

## FINAL DIAGNOSIS

In view of overall degree of tumor differentiation and IHC findings, a diagnosis of Neuroendocrine tumor Grade-3 (NET G-3) was given for the pancreatic mass while a diagnosis of Neuroendocrine carcinoma was rendered for the gastric mass.

## DISCUSSION

In the present review we have compared two cases of neuroendocrine neoplasms (NENs) of the Gastrointestinal tract (GI), one in the Pancreas and the other in the stomach. These two cases form a part of the spectrum of NEN's of the GI tract and have been discussed below in detail. NETs are divided into functioning (syndromic) and nonfunctioning neoplasms with Insulinomas followed by Gastrinomas and Glucagonomas being the most common functioning NETs. Non-functioning tumors on the other hand are associated with secretion of polypeptides and biogenic substances such as pancreatic polypeptide and chromogranin that are not associated with clinical syndromes. Tumors less than 5mm in diameter are typically non-functioning and are labeled as Neuroendocrine microadenomas.

The 2010 WHO classification of NEN's validated the crucial role of proliferative rate and accordingly tumors were classified either as well differentiated NET (Grade 1 and 2) in upto 84% cases and or poorly differentiated NEC's (Grade 3). In the years after its publication, some NENs with histological features of NET were found to have a Ki67 index >20%. It was found that although these tumors had a relatively worse prognosis than NET G2, behaviourally they were less aggressive than NEC and lacked the genetic abnormalities seen in NEC. Another study showed that neoplasms with a Ki67 proliferation index <55% had a lower response rate but better survival than tumors with a Ki67 proliferation index >55% when treated with first line platinum based therapy that is given for treatment of NEC<sup>1</sup>.

In light of these findings, in the WHO 2017 classification, a new tumor category of Grade 3 NET (G-3 NET) was introduced and these tumors retained the well differentiated morphology but showed a Ki67 proliferation index >20%. Although there is no limit on the mitotic count, the mitotic count does not usually exceed 30-40/10hpf. G-3 NETs may contain a lower grade component or may present as a metastasis in patients with prior a G1 or G2 tumor. NECs on the other hand have a Ki67 proliferation index and or mitosis >20 but have a poorly differentiated morphology (large cell or small cell type).