25 Years of Sporadic Insulinomas - A Case Series

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Insulinomas

- Insulinoma is a neuroendocrine tumour of pancreatic beta cells. [1]
- Most common functioning endocrine tumour of pancreas.
- Estimated incidence of 1-4 per million population.
- Clinical signs of hypoglycaemia with neuroglycopenic symptoms, improved with administration of glucose.
- Biochemical diagnosis of low glucose with raised insulin and C-peptide, with radiological investigation for tumour localisation.

Search Criteria

A search of electronic hospital records identified all patients with a primary diagnosis of insulinoma. Clinic and discharge letters, radiology investigations, laboratory investigations and case notes were reviewed to highlight the presentation, radiological and laboratory investigations of the patients.

The table below summarises the important clinical findings.

Patient Number	Age	Lab Glucose (mmol/L)	Insulin (µu/L)	C-peptide (pmol/L)	Imaging, Surgery and Histology	Progress
1	25	low	high	high	MRI showed 2 lesions in pancreas, partial excision of pancreas	Discharged
2	54	2.0	138	2415	CT showed lesions in pancreas, partial excision of pancreas	Discharged
3	18	2.7	47	756	Initial - CT Abdomen and endoscopic USS normal 1 year later MRI showed lesion in pancreas. Operated outside UHL	Discharged
4	60	1.9	40	2	CT showed 3 x 1.5cm lesions head of pancreas, open partial resection	Discharged
5	76	2.1	89	4600	Initial - CT Abdomen normal 1yr later - lesion tail of pancreas, too frail for operative intervention	Lanreotide long term – died 2010 unrelated to insulinoma
6	88	1.8	32	3	Initial - CT Abdomen normal Too frail and unwell for further investigation	Diaxozide Died unrelated to insulinoma
7	42	1.2		1526	Initial CT Tumour Head of pancreas with metastasis to liver Transarterial chemoembolisation of liver and excision of insulinoma	Died of metastatic insulinoma
8	27	1.9	8	331	Initial MRI Normal. 1 year later 12mm lesion pancreas on MRI Open partial resection. Histology - differentiated neuroendocrine tumour	No hypoglycaemia Still under FU
9	61	2.5	41	1271	MRI - 20mm focus, arterial enhancement Laparoscopic excision. Well circumscribed tumour	No hypoglycaemia Still under FU
10	60	1.4	78	304	MRI - Lesion head of pancreas Distal pancreatectomy. Histology - well differentiated insulinoma	Still under FU
11	73	2.5	84	1549	CT - 2.3cm mass on pancreas Distal pancreatectomy. Histology – insulinoma	Still under FU

- ***- some cases where old information and tests performed at other hospitals so not able to get exact values***
- **All patients presented with fasting hypoglycaemia except patient 11 who had post-prandial hypoglycaemia**

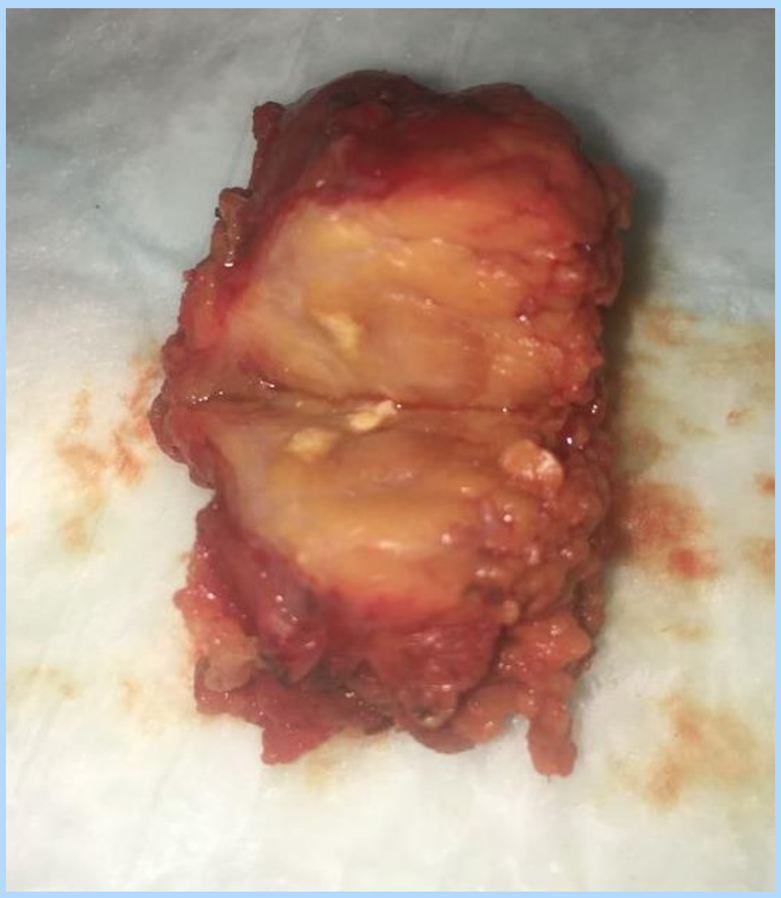

Figure 1 – Multiple small insulinomas in the resected pancreas from pt. 8

Results and Summary

- Rare cause of hypoglycaemia
- Need confirmatory biochemical evidence
- Not all patients will have radiological evidence at time of diagnosis
  - May need repeat imaging or dynamic investigations
  - Pt. 8 - “tumour blush” on CT angiogram after normal MRI and CT Abdomen
- Surgical treatment mainstay
  - But medical can reduce symptoms and prolong life in patients unsuitable for surgery
- Insulinoma is more commonly associated with fasting hypoglycaemia, however one patient did present with symptoms of post-prandial hypoglycaemia
- One patient had metastatic insulinoma at presentation, however all other patients had no evidence of metastatic spread

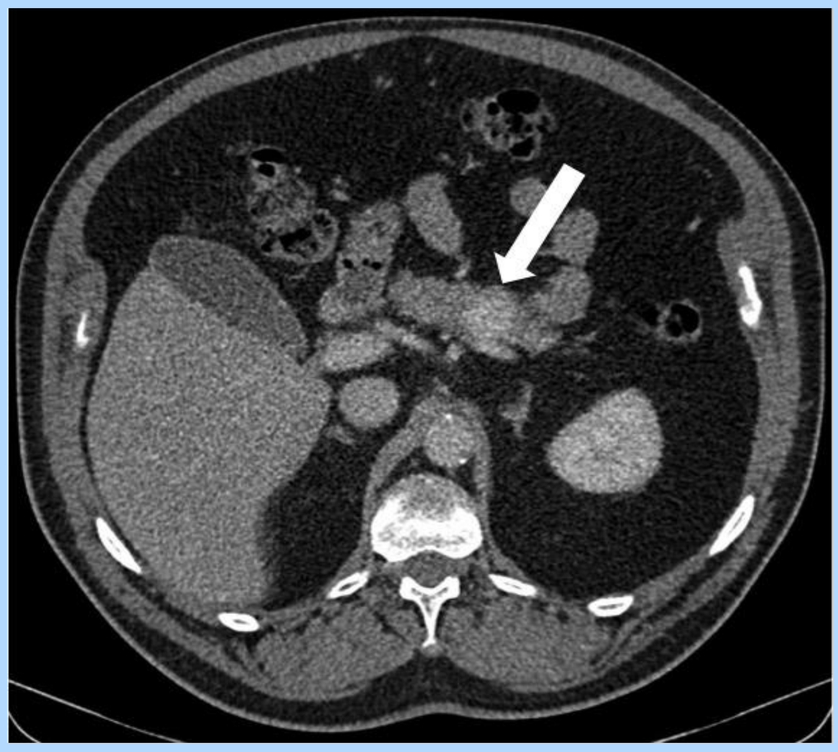

Figure 2 - CT scan from pt. 11 showing 2.3cm enhancing mass in the pancreas

References
1 - Cryer PE, Axelrod L, Grossman AB, Heller SR, Montori VM, Seaquist ER, Service FJ. Evaluation and management of adult hypoglycemic disorders: an Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab. 2009 Mar;94(3):709-28