

## Insulinoma - Is Diagnostic Delay Inevitable? Case report and Review of Literature

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**Abstract:** Insulinoma is very rare tumor, patients present with features of profound hypoglycemia, life threatening coma. High degree of suspicion is required for this rare entity. Many patients are erroneously referred to psychiatrists and neurologists. In majority of the cases there is diagnostic delay of years. Some patients even die due to unnoticed severe hypoglycemia. A young male presented to us with after three years of recurrent attacks of coma, hypoglycemic symptoms in diagnosis. During these three years patient consulted several doctors even at tertiary level hospital. Even specialists missed the insulinoma and patient was erroneously diagnosed to have a psychiatric problem. Insulinoma was diagnosed when patient presented in coma that also by chance. Enucleation was performed patient recovered well and is moving forward with his life happily

### I. Introduction

Amongst the the endocrine tumors of pancreas Insulinoma is the most common. Incidence of insulinoma is 1 in 1000000.<sup>1</sup> Pancreatic endocrine tumors arise from pluripotent cell in ductal epithelium.<sup>2</sup> About 10 % are malignant, 10 % are multi-centric, 10 % are associated with MEN-1. Most of them are identified when patients present with features of profound hypoglycemia i.e lethargy, dizziness, hypoglycemia, tachycardia, diaphoresis, palpitations. Being very rare entity high index of suspicion is required and only surgical resection offers the definitive cure. We present a case report of young male which was treated by psychiatrist for long before being able to benefit from definitive treatment and get end to his agony.

### II. Case Report

A Young male of 30 years become unconscious while working in the fields and brought to the hospital in Coma. There was no history of trauma, snake bite, intake of poison. History of abnormal behavior, and attacks of unconsciousness. This patient was treated with anti epileptics and anti psychotic drugs for several years. Although clinical picture was not convincing but on the basis of history, Post ictal coma was suspected initially by physicians at or hospital. Patient was put on IV fluids and routine investigations were sent. Surprisingly blood sugar was found to be only 40 gm %. Patient responded to IV glucose and became conscious. Ultrasound abdomen was performed which showed mass in head of pancreas (figure I). CT abdomen did not showed any lesion, the MRI abdomen was done which showed mass in head of pancreas which was hypo enhancing in T1 phase (figure II). Insulinoma was diagnosed and biochemical hormonal assay performed showed following set of values in Table 1.

Test	Value in patient	Normal values
Blood Sugar		
Random	116 mg%	100-160mg%
fastin	40 mg%	60-100 mg%
Serum insulin	27.20 U/ml	10-22 U/ml
Insulin/glucose ratio	>0.6	<0.3
C-peptide	1.4 u U/ML	<1.2 uU/ml

Patient was taken up for surgery and well encapsulated lesion was found in head of pancreas (figure III). Intraoperative USG was used to assess and to safeguard pancreatic duct. Insulinoma was removed. Patient had uneventful recovery and stayed healthy afterwards.

### III. Discussion

Insulinoma arise from Beta cells of pancreas, with equal distribution in head,body,tail of pancreas. Pathogenesis of Hypoglycemia is due to autonomous secretion of insulin leading to Inappropriate response to the ambient blood sugar. Moreover there is absence of ability of hypoglycemia to inhibit insulin release.

Classical whipple's triad of low glucose level (<50 mg/dl), having features of hypoglycemia which resolves with intake of glucose. Though whipple triad is pathognomonic but not always present. Insulinoma is diagnosed by high Clinical suspicion of symptomatology of Hypoglycemia supported by laboratory investigations of confirmation of Hypoglycemia (blood glucose <50 mg/dl) and Hyperinsulinemia (>7u U/ml). Important differentials to distinguish are nesidioblastoma and noninsulinoma pancreatogenous hypoglycemia.<sup>3</sup> Imaging studies are then used to localize the lesion for planning surgical resection. Sensitivity of dual phase CT IS 71-82%.<sup>4</sup> vascular blush in arterial phase differentiates this tumor from other tumors of pancreas. T1 hypoenhancement and high signals on T2 images of MRI is characteristic of this tumor. Sensitivity of MRI for localization is 85%.<sup>5</sup> Somatostatin receptor scintigraphy using <sup>111</sup>In-DTPA-D-phe1 octreotide a somatostatin analogue is less useful for insulinoma as only 67% of them overexpress somatostatin receptor subtype 2 which have affinity for this analogue.<sup>6</sup> Endoscopic USG identifies with accuracy of 78% if above modalities fail. Angiography will detect small insulinomas if they cannot be localized with CT, MRI, SRS, EUS by measuring the venous insulin levels in vicinity of pancreas.<sup>7</sup> If all the above mentioned modalities fail to localize the insulinoma surgical exploration confirms the presence of insulinoma.

Pathophysiology of delay in diagnosis is related to the fact that during period of hypoglycemia there is hyperadrenergic release which counteract the hypoglycemia and cause glycogenolysis so by the time patient reaches the physician blood sugar may be normal thus misleading the physician. Surgery is the main modality of treatment. Ninety percent of insulinoma are benign. Enucleation is preferred procedure.<sup>8</sup> Medical Therapy with lanoteride is required either for Preoperative preparation of the patient or inoperable cases. Streptozocin is used for metastatic Insulinoma.

### IV. Conclusion

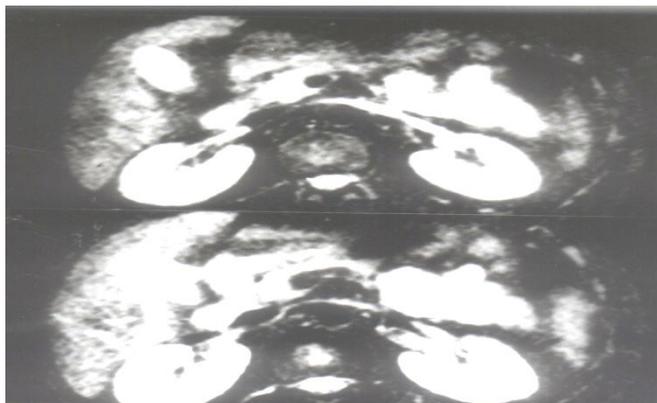
Insulinoma has a considerable delay in the diagnosis & therefore requires high index of suspicion. Repeated and prolonged fasting blood sugar levels are required to detect the hypoglycemia. If insulinoma is suspected and cannot be localised on imaging it is worth exploring surgically with facility of intra-operative sonography by the hand. Surgery is the only definitive treatment.

### References

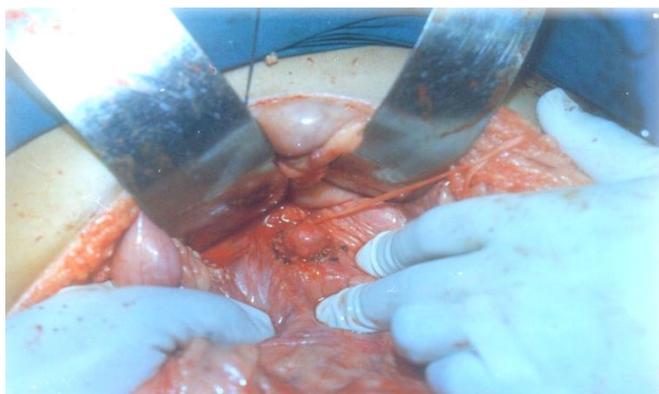
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**Figure I** Ultrasound localising the tumour in pancreatic head.



**Figure II MRI showing tumour in pancreatic head**



**Figure III Insulinoma almost dissected out from head of pancreas.**