

Severe refractory non-islet cell hypoglycaemia due to metastatic colorectal carcinoma

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Introduction

- Non-islet cell tumour hypoglycaemia (NICTH) is an uncommon but serious complication of disseminated malignancy
- The underlying aetiology of hypoglycaemia is tumoral overproduction of IGF-II, which results in stimulation of insulin receptors and increased glucose utilization
- Extensive tumour burden involving the liver and adrenal glands can also cause severe hypoglycaemia.

Case report

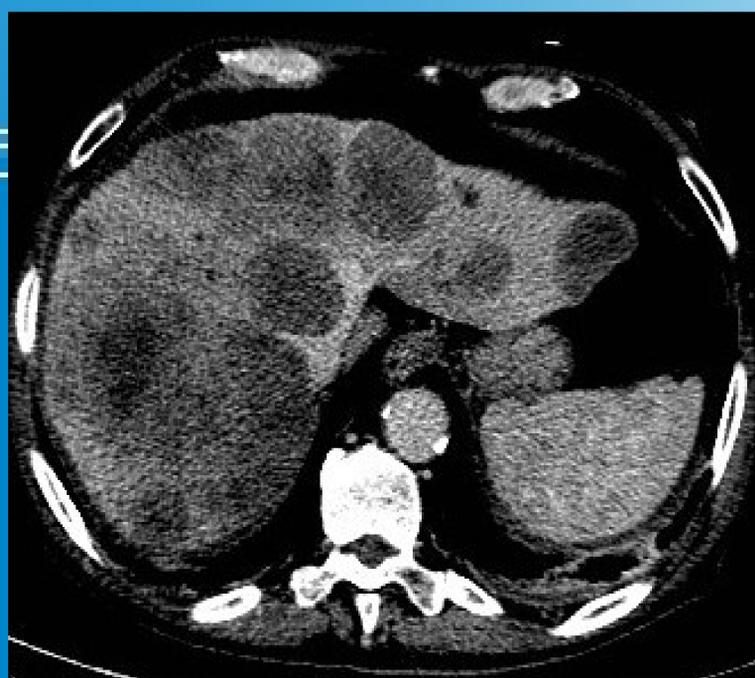
- An 80 yr old man presented acutely in an unresponsive state. Capillary glucose was recorded as 1.1mmol/l. He had no history of diabetes and had no access to oral hypoglycaemic agents. Marked Hepatomegaly, deranged liver functions (ALT 48 u/L, ALP 894 u/L, GGT 1262 u/L) and coagulopathy (Prothrombin time 15.8 secs) were noted
- Abdominal ultrasound showed hepatic metastases and subsequent staging CT scan confirmed a primary colorectal malignancy with extensive hepatic metastases.
- Severe hypoglycaemia was initially managed with a continuous 20% Dextrose infusion. Diazoxide 200mg BD was initiated but despite this and concurrent Dextrose, capillary glucose remained low (<4 mmol/l).
- Prednisolone 60mg once daily and subcutaneous Octreotide 50 mcg three times a day were subsequently initiated but despite this hypoglycaemia proved difficult to control.
- Serum C-peptide (<0.10 nmol/l) and Insulin (<1.0) were appropriately suppressed in keeping with NICTH. Adrenal insufficiency was excluded as a potential cause of hypoglycaemia. Despite maximal combined therapy, hypoglycaemia proved refractory and the patient succumbed to his illness.

Conclusion

- Non-islet cell hypoglycaemia (NICTH) is a major complication of malignancy particularly if associated with hepatic metastases
- The aetiology is multi-factorial and includes reduced hepatic glycogen reserves, nutritional deficiency due to tumour induced cachexia and ectopic production of IGF-II which activates insulin receptors and promotes glucose utilization.
- Refractory hypoglycaemia in this context necessitates combination drug therapy but is a significant therapeutic challenge with a poor prognosis.

Tumors reported to cause nonislet cell tumor hypoglycemia

Carcinomas	Other tumors
Adrenal cortex	Carcinoid
Bile duct	Fibrosarcoma
Breast	Fibrous tumor of the pleura
Cervix	Hemangiopericytoma
Colon	Hepatoma
Esophagus	Hypernephroma
Larynx	Lymphoma
Lung	Leiomyosarcoma
Ovary	Liposarcoma
Pancreas	Meningioma
Prostate	Mesothelioma
Stomach	Multiple myeloma
	Neuriloma
	Neurofibroma
	Neurofibrosarcoma
	Pheochromocytoma
	Wilm's tumor



CT scan of patient showing extensive liver metastases