Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/14301
DOI URL: http://dx.doi.org/10.21474/IJAR01/14301

RESEARCH ARTICLE

UNUSUAL PRESENTATION OF PANCREATIC INSULINOMA:A CASE REPORT

Zineb El Azime, Fatimazahra Melki, Houda Salhi and Hanane ElOuahabi
Department of Endocrinology, Diabetology and Nutrition - Hassan II University Hospital.Fez, Morocco
Epidemiology and Health Sciences Research Laboratory.

Manuscript Info

Manuscript History
Received: 18 December 2021
Final Accepted: 20 January 2022
Published: February 2022

Key words:-
Insulinoma, Endoscopic,Hypoglycemia, Enucleation, Peptide C, Neuro-Psychiatric Disorder

Abstract

Insulinomas are pancreatic neuroendocrine tumors (PNETs) responsible for inappropriate insulin release, leading to episodes of hypoglycemia. The diagnosis of insulinoma is suspected clinicaly andbiochemically made with low blood glucose, elevated insulin, proinsulin, and C-peptide levels, and confirmed by localizing the tumor ,usually, by non-invasive imaging techniques and for difficult cases invasive modalities could be needed.Herein, we present the case of a 15 years old female who had a 1 year historyof episodic and repetitive neuroglycopenicsymptoms without weight gain, and loss of consciousness resolved with ingestion of sugary foods. Initially a neuro-psychiatric pathology was suspected, the patient was on Sodium Valproate and Antidepressants (SSRIs)with no improvement.After thorough examinations, a pancreatic insulinoma was diagnosed. The patient had a successful resection of the tumor, and her symptoms disappeared entirely.

Introduction:-

Among pancreatic endocrine tumors, the most common type is insulinoma. This tumor was reported in 1–4 people per one million person years[1].Insulinomasare rare tumors of the pancreas that producelarge amounts of insulin and are characterized by hyperinsulinemic hypoglycemia. 90% are benign, 90% are well-demarcated, solitary lesions, and 90% are < 2cm in diameter[2].

This unusual tumors presents with episodes of neuroglycopenic signs that can be preceded by sympathetic symptoms, misleading, sometimes, to a neuropsychiatric disorder. That was the case of a 15-years- old female with a year history of episodic and repetitive neuroglycopenicsymptoms. Initially a neuro-psychiatric pathology was suspected, the patient was on Sodium Valproate and Antidepressants (SSRIs) with no improvement.To find out after thorough investigations that all her symtoms where due to a pancreatic insulinoma.

Case Presentation:

We report the case of a 15 years old female, who presented episodic symptoms of diaphoresis, dizziness, fatigue, palpitations, tremulousness, hyperphagia without weight gain, and loss of consciousness.Thus, the patient was misdiagnosed as neuro-psychological case and was treated by Sodium Valproate and Antidepressants (SSRIs)with no improvement. The patient was admitted to the emergency room, capillary glycemia wasat 40 mg/dL and a biological assessment was carried out in parallel with anintravenous infusion of 10% glucose that normalized her

Corresponding Author:-Zineb El Azime
Address**:-**Department of Endocrinology, Diabetology and Nutrition - Hassan II University Hospital.Fez, Morocco Epidemiology and Health Sciences Research Laboratory.

blood sugar levels and her symptoms resolvedafter stabilization then referred to our departmentfor further care and investigations. She had a family history of diabetes type 2, and no family history of thyroid or pituitary disease.

The physical examination revealed a young well-nourished and well-developed woman without any obvious developmental abnormality, witha weight of 59 Kg and BMI of 23 Kg/m^2. Neurological and cardiorespiratory examination was normal. The rest of the physical exam was normal.

The blood analysis revealed a serum glucose level of 0.3 g/L. The serum cortisol level was 18.9ug/dl, TSHus was 2.29uUI/ml and LT4 was 1.14ng/l, as well as HbA1c 4.6%, SGOT was 19ui/ml and SGPT 20 ui/ml and serum creatinine was 4.4 mg/l. However the insulin level was 30,1uIU/L (2.5-25.0), C-peptide level was 4.46 ng/mL (>0.6) and Turner index 300 (>150).

A computed tomography (CT) with contrast and magnetic resonance imaging (MRI) of the abdomen were also normal.

Thus, endoscopic ultrasound (EUS) was performed showing a no vascularized,hypoechoic mass of pancreatic body with 14 mm diameter (figure 1).

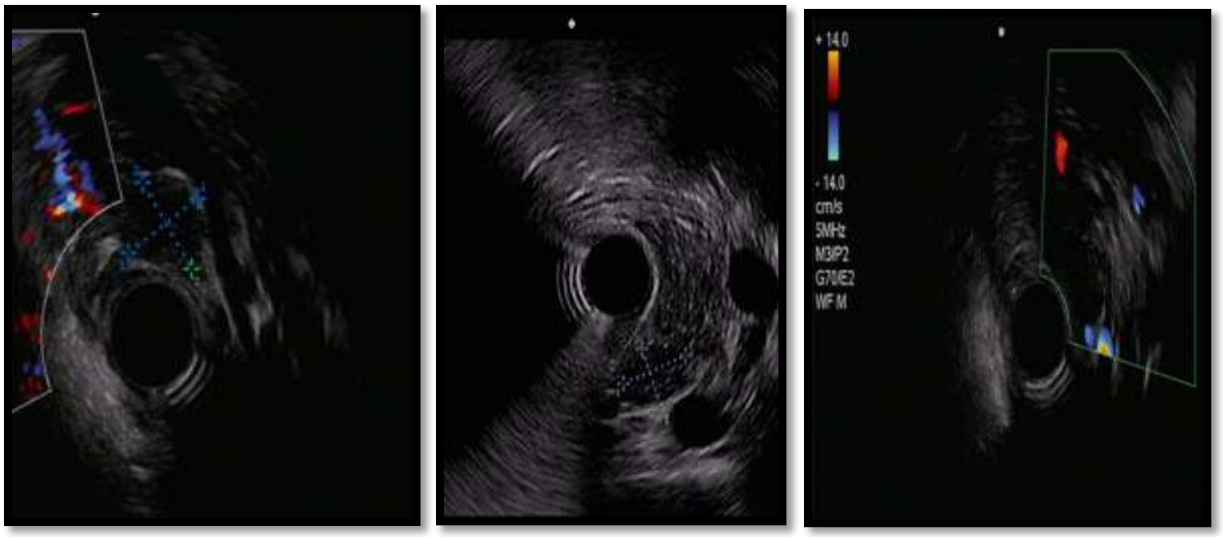

Figure 1:- Endoscopic ultrasound (EUS) : hypoechoic lesion of the pancreatic body.

Hormonal and radiological studies, including a brain MRI, were normal thus eliminating MEN-1.

The results were reviewed with the patient, and surgical management was planned. A preoperative EUS was performed allowing locating preciselythe lesion in the Uncinate process of pancreas. Total enucleation of the tumor was achieved.

The histopathological examination of the obtained piece was correspondent to a neuroendocrine pancreatic tumor, well differentiated, and positively stained for synaptophysin, chromogranin and Ki 67 was 2%. (figure2, 3, 4)

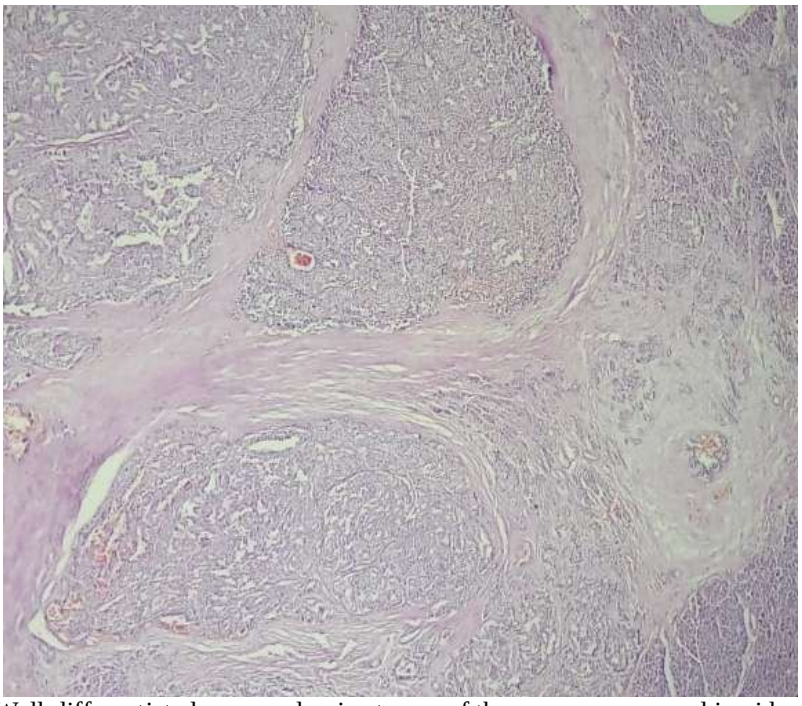

Figure 2:- Well-differentiated neuroendocrine tumor of the pancreas arranged in nidus and nodes.

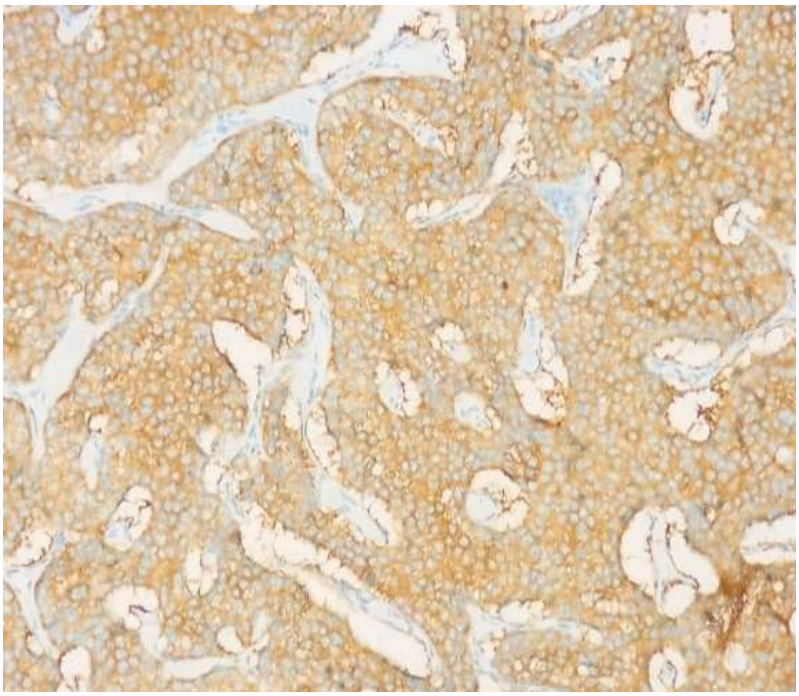

Figure 3:- High and diffuse cytoplasmic staining for synaptophysin.

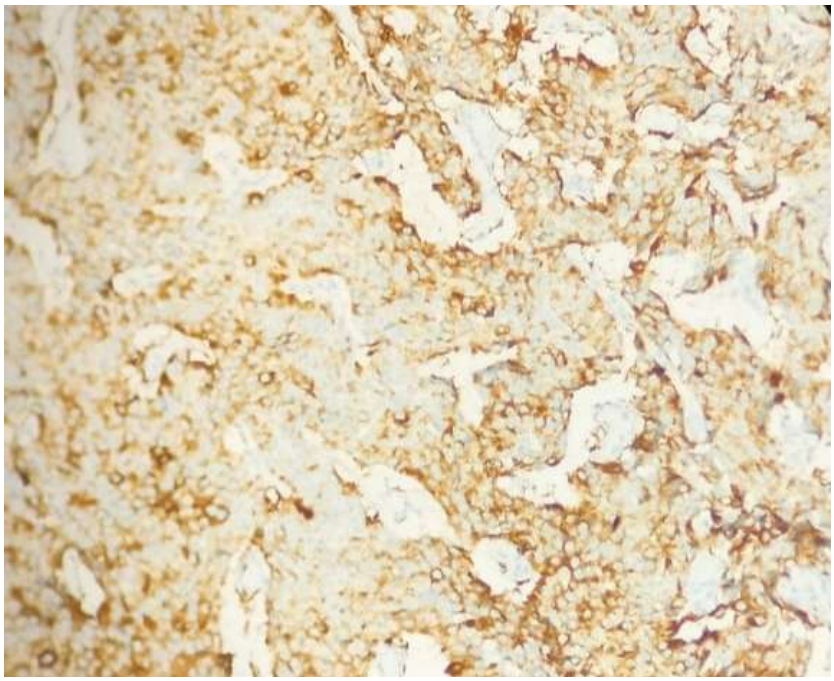

Figure 4:- High and diffuse cytoplasmic marking of chromogranin.

After surgery, the patient's glucose levels remained in normal during the subsequent 3-month follow-up period.

Discussion:-

The clinical diagnosis of insulinomais Based on Whipple's triad:neuroglycopenic and sympathetic symptoms in the context of low serum glucose levels (under 50 mg/dL) that disappear quickly after glucose intake[1].Sympathoadrenal and neurological symptoms may be highly suggestive of hypoglycemia, but they cannot be ascribed to hypoglycemia unless the serum glucose is verified to be low at the same time as the symptoms[3].In this case, the diagnosis of insulinoma was suggested because all three elements of the triad were present.

In the differential diagnosis in children with hypoglycemia, it is essential to determine whether ketonemia is also present. It is common for ketonemia to be present in hypoglycemia caused by a spectrum of conditions, such as substrate deficiency, deficiency of counterregulatory hormones, abnormal liver glycogen metabolism, or ketotichypoglycemia [4].

The diagnosis of insulinoma can be challenging, it is generally diagnosed within a year and a half of symptom onset[1]. Besides, in certain cases it can be mistaken as a seizure or psychiatric disorder, which was the case of our patient who was misdiagnosed for nearly one year as a psychiatric patient.

Insulinoma diagnosis, in order to be absolutely established, requires compatible clinical presentation and the presence of the following 6 criteria: blood glucose levels ≤ 40mg/dl, insulin ≥36 pmol/L, C-peptide ≥200 pmol/L, proinsulin level ≥5.0 pmol/L, β-hydroxybutyrate ≤ 2.7 mmol/l and absence of plasma or urine sulfonylurea metabolites[5].

The 72-h fasting test, considered as the gold standard for confirmation of insulinoma diagnosis, consists of consecutive blood glucose and insulin levels tests until the patient becomes symptomatic, within 24h in most cases, and then undergo a serial tests of insulin, proinsulin, C-peptide and insulin/glucose ratio [6] ,[11].

In some cases, insulinoma might occur in conjunction of multiple endocrine neoplasia type 1 (MEN-1 syndrome) an autosomal dominant disorder due to a mutation in the MEN1 gene on chromosome 11. MEN1-associated insulinomas are frequently multicentric and occur earlier compared with sporadic ones. Nevertheless the insulinoma in our patient occured at an earlier age, hormonal and radiological studies, including a brain MRI, were normal.

After biological diagnosis, conventional imaging to locate Insulinoma includes high-resolution CT, and MRI.In some reported cases, abdominal ultrasonography identified an Insulinoma [7], but not in our case. Occasionally, when non-invasive imaging studies fail to localize the tumor, unconventional imaging such endoscopic ultrasound (EUS), octreotide scintigraphy, and arterial calcium stimulation test may be needed to localize insulinoma and guide surgical treatment[2]. In our case CT and MRI failed to locate the tumor, only Endoscopic Ultra Sound was allowed to detect the lesion and to localize it precisely pre-operatively.

The primary treatment for insulinoma is surgical excision. In most cases, enucleation of the tumor is performed since insulinomas aresolitary, benign tumors in the majority of cases. Endoscopic-ultrasound-guided ethanol ablation of pancreatic neuroendocrine tumors has proven safe and efficacious in adult patients in whom surgery is contraindicated [8], a distal pancreatectomy,Whippleprocedure or subtotal pancreatectomyare also performed instead impossible enucleation[9].Laparoscopic resection is becoming more popular[5].After operative treatment, most patients are recovered from the disease. For patients not candidates for surgery, medical treatment may be used such asdiazoxide or octreotide[10],[12].

Conclusions:-

Insulinoma is a rare tumor. The clinician should have a high suspicion index for this disease in patients with whipple'striad even without a weight gain and should be careful to not misdiagnose it as neuro-psychological disorder. They should also be aware of the importance of non conventional imaging such as Endoscopic Ultra Sound that could be a very effective tool to diagnose and localize the tumors in case of a normal conventional imaging.

Bibliographie:-

[1] Alobaydun, Murtadha A., Albayat, Ali H., Al-nasif, Anwer A., et al. Pancreatic Insulinoma: Case Report of Rare Tumor. Cureus, 2019, vol. 11, no 12.
[2] Okabayashi, Takehiro, Shima, Yasuo, Sumiyoshi, Tatsuaki, et al. Diagnosis and management of insulinoma. World journal of gastroenterology: WJG, 2013, vol. 19, no 6, p. 829.
[3] Shreenivas, Aditya. et Leung, Vivien. A rare case of insulinoma presenting with postprandial hypoglycemia. The American journal of case reports, 2014, vol. 15, p. 488.
[4] Escartín R, Brun N, García Monforte MN, Ferreres JC, Corripio R. Insulinoma: A Rare Cause of Hypoglycemia in Childhood. Am J Case Rep. 2018;19:1121-1125. Published 2018 Sep 21.
[5] Giannis, Dimitrios, MORIS, Dimitrios, KARACHALIOU, Georgia-Sofia, et al. Insulinomas: from diagnosis to treatment. A review of the literature. Journal of BU ON.: Official Journal of the Balkan Union of Oncology, 2020, vol. 25, no 3, p. 1302-1314.
[6] Zhao, Yu- pei, Zhan, Han- xiang, ZHANG, Tai- ping, et al. Surgical management of patients with insulinomas: result of 292 cases in a single institution. Journal of surgical oncology, 2011, vol. 103, no 2, p. 169-174.
[7]Diaconescu S, Aprodu G, Ioniuc I, Diaconescu MR, Miron L. Diagnostic Difficulties in a Pediatric Insulinoma: A Case Report.Miron I, Medicine (Baltimore). 2016 Mar; 95(11):e3045.
[8] Qin SY, Lu XP, Jiang HX. EUS-guided ethanol ablation of insulinomas: case series and literature review. Medicine (Baltimore). 2014 Sep; 93(14):e85
[9] Mehrabi A, Fischer L, Hafezi M, et al. A systematic review of localization, surgical treatment options, and outcome of insulinoma. Pancreas. 2014;43(5):675-686.
[10] GROVER, Amelia C, SKARULIS, Monica, ALEXANDER, H. Richard, et al. A prospective evaluation of laparoscopic exploration with intraoperative ultrasound as a technique for localizing sporadic insulinomas. Surgery, 2005, vol. 138, no 6, p. 1003-1008.
[11]DE MESTIER, Louis, LEPAGE, Come, BAUDIN, Eric, et al. Digestive neuroendocrine neoplasms (NEN): French intergroup clinical practice guidelines for diagnosis, treatment and follow-up (SNFGE, GTE, Renaten, Tenpath, FFCD, Gercor, Unicancer, SFCD, SFED, SFRO, SFR). Digestive and Liver Disease, 2020, vol. 52, no 5, p. 473-492.
[12] HIRSHBERG, Boaz, COCHRAN, Craig, SKARULIS, Monica C., et al. Malignant insulinoma: spectrum of unusual clinical features. Cancer: Interdisciplinary International Journal of the American Cancer Society, 2005, vol. 104, no 2, p. 264-272.