CASE REPORT

Insulinoma Aggravating or Masquerading as Late-Onset Schizophrenia?

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Abstract

A 76 year-old lady with late-onset schizophrenia was admitted with hypoglycaemia. She was later found to have a pancreatic tail insulinoma, confirmed biochemically and radiologically. She is treated medically with Diazoxide while awaiting laparoscopic enucleation of the pancreatic tumour. The question remains if neuroglycopenia aggravates co-existing schizophrenia or if insulinoma-induced neuroglycopenia had been misdiagnosed as schizophrenia.

Keywords: Elderly, Insulinoma, Schizophrenia, Hypoglycaemia

Introduction

Hypoglycaemia is a common medical emergency and is most commonly seen in patients with diabetes mellitus particularly those treated with insulin. In hospitalized patients, hypoglycaemia occurs in patients with major organ dysfunction, severe wasting and malignancies. After excluding factitious hypoglycaemia, insulinoma is the archetypal and commonest cause of hyperinsulinaemic hypoglycaemia in well adults without diabetes. I report an unusual case of insulinoma in an elderly lady diagnosed to have schizophrenia.

Case Report

A 76 year-old lady from a residential home, was brought in to the casualty unresponsive. Capillary glucose was 1.7 mmol/L and she was given a bolus of 50 ml Dextrose 50 % after which she became fully conscious and orientated. She has no history of diabetes mellitus and not on any regular oral medications. She has mature cataract in both eyes and is blind.

Fourteen months earlier she was referred to the psychiatric hospital for aggressive behaviour, visual hallucinations and paranoid delusions of 1 year’s duration. At that time, she was noted to have hypoglycaemia on 2 occasions (1.9 mmol/L and 2.3 mmol/L) which was not pursued further. She has a son who has schizophrenia and is being followed up in the same psychiatric hospital. A diagnosis of schizophrenia was made based on her history. No imaging of the brain was done. She was discharged on intramuscular Fluanxol 25 mg monthly and followed up by the psychiatric hospital’s acute home care team.
During this admission, she continued to have persistent hypoglycaemia with capillary glucose below 3 mmol/L despite infusion of Dextrose 10% and Dextrose 50%. She was also hypokalemic with potassium ranging from 2.4 to 2.9 mmo/L. She was mostly bed-bound and ‘stiff’ from the extrapyramidal side effect of the antipsychotic. She was encouraged to take regular feeds with Ensure formula milk and snacks with chocolate malt drink.

In spite of extremely low plasma glucose of 1.3 mmol/L, her C-peptide level was inappropriately raised – 1.83 nmol/L (0.37-1.47). Other blood investigations: FreeT4 11.14 pmol/L (9-24), TSH 2.17 mIU/L, random serum cortisol 20.84 ug/dL, Na 138 mmol/L, creatinine 76 µmol/L. Liver function test was normal. Plasma sulphonylurea screen was negative.

CT brain done showed bilateral corona radiata infarct.

In view of the above blood results, CT scan of the pancreas (triple phase contrast) was done which showed a 1.5 cm tumour, with benign features, at the tail of the pancreas (Figures 1a, 1b). A diagnosis of insulinoma, confirmed biochemically and radiologically was made.
Axial (Figure 1a) and coronal (Figure 1b) images of pancreatic triple phase CT in the portal venous phase showing a sharply defined, intensely enhancing nodule (red arrows) measuring 1.5 cm, at the tail of pancreas which projects from the inferior margin of the pancreas.

(A=aorta, B=bowels, GB=gallbladder, IVC=inferior vena cava, P=pancreas, RK=right kidney, LK=left kidney, LRV=left renal vein, S=spleen, SV=splenic vein, TC=transverse colon)

Diazoxide 100 mg tds was started and IV dextrose stopped. She became hyperglycaemic, hence Diazoxide was decreased to 100 mg bd and then once daily. She was referred to the surgeon for laparoscopic enucleation of the pancreatic tumour. About two weeks after starting Diazoxide, her platelet count dropped to 27000/uL from 295000/uL. It was thought to be related to Diazoxide which was decreased further to 100 mg every alternate day with an improvement of platelet count. This dose however could not maintain her glucose level and therefore subcutaneous injections of Octreotide were added – 50 mcg od titrated gradually up to 100 mcg bd.

Although her blood glucose levels have normalized, she is still sometimes agitated but there was no observed aggressive behaviour, and no reported visual hallucinations or paranoid delusions. The psychiatry team continues to treat her with IM Fluanxol.

**Discussion**

Insulinoma is the commonest pancreatic endocrine tumour yet rare with an incidence of 1 to 4 per million people. The majority of the tumours in non-familial disease is small (90% < 2cm), solitary (90%) and benign (90%). The median age of presentation is 47 years old although it has also been rarely reported in the elderly. Patients present with neuroglycopenic symptoms such as unusual behaviours, confusion, personality changes and “funny turns” with recurrent falls. A delay in diagnosis of up to 34 years has been reported because of the non-specific nature of the symptoms. Up to 20 percent of patients were misdiagnosed with a neurologic or psychiatric disorder before the insulinoma was discovered. On the other hand, very-late-onset schizophrenia-like psychosis (onset after 60 years) is a recognized disease with an annual incidence that increases 11% with each 5-year increase in age.

Surgical removal is the treatment of choice as it is curative. In recent years, laparoscopic enucleation is performed particularly for small, solitary insulinoma localized preoperatively.

Medical treatment for insulinoma is required for those awaiting surgery, or those unfit for or refuse surgery. It is also indicated in cases of tumour non-localisation, metastatic disease and those who failed surgery. Diazoxide, given in divided doses up to 1200 mg/day, is the most commonly used and effective drug. It was reported that adverse events – the commonest being fluid retention and hirsutism - from the drug are usually mild and do not need cessation or dose adjustments. It is a specific ATP-dependent potassium [KATP] channel agonist in normal beta cells and works by blocking the sulphonylurea receptors on the beta cells, resulting in opening of the KATP channels, and thereby inhibiting insulin release.

Octreotide, a somatostatin analogue, is often used as a second line therapy. Its exact
mechanism on insulin, glucagon and growth hormone release, and prevention of hypoglycaemia is still unclear. It is given subcutaneously up to three times a day due to its short half life of 100 minutes. Although reported to be highly effective in controlling symptoms associated with other pancreatic endocrine tumours, efficacy is less predictable for patients with insulinoma.

Conclusion

This is a case of an elderly lady with a diagnosis of late-onset schizophrenia who was later found to have spontaneous hypoglycaemia due to a pancreatic tail insulinoma. The question remains if the neuroglycopenia aggravates co-existing schizophrenia or if insulinoma-induced neuroglycopenia had been misdiagnosed as schizophrenia. While awaiting surgery, she was treated with Diazoxide, the dosing of which was limited by thrombocytopenia, and subcutaneous Octreotide injections.

References


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