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Neuroendocrine Tumor- Case Report from A Tertiary Care Centre.

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ABSTRACT
Neuroendocrine tumors (NETs) are tumors derived from the diffuse amine and acid producing cells in the body. The incidence is around 2/100,000 with higher incidence in females. Presentation with metastatic disease was observed for 12-22% of the patients. They are relatively rare heterogeneous type of tumor and poses diagnostic challenge due to their time of presentation.

I. CASE DESCRIPTION

A 57 year old woman presented with complaints of watery diarrhea, generalized weakness, and weight loss of 15 kgs since 3 years. At the time of onset 3 years ago, she had visited a local hospital where she was conservatively managed for diarrhea. Due to persistent diarrhea she visited a higher center where routine evaluation done showed significant laboratory values included low serum potassium and low hemoglobin levels. She was treated with potassium and iron supplements and was advised to follow up for further evaluation. Patient had not followed up for further evaluations and opted for ayurvedic medications for the same.

After one and half year, she visited another hospital where detailed evaluation was done. She was found to have elevated Chromogranin A Levels.

Computed tomography scan of the abdomen and pelvis revealed a well defined soft tissue lesion at the tail of the pancreas with two well defined lesions in the liver.

The patient received preoperative octreotide infusion for 3 days. She underwent a successful laparoscopic distal pancreatectomy and splenectomy. Postoperative serum potassium levels were within normal limits without potassium supplements and there were no episodes of diarrhoea.

Pathology confirmed a grade 2 pancreatic neuroendocrine tumor without lymph node metastasis. The patient's symptoms resolved and no longer required octreotide.

II. CASE REPORT

A 57 year old lady with no known comorbidities came with complaints of watery diarrhea several times a day for 3 years, severe generalized weakness, and 15 kg of weight loss.

She was initially admitted and treated for diarrhoea and persistent hypokalemia. Her social and family histories were unremarkable.

The patient presented without distress and had normal vital signs and oxygenation on room air.

She had no palpable abdominal mass or organomegaly. Her significant laboratory values included low serum potassium at 2.2 mEq/L (11.2–15.7 g/dL), low hemoglobin at 10.2 g/dL (11.2–15.7 g/dL), Chromogranin A; CgA 102.90 ng/ml (<76.30 ng/ml)

CECT abdomen and pelvis showed a well defined soft tissue lesion isodense to pancreatic parenchyma showing arterial enhancement with mild washout of contrast noted in the tail of the pancreas- primary lesion.

Two well defined arterial enhancing lesions seen in segment VI of liver with mild washout of contrast noted. Enhancement appears similar as in the lesion noted in the pancreas.

Features suggest possibility of neuroendocrine tumour involving tail of the pancreas with small metastatic lesions in the liver.

Patient was advised serum VIP levels, but was unable to perform due to financial constraints.

Octreotide treatment (100 µg sc Q8H daily) dramatically improved her diarrhea. IV potassium correction was done (Inj KCL 40 mEq in 500ml Normal saline)

The patient provided an informed written consent for surgery and research. She underwent an

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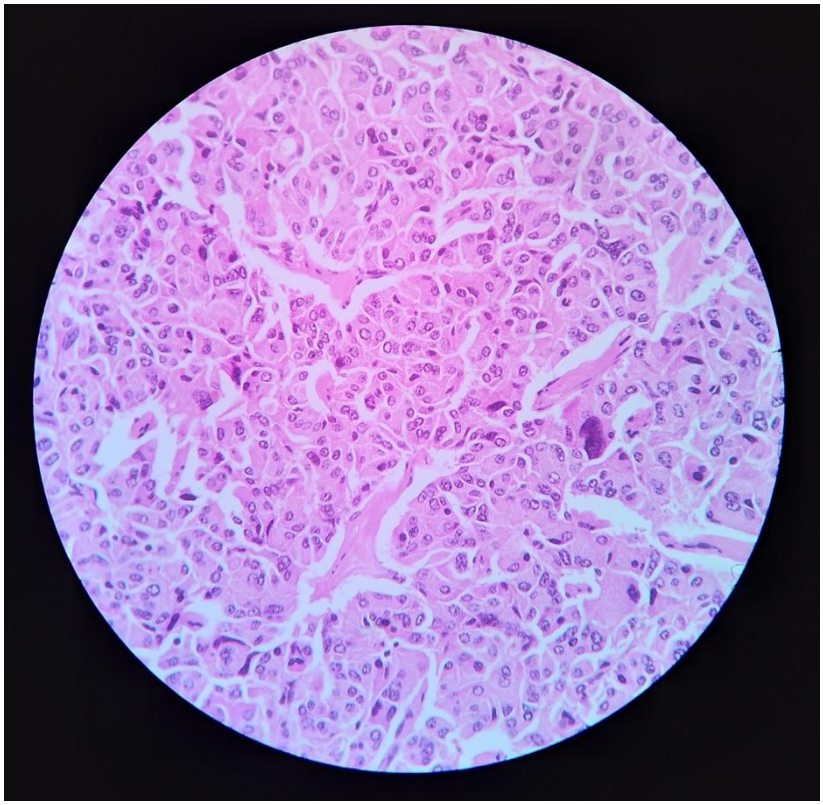
uncomplicated laparoscopic distal pancreatectomy and splenectomy.
Histopathology done showed tumor in pancreatic body and tail. Tumor size of 8x 5.5x 5cm unifocal well differentiated neuroendocrine tumor of Grade 2 .
All 13 of her lymph nodes were negative for metastasis. The tumor cells stained diffuse strong positive for synaptophysin and chromogranin.
Ki 67: 4%. Post procedure patient did not have episodes of diarrhoea nor hypokalemia.

The patient remained asymptomatic without any treatment. However, patient had Fasting blood sugar of 128 mg/dl and was started on Metformin 500mg twice daily. The patient was discharged on postoperative day 7. During the follow up 2 weeks later patient was asymptomatic and serum potassium levels were 4.5 mEq/L.

Microscopy: Sections from tumor proper shows an encapsulated tumor composed of tumor cells arranged in solid sheets, nests and trabecular pattern with intervening fibrocolagenous strands. Tumor cells are mildly pleomorphic, round to oval nuclei have salt and pepper chromatin and abundant amphophilic cytoplasm.

Lymphovascular and perineural tumor invasion seen. Stroma is scanty and shows mild chronic inflammatory infiltrates.



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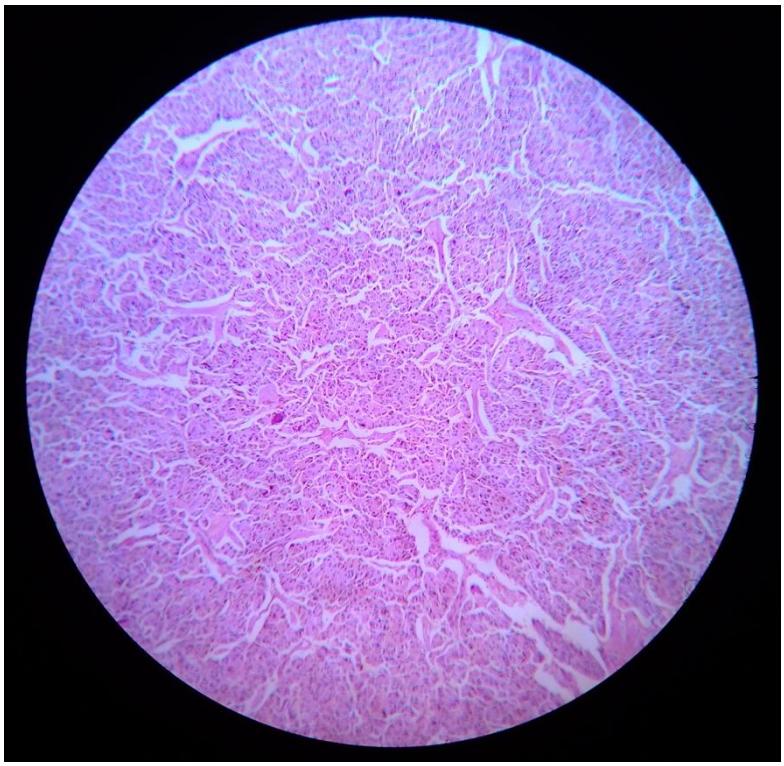

III. DISCUSSION

Neuroendocrine tumors (NETs) are a heterogeneous group of tumors derived from the diffuse neuroendocrine system of the GI tract. These tumors frequently secrete peptides or amines, resulting in diverse clinical presentations and biological behaviours.
They possess electron-dense neurosecretory granules which may contain various substances.
These include: 5-hydroxytryptamine (serotonin), histamine, tachykinins, motillin, prostaglandins, bradykinins, adrenocorticotrophic hormone, corticotrophin releasing factor.

The typical symptoms of profuse watery diarrhea, hypokalemia, and dehydration universally found in patients with VIPomas. The mean age of patients at presentation of VIPomas is between 50 and 60 years.The tumor location in our patient was consistent with previous reports demonstrating that 72% of VIPomas were in the body or tail of the pancreas.

Two-thirds of patients with VIPomas present with metastatic disease and in our patient there was radiographic evidence of metastasis to liver at the time of diagnosis. However, in our patient clinical syndrome was consistent with VIPoma.

Functional imaging studies, such as octreoscan and Ga-68 DOTATATE PET/CT, can be useful in detecting primary tumors and metastasis because most VIPomas express somatostatin receptors. F18-FDG PET/CT can be more sensitive than somatostatin receptor imaging in patients with poorly differentiated neuroendocrine tumors.
Functional imaging was not done in our
patient because of financial reasons.

Initial treatment of patients with VIPomas includes hydration and correction of electrolyte abnormalities. A somatostatin analog, such as octreotide, can be used to control symptoms. Surgical resection with lymphadenectomy is the treatment of choice in patients with localized or regionalized disease.

Various modalities, such as chemoembolization and radiofrequency ablation, have been used to control the progression of liver metastasis. Peptide receptor radionuclide therapy has emerged as a promising modality in patients with avid tumors, as determined by Ga-68 DOTA peptide PET/CT imaging. Selective resection of liver metastases
was done in our patient. The 5-year survival for patients with localized and metastatic pancreatic VIPomas is 94% and 60%, respectively

IV. CONCLUSION

Pancreatic neuroendocrine tumors (PNETs) are rare neoplasms of the pancreas.

Although > 85% of PNETs are nonfunctioning, patients with functioning PNETs typically present with clinical syndromes associated with excessive hormonal secretion.

Neuroendocrine tumors are to be considered when the patients present with features of carcinoid syndrome, chronic secretory diarrhoeaor hypokalemia, as proper diagnosis will prove to be a life changing event for these patients.

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