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Case Report

Pancreatic Insulinoma Diagnosed after 25 years and Conservative Management of Pancreatic Fistula after Insulinoma Surgery

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ABSTRACT

Insulinomas are the rare insulin secreting tumours of pancreatic origin. Their diagnosis is often challenging and delayed due to non-specific and variable symptoms of hypoglycemia. Once diagnosis is made, an appropriate surgical approach is required to prevent post-operative complications. The major challenge for surgeons remains the increased rate of post-operative complications after insulinoma surgery. We present a unique case of insulinoma diagnosed after 25 years and management of post-operative complications of fistula formation after its surgery.

Keywords: Insulinoma, Pancreatic Endocrine Tumor, Pancreatic Fistula.

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INTRODUCTION

Insulin secreting insulinomas are functioning endocrine neoplasms of the pancreas.[1] Although they cause hypoglycemia,[2] diagnosis is frequently difficult and late, due to non-specific and variable symptoms.[3] Once diagnosis is reached, accurate localization of insulinoma is required to guide appropriate surgical approach.

Surgery is the cornerstone of treatment.[3] Different surgical options, both open or laparoscopic, are available, depending on the size and location of insulinoma. The major challenge remains an increased rate of post-operative complications after insulinoma surgery.[3] We present a unique case of insulinoma diagnosed after 25 years and management of post-operative complication after its surgery.

CASE REPORT

The patient, a 52-year-old morbidly obese male, with no other known co-morbid conditions, presented to Outpatient Department of PNS Shifa Hospital, Karachi Pakistan, in October 2021, with vertigo and weakness for past three hours. He had similar episodes off and on for the last 25 years but did not take appropriate medical attention. He usually went to nearby clinic where his random blood sugar was checked, which was always at lower limit (50-60 mg/dl). He was usually given some Dextrose drops and would improve. Over the past few months his weight had rapidly increased due to enhanced food intake and he started having frequent episodes of drowsiness and lethargy as well. He was admitted to out setup and thorough evaluation was advised.

His serum insulin levels were found to be 29.00 mIU/ml and serum c-peptide 4.06 ng/ml after a 72-hour fast. Contrast-enhanced CT scan abdomen/ pelvis revealed 2.9x2 cm well circumscribed enhancing pancreatic mass lesion in body of pancreas, suggestive of islet cell tumor (insulinoma) which can be seen in Figure. He was planned for enucleation under general anesthesia. Thorough counselling was done. Pre-anesthesia assessment was performed and written informed consent was taken.

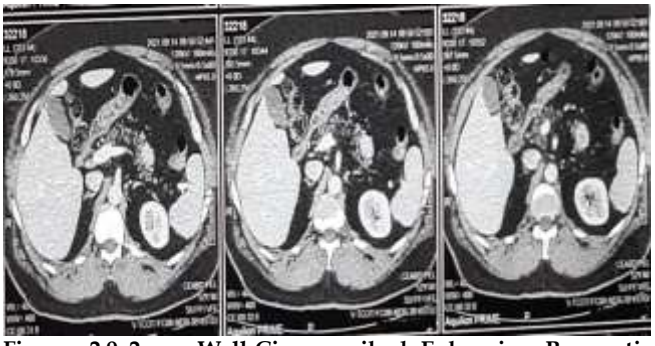

Figure: 2.9x2 cm Well-Circumscribed Enhancing Pancreatic Mass Lesion in Body of Pancreas

Surgery was performed in November, 2021 under general anesthesia. Laparoscopic exploration was attempted but converted into open surgery, due to difficulty in localizing tumor. Tumor was identified by its color and palpation. Enucleation of insulinoma was done. Abdomen was closed after placement of drain.

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Brownish fluid was found to be coming into drain on third post-operative day, without any associated symptoms. Fluid from drain was sent for amylase levels, which came out to be 27658.00 U/l. CECT abdomen was done for peri-pancreatic fluid collection, which revealed no intra-peritoneal fluid collection. A diagnosis of pancreatic fistula was made and patient was managed conservatively. Gradually drain output decreased. The patient was discharged in December 2021, after removal of drain.

Histopathology report showed well-differentiated grade-2 neuroendocrine tumor (pancreatic body tumor), pathological stage pT2. On follow up after one month, he was active and performing normal daily activities.

DISCUSSION

Insulinoma originates from insulin secreting beta cells of the Langerhans pancreatic islets. Whipple's triad constitutes the hallmark of diagnosis, characterized by symptoms of hypoglycemia, low blood glucose levels during hypoglycemia episode and prompt relief with glucose administration.[4] Diagnosis is established with prolonged fasting (up to 72 hours) and measurement of blood glucose, serum insulin, C-peptide and pro-insulin levels.[4]

Pre-operative localization of site of tumor is essential for effective surgical plan, minimizing complications. Enucleation is recommended for exophytic or peripheral insulinomas, whereas distal pancreatectomy or pancreaticoduodenectomy is performed for endophytic tumors or those in close proximity to main pancreatic duct.[5]

Most common post-operative complication of insulinoma surgery is fistula formation. Fistula formation rates are as high as 73% after enucleation of pancreatic tumors less than or equal to 3mm from main pancreatic duct.[6] Placement of drain after insulinoma surgery is important. Quality and quantity of drain fluid and fluid amylase levels can help identification of fistula formation.[7] The International Study Group of Pancreatic Fistula has defined fistula as drain output of any measurable volume, with amylase levels three times more than upper limit of normal institutional levels, along with clinical correlation.[7]

Fistulas are further graded into Grades A, B or C based on morbidity.[8] Fistula with minimal clinical consequence is termed Grade-A and is no longer termed as true pancreatic fistula and referred to as biochemical leak. Grade-B fistula results in prolonged observation period, with drain in situ for more than three weeks, or re-positioning of drain. Grade-C fistulas lead to one or more organ failures and require re-operation.[7]

Pre-operative pancreatic duct stent has been found be an effective method in prevention of post-operative pancreatic fistula formation.[5] Various other methods have also been explored. including use of harmonic scalpel, automatic stapler, fibrin glue sealing and octreotide administration.[9]

Once a pancreatic fistula has formed, key to management lies in early recognition and prevention of life-threatening complications, including hemorrhage and sepsis.[10] Vigilant observation with contrast enhanced CT scan for drainable collection is recommended. Minimally invasive drainage may be employed for drainable collection (percutaneous/ endoscopic). Enteral rather than parenteral nutrition is preferred.[10]

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Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

AHM & SA: Data acquisition, data analysis, critical review, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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