完整的疾病劇本(3.0): disease category: AND SN.

有特殊臨床表現的胰島素瘤(Insulinoma)

疾病劇本編號 IS 2024-01-04TCHL

疾病劇本主角 SN2024.01.TCHL01(SN1)

SN2024.01.TCHL02(SN2)

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Epidemiology

1. Insulinoma 胰臟內分泌腫瘤中最重要的一個

2. The incidence of PNETs is ————————————1 in 100,000 in Asian and European population-based studies [3, 10, 16 – 20].

3. Halfdanarson et al. [21] reported an annual incidence of 2.2 in 1,000,000, covering a period of 27 years.

4. These data also showed a male gender preference (males, 2.6; females, 1.8) and a higher incidence in PNETs in recent decades [21].

5. Remarkably, the incidence of PNETs according to autopsy studies is as high as 10% [22]

@@: L1125 (Pancreatic neuroendocrine tumor(2009) (2024.01.04)

Florian Ehehalt, Hans D. Saeger, C. Max Schmidt, Robert Grützmann

Neuroendocrine Tumors of the Pancreas

The Oncologist, Volume 14, Issue 5, May 2009, Pages 456–4 ,01 May 2009

主要問題(Main problem, or chief complain)

- 第一主角主要問題(SN1):
- 55 歲女性因為意識狀態不佳被送進醫院,2018.01.02.中午午睡醒來後,突然意識改變,長達 30 多分鐘.手腳出現不自主之運動,並發出聲響驚動先生前來關切,叫他毫無反應,所以被送到醫院急診室.
  A 55-year-old patient was admitted to our hospital after having had an episode of altered state of consciousness. This state lasted 30 min and had started while she was taking a midday nap.
- **Her husband witnessed uncoordinated movements of her arms and legs as well as grunting noises and noticed that his wife did not respond when addressed.**

Pathogenesis—roots and precipitating factors

胰島素瘤分泌胰島素到是低血糖.因而發生低血糖之癥狀

Risk factors

注意有沒有導致低血糖的一些危險因素

- **Risk factors that predisposed the patient to**

  hypoglycaemia could be excluded (ie, liver/renal

insufficiency, hypocortisolism or autoimmune insulin syndrome).

Clinical manifestation-History-symptoms

病史上之特色

1. 自從 2003. 有多次發病的病史. 一個月發病 5 到 7 次,全身不適,全身發軟無法講話,並 有失憶之現,並未完全失去意識.These episodes occurred five to seven times a month, including symptoms of feeling generally unwell, weakness, difficulty or inability to speak, sweating, a vacant gaze and partial amnesia without total loss of consciousness.
2. 發作后在急診處檢查血糖很低 (40 mg/ddl)
3. 12 年前(2006)就醫被診斷為癲癇. In January 2006—12 years prior to the current hospitalisation—the patient was diagnosed with epilepsy and a long-term treatment with lamotrigine was initiated.

- 4.神經科醫師注意到腦波並無癲間之變化,停止使用癲癇之藥品. 並認定是精神之問題 Antiepileptic medication was discontinued, and the episodes were then reclassified as dissociative episodes.
- 5. 2016 曾住院 4 天 觀察.發現血糖過低(42 mg/dl) ,EEG 也有變化.肝功能及腎功能均正常,一般狀況也相當良好.另外也證明沒有糖尿病並也從未使用降血糖之藥品.
- 6. 2018.012.02 急診處的醫師認定是胰島素分泌過多所以住院檢查原因. At the emergency room, endogenous hyperinsulinism was suspected and she was admitted to the medical ward for further investigation.
- 識

Signs (Major Physical findings)

病人清醒時並無特殊之異常,也沒有不自主之運動

Problem list (major x3, + minor x2--)

1. A very long history (15 years) of intermittent attack of **feeling generally unwell, weakness, difficulty or inability to speak, sweating, a vacant gaze and partial amnesia without total loss of consciousness.**
2, 發作時血糖很低 (<40 mg/dl)
2. 發作時有不自主運動

Complementary examinations (Lab,)

- 1. 72 小時禁食觀察: •
- (1) 血糖降低到 45 時並沒有症狀, 低於 45 以後出現愛睡(sleepy)意識狀態改變.
- (2) 40 小時血糖降低到 30 mg/dl. 症狀嚴重就停止實驗
- **The hypoglycaemia was further evaluated using a 72-hour fasting test. Before the presenting symptoms, the patient tolerated glucose levels as low as 2.5 mmol/L. Below that, she started to be sleepy and have an altered state of consciousness. During the test, the patient developed neuroglycopenic symptoms after approximately 40 hours of fasting.**
- **Blood glucose descended to a minimum of 1.6 mmol/L, when the fasting test was terminated.**

2. **At that point, plasma insulin, proinsulin, C-peptide and beta-hydroxybutyrate were measured and the insulin–glucose ratio (IGR)(76.4> 32.2) was calculated.**
   - **Insulin, (17.6) proinsulin(6.4 >5), C-peptide levels (445 >200) and IGR were clearly elevated.**
   - **The search for sulfonylurea** in the plasma was negative
   - **and beta-hydroxybutyrate** levels were 1.7 mmol/L (below 2.7 mmol/L,即可以診斷 insulinoma.)
3. **Whipple's triad (+)**

Table 1 Values at the end of the fasting test of our patient and criteria for insulinoma

	Values (end of fasting test)	Criteria for insulinoma
Glucose	1.6 mmol/L	<3.1 mmol/L
C-peptide	445 pmol/L	≥200 pmol/L
Insulin	17.6 mU/L	≥3 mU/L
Proinsulin	6.4 pmol/L	≥5 pmol/L
Beta-hydroxybutyrate	1.7 mmol/L	≤2.7 mmol/L
Insulin–glucose ratio	76.4 pmol/L/mmol/L	>32.2 pmol/L/mmol/L
Antibody to insulin	Negative	Negative
Circulating sulfonylurea	Absent	Absent

Remarks : Insulin-Glucpse ratio :

The ratio of glucose to insulin is easily calculated, with lower values depicting higher degrees of insulin resistance. A G/I ratio of less than 4.5 has been shown to be sensitive (95 percent) and specific (84 percent) for insulin resistance in a group of women with PCOS, when compared to a control group.

R3: McAuley KA, Williams SM, Mann JI, Walker RJ, Lewis-Barned NJ, Temple LA, Duncan AW (2001) Diagnosing insulin resistance in the general population. Diabetes Care 24:460 to 464.

@@ **Glucose/insulin ratio (G/I ratio)**: The G/I ratio has become very popular since its first description in 1998 as an accurate index of insulin sensitivity in women with PCOS. The ratio of glucose to insulin is easily calculated, with lower values depicting higher degrees of insulin resistance. A G/I ratio of less than 4.5 has been shown to be sensitive (95 percent) and specific (84 percent) for insulin resistance in a group of women with PCOS, when compared to a control group.

Insulin/glucose ratio (I/G ratio)			
檢驗項目	Insulin/glucose ratio (I/G ratio)	檢驗代號	L72-496(+L72-314)
中文名稱	胰島素及血糖值比例	檢驗方法	
檢體別	B (請參閱檢體縮寫對照表)		
採檢容器	金黃蓋採血管；安全頭蓋紅黃頭	檢驗效能	請參閱
檢體量	3 mL	參考值	< 0.3
收檢時間	24小時收檢	單位	
操作時間	W1,W4	健保編號	
報告核發	操作日當天	健保點數	
採檢/送檢注意事項	空腹8小時以上	備註	本項目必須醫囑同時開立L72-314與L72-496兩項，程式才會啟動運算
操作組別	生化組	聯絡電話	2572
加作其他檢驗項目： 請參閱補單加作原則		更新日期	2017/10/3
臨床意義 Insulin (μU/ mL)/glucose (mg/dL) ratio可以診斷低血糖患者是否為胰島素瘤 (insulinoma)患者			

Medical images and special test

- 1.MR: **MRI (figure 1) showed a large tumour originating from the pancreatic tail without signs of any other intra-abdominal tumours or metastases.**

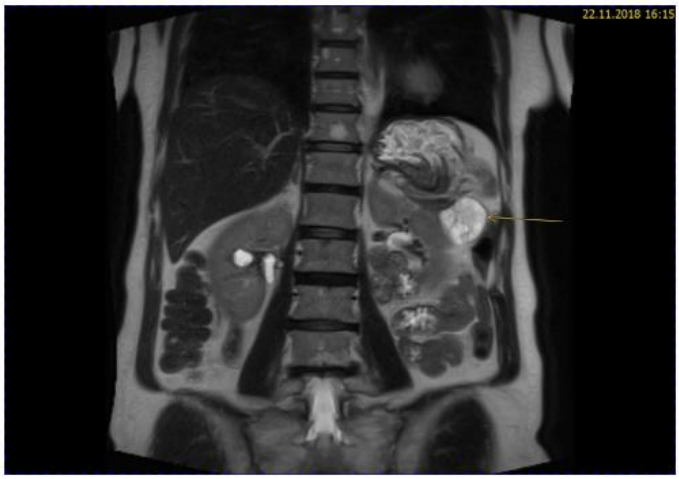

Figure 1 MRI with yellow arrow showing large exophytic mass originating from the pancreas tail (33×47×38 mm).

Insulinoma

Diagnosis,

insulinoma originated from the pancreas (tail)

Dx. Evidence

1. 過去 12 年一再發生低血糖的癥狀

2. 癥狀發生時證明有低血糖 (40 mg/dl 或更低)
3. Whipple triad (+)
4. 72 hours test: 40 小時時血糖低至 30 以下
5. 各項胰島素相關之檢驗均支持 insulinoma

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Antibody to insulin	Negative	Negative
Circulating sulfonylurea	Absent	Absent

Severity and criteria

Severe,

Blood sugar < 40 mg/dl ,

影響意識狀態

Outcome :

- 手術後完全改善 The operation was concluded without complications and the patient has not had any symptoms since.

complication rates,

nil

mortality rate,

survived

Assessment parameters. (@For this case)

1. Consciousness
2. Hypoglycemic symptoms
3. Laboratory parameters

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Treatment and comparisons

- **In December 2018, 15 years after first reporting symptoms, the patient underwent surgery (figure 2) to remove the tumour.**

有完全治療的效果就必須手術
已確定腫瘤的位置就可以手術
從臨床經驗及研究報告指出胰島素瘤最好的治療方法是手術

Response (this case)

Excellent

changing plans. When and why, then how

when:

Why?

How ?

Hospital course

住院檢查確定有低血糖癥，檢查確定低血糖之原因:是胰臟腫瘤.
72 hours fasting 是危險的檢查但也可以指出胰島素分泌過多.進一步檢查胰島素瘤之位置,方能順利手術.
住院檢查證明為胰島素瘤手術後也相當平穩順利出院.
手術後情況改善，未再有低血糖至癥狀

Discharge condition and criteria

確實未再出現低血糖癥,
Home care and management
定期回診確定沒有在發作,定期檢查血糖也多正常.

Follow up MRI 確認沒有腫瘤復發

Follow up. And chart review(date)

2024.01.03.確認沒有任何低血糖之癥狀出現.

Remarks :

疾病劇本工作小組: 花蓮慈濟醫院醫學系五年級實習學生

宋 xx, 林 xx, 陳 xx,孫 xx, 傅 XX,

指導主治醫師: 花蓮慈濟醫院胃腸科主治醫師林振雄、王正一

通訊作者: 王正一

疾病劇本作者工作分派如下

宋 xx,

林 xx,

陳 xx,

孫 xx,

傅 XX,

林振雄:負責文稿之修正並指示增加 Problem list、診斷依據

王正一:完成全文之核稿

References: (參考文獻)

1. Barbara Anna Williams,[1] Simon Lampart,[1] Jürg Metzger,[2] and Stefan Fischli Case report of a pancreatic insulinoma misdiagnosed as epilepsy BMJ Case Rep. 2021; 14(5): e238238.

2. Epidemiology---Florian Ehehalt, Hans D. Saeger, C. Max Schmidt, Robert Grützmann **Neuroendocrine Tumors of the Pancreas**
   The Oncologist, Volume 14, Issue 5, May 2009, Pages 456–4 ,01 May 2009

Summary :