



An unusual case of coexisting Pancreatic Undifferentiated Carcinoma with Osteoclast-like Giant Cells and Neuroendocrine Carcinoma by FNA with Liver Metastasis of the Neuroendocrine Carcinoma Component

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INTRODUCTION

Undifferentiated carcinoma of the pancreas with osteoclast-like giant cells (UCOGCs) is an extremely rare morphologically and clinically distinct variant of PDAC (pancreatic ductal adenocarcinoma), exhibiting a characteristic preponderance of large, bland, multinucleated osteoclastic giant cells (OGCs). It was first described by Sommers and Meissner in 1954 as “unusual carcinoma of the pancreas.” Later it acquired many different names. In 2010, the WHO classified these tumors as variants of PDAC under the heading “undifferentiated carcinoma with osteoclastic giant cells”. Although genetic studies have demonstrated that UCOGC and conventional PDAC exhibit strikingly similar mutations in KRAS, CDKN2A, TP53 and SMAD4, thus supporting the classification of UCOGC as a PDAC variant, they cannot explain why a recent study showing that tumors with a component of UCOGCs had a better clinical course than conventional PDAC.

CASE REPORT:

78 year-old man with a history of biliary colic admitted to outside hospital in for gallstone pancreatitis. He underwent laparoscopy for gallbladder removal but the procedure was aborted due intraoperative findings of a cirrhotic liver. The follow up CT scan showed a hypodense lesion in the pancreas and a follow up endoscopy ultrasound guided transduodenal fine needle aspiration (EUS FNA) of the pancreas mass was performed. Both smears and the cell block (Fig. 1) are hypercellular, showing likely three major different cell types: pleomorphic tumor giant hyperchromatic cells with irregular nuclear contours; multinuclear osteoclastic giant cells with smooth nuclear membranes, pale chromatin and moderate cytoplasm; and some spindle shaped tumor cells with slightly enlarged round to oval nuclei, irregular nuclear membranes, and moderate cytoplasm. Immunohistochemical stain (IHC)

(Fig. 1) showed the tumor cells are diffusely strongly positive for CK AE1/AE3, and p53, but negative for CD68 (positive in OGCs), Smad4, CK20, Glypican-3, CD56, Synapypophysin and

Fig. 1 Endoscopy US-guided transduodenal fine needle aspiration of the pancreas mass

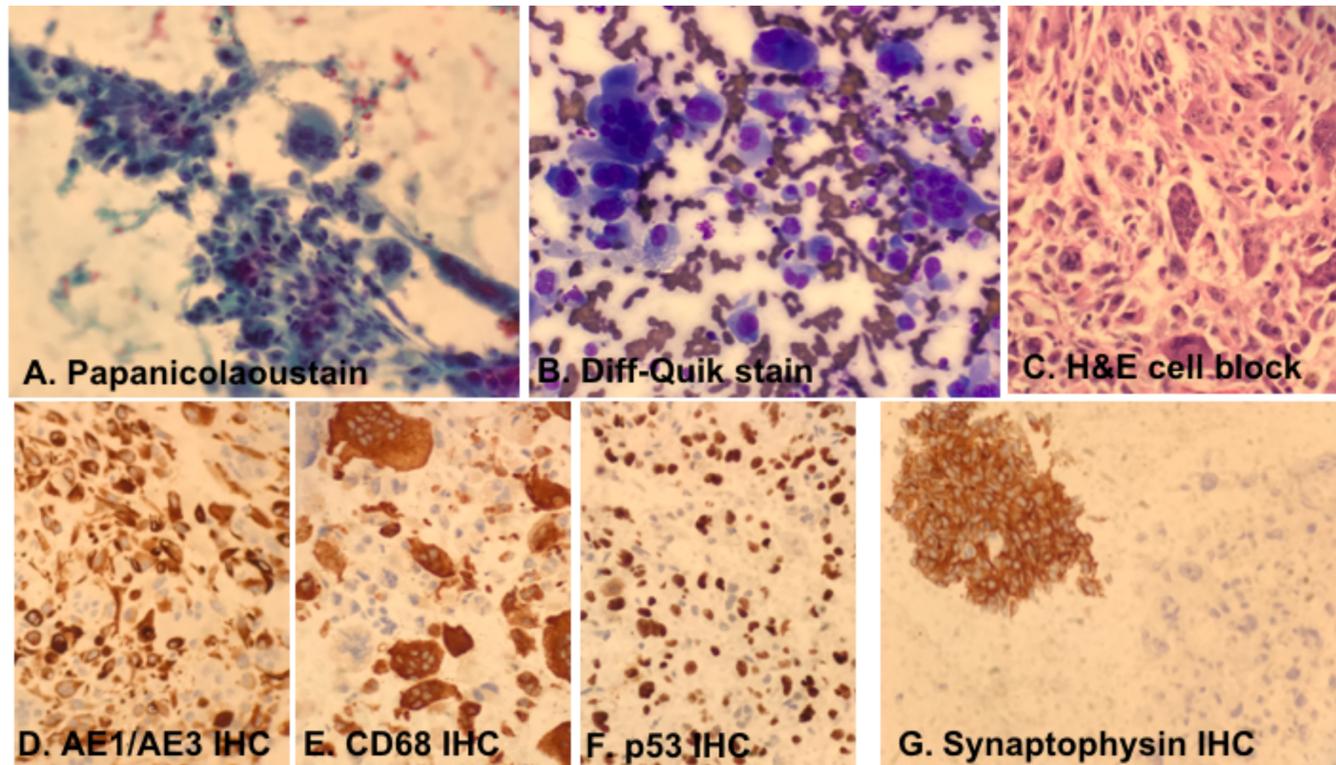
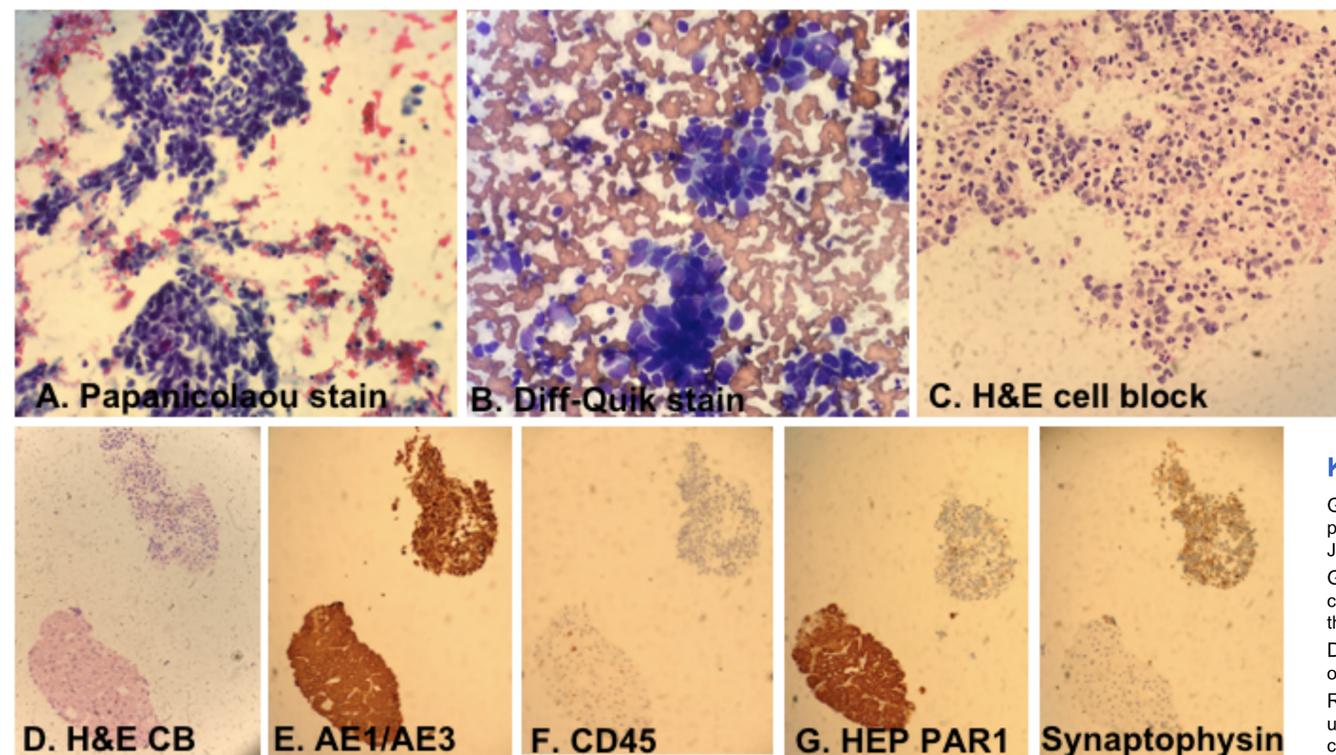


Fig. 2 Endoscopy US-guided transduodenal fine needle aspiration of the pancreas mass



HEP PAR1. So both the cytomorphological and immunophenotypical features support the diagnosis of UCOGCs. There is a coexisting minor component of neuroendocrine neoplasm (<5%), supported by different cytomorphology and different immunohistochemical stain pattern (small tumor cells strongly positive for CK7, and synaptophysin, positive for Smad4, CK AE1/AE3, and CD56; negative for Glypican-3, HEP PAR1, CK20, CD68 and PSA; Ki67 approx. <20% but too few cells to officially report).

While the patient was waiting for chemotherapy due to his weakness, a MRI abd scan showed marked increase in size of pancreatic mass with multiple small enhancing liver lesions. EUS FNA of the liver mass (Fig. 2) showed neuroendocrine tumor cells with similar cytomorphological features to the above neuroendocrine component of UCOGCs, supported by Immunocytochemical stains (the tumor cells positive for Synaptophysin, CD56 and CK AE1/AE3; negative for HEP PAR1, Glypican-3 and CD45; Ki-67 higher (~30-40%), however, too few tumor cells to officially report). So, the overall diagnosis consistent with liver metastatic neuroendocrine carcinoma from the pancreatic UCOGCs' minor neuroendocrine carcinoma component.

The patient initially received gem/abraxane chemotherapy which he tolerated poorly. He had been on a break to recover and then resumed treatment with gem alone. He just passed away 10 months after his initial diagnosis of UCOGCs.

To the best of our knowledge, this is the first reported case of coexisting UCOGCs and neuroendocrine carcinoma of the pancreas with liver metastasis of its neuroendocrine carcinoma.

KEY REFERENCES:

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