Diagnosis of von Hippel-Lindau Syndrome Following Endoscopic Ultrasound of the Pancreas

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Abstract
Objective: To report a case of von Hippel-Lindau (VHL) syndrome diagnosed by endoscopic ultrasound (EUS) of the pancreas in a patient with no family history of the disease and without any other clinical manifestations of VHL.

Methods: We describe the clinical presentation of the case and discuss its management.

Results: A 33-year-old woman was evaluated by EUS for possible pancreatic carcinoma. Based upon the sonographic appearance of her pancreas, VHL was suggested as a diagnosis and subsequently confirmed by genetic testing. The pancreatic lesions were treated surgically and pathology revealed pancreatic islet cell tumors.

Conclusion: This is the first report of a patient in which the first suggestion of a VHL diagnosis was made on EUS appearance of pancreatic lesions alone.

Keywords: Von Hippel-Lindau syndrome, endoscopic ultrasound, pancreatic neoplasm.
hypoattenuating masses were visualized in the body and tail. The kidneys, adrenals, and other organs were all normal in appearance. Plasma free normetanephrine level was negligibly elevated at 0.93 nmol/L (normal < 0.89 nmol/L). Parathyroid hormone, gastrin, and chromogranin a levels were normal. Genetic analysis was obtained to investigate the possibility of von Hippel-Lindau syndrome. The patient was heterozygous for the A to G mutation at nucleotide 446 of the VHL gene that changed a codon for asparagine (ATT) to one for serine (AGT) at amino acid position 78.

Given the solid appearance of the tumors in the head and uncinate process, as well as her symptoms of abdominal pain, the patient underwent exploratory laparotomy with intraoperative ultrasound and enucleation of a total of three pancreatic masses. Her postoperative course was complicated by a urinary tract infection and a segmental pulmonary embolus. Final pathology from all three masses demonstrated noninvasive pancreatic islet cell tumors.

**DISCUSSION**

von Hippel-Lindau syndrome is a highly penetrant autosomal dominant disorder traced to a mutation at chromosome 3p25-26. It has a birth incidence of approximately 1/36,000, with nearly 20% of cases arising from de novo mutations, without a family history.\(^1,2\) It causes a variety of neoplastic manifestations, including retinal and central nervous system hemangio-blastomas, renal cell carcinomas, pheochromocytomas, epididymal cysts, and pancreatic lesions.\(^3,5\) Pancreatic cysts account for the majority of these, on the order of 55-67%, with approximately 15% representing islet cell tumors, and the remainder composed of benign serous cystadenomas, hemangioblastomas, adenocarcinomas, renal cell cancer metastases, and indeterminate pancreatic masses or a combination of these lesions.\(^4\)

The majority of VHL patients are diagnosed after the discovery of central nervous system tumors or after affected family members prompt genetic screening. Up to 12% of VHL patients may have pancreatic lesions as the only abdominal manifestation,\(^6\) as was the case with this patient. They may precede development of other manifestations of the disease by several years.\(^6\) Pancreatic lesions are seldom symptomatic and are generally detected incidentally on routine abdominal surveillance, usually computed tomography (CT) or standard abdominal ultrasound (US). Endoscopic ultrasound (EUS) is frequently employed to better characterize pancreatic lesions and may be used to obtain biopsy specimens of suspected malignant tumors, but rarely does it suggest a diagnosis, exclusive of other imaging, as in our patient's case. A previous case report describing the use of EUS in a patient with other clinical manifestations of VHL has been published.\(^7\) This is the first report of a patient in which the first suggestion of this diagnosis was made on EUS appearance of pancreatic lesions alone.

**REFERENCES**