufficiency, congestive heart failure, sepsis, malnutrition, or cancer[9]. Factitious or surreptitious use of insulin or sulfonylurea drugs is probably the most common cause of hypoglycaemia among patients who do not have diabetes[10]. Hypoglycaemia can also be induced by insulin secreting endocrine tumors including pancreatic tumors and non-islet-cell tumors that secrete insulin-like growth factors.

In patients with insulinoma, there is continued secretion of insulin despite a lower glucose level. Insulin is synthesized as a single-chain precursor proinsulin – which is cleaved into a peptide and insulin, both of which are secreted in equimolar concentrations. Hypoglycaemia induced by sulfonylurea may have an identical presentation like an insulinoma; a negative screening for sulfonylurea is required to confirm the diagnosis. The imaging modalities are used for localization of tumor, after a clinical and biochemical diagnosis is established. Transabdominal ultrasound sometimes reveals a mass in the region of pancreas. Endoscopic ultrasound has been found to be more selective, detecting solitary insulinomas in 80% of surgically proven cases; the sensitivity drops below 40 - 60% with tumor in the tail of the pancreas[11]. Expertly performed intraoperative ultrasonography assists in tumour localization and in delineating important related anatomy. Intraoperative palpation and ultrasound are the gold standard for localizing an insulinoma with a reported success rate of 96 - 100%[12]. Surgery is the curative treatment for this condition.

In conclusion, this case report emphasizes some unusual features of an insulinoma, including convulsion and psychiatric manifestation. A clinician should be aware that any patient before being labeled and treated as a psychiatric patient, organic cause must be excluded.

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