

CASE REPORT

Serous Cystadenoma of the Pancreas Causing Obstructive Jaundice in a Patient with Von Hippel-Lindau Disease

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ABSTRACT

Context Cystic lesions of the pancreas are a common finding in patients with von Hippel-Lindau disease (vHL). However, only twelve cases of pancreatic cystic lesions causing obstructive jaundice have been reported in vHL patients. **Case report** Herein we report the rare case of a massive serous cystadenoma of the pancreatic head causing obstructive jaundice in a fifty-one-year-old female with vHL. Preoperative biliary decompression was achieved via ERCP and stent placement. Since the whole pancreas showed cystic degenerations, a total pancreatectomy was performed. Final histopathology showed diffuse compression of the distal intrapancreatic common bile duct but no evidence of malignancy. **Conclusion** To our knowledge this is only the second case report of a total pancreatectomy performed in a patient with vHL for biliary obstruction caused by a serous cystadenoma of the pancreas. Surgical intervention in this rare scenario should be recommended, because of the inability to rule out malignancy and the necessity to address the biliary obstruction.

INTRODUCTION

Von Hippel-Lindau (vHL) disease is an autosomal dominant genetic disorder resulting in germline mutation of the *VHL* gene and affecting central nervous system, inner ear, kidneys and adrenal glands [1]. Upwards of 70% of vHL patients also develop pancreatic abnormalities, which include pancreatic simple cysts, serous cystadenomas and pancreatic neuroendocrine tumors [2]. Pancreatic cystic changes are common in vHL and occur in 40-91% of cases as compared to 10-17% of solid tumors [2, 3]. Cystic pancreatic lesions in vHL can be managed conservatively in a vast majority of cases since they have no malignant potential. Herein, we report a case of obstructive jaundice with bile duct stricture caused by a cystadenoma of the pancreas requiring total pancreatectomy.

CASE REPORT

A fifty-one-year-old woman with known history of von Hippel-Lindau (vHL) disease presented with obstructive jaundice and no evidence of cholangitis. The patient had been followed yearly at our institution and was previously found to have cystic degeneration of the pancreas, which

had steadily grown in size over the last 2 years. The patient did not experience any signs or symptoms of exocrine pancreatic insufficiency, but had noticed elevated blood glucose measurements over the last 6 months, which were treated with dietary modification. Before presenting to our clinic, the patient underwent an Endoscopic Retrograde Cholangiopancreatography (ERCP) at an outside institution, which showed a distal common bile duct stricture. Brush-cytology was negative for cancer cells. A 6 French plastic stent was placed for biliary decompression and the patient was referred to our center. On presentation her laboratory workup was significant for an elevated Alkaline Phosphatase at 124 U/L and Alanin Aminotransferase at 36 U/L, but otherwise normal liver function tests, complete blood count, Chromogranin A levels and metabolic profile. A subsequent CT abdomen pelvis showed a 12.5x7.0x7.5 cm cystic mass in the head of the pancreas with tapering of the common bile duct at the level of the pancreatic head as well as intrahepatic biliary dilatation and innumerable mixed cystic changes of the pancreas body and tail (**Figure 1**). No solid pancreatic lesions were identified on the arterial CT phase. Since the entire pancreas had cystic degenerative changes, which precludes creation of a pancreaticojejunostomy, a total pancreatectomy was recommended. Upon exploratory laparotomy, a massively enlarged pancreatic head and body were noted. Due to dense retroperitoneal adhesions, it was decided to first perform a distal pancreatectomy and splenectomy, followed by pancreatic head removal. Although there was significant abutting over a long segment of the portal and superior mesenteric veins, the solid-cystic mass could be peeled off those vessels without need

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Figure 1. A common bile duct stent traverses a large pancreatic head mass, which abuts the portal vein. There is cystic degeneration of the remainder of the pancreas body and tail.

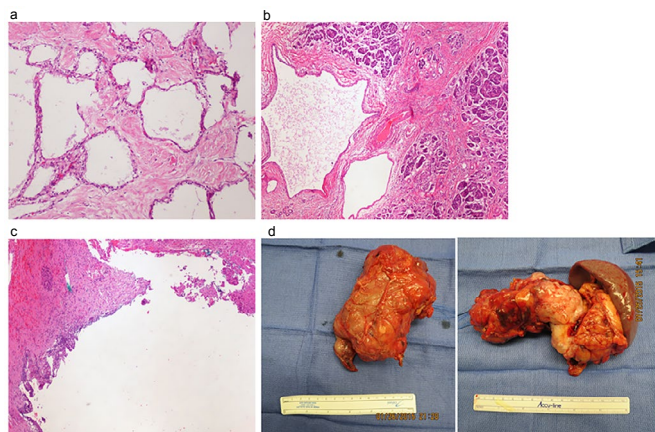


Figure 2. (a.). Serous Cystadenoma of the pancreas body (10x), **(b.).** Scattered normal islets intermingling within the cystic mass (4x). **(c.).** Partial denudement of the dilated common bile duct mucosa (inked in green) and chronic inflammation of the surrounding submucosa (arrow) (4x). **(d.).** Grossly enlarged pancreatic head and pancreatic body/tail

for vascular reconstruction. The patient recovered without complications and was discharged home on postoperative day 6. Her postoperative diabetes was managed with a daily long-acting insulin injection in addition to a short-acting pre-meal insulin sliding scale.

Final histopathology showed multifocal, diffuse pancreatic cystadenoma compressing the distal intrapancreatic common bile duct with surrounding inflammation and no evidence of malignancy (**Figure 2**).

DISCUSSION

Pancreatic cystic lesions have no malignant potential in vHL. Patients with vHL and pancreatic cysts therefore don't require

operative treatment unless symptomatic [2, 4]. It is generally agreed upon that they should however be followed on a regular basis with imaging to rule out interval development of solid lesions. There are no guidelines as to how frequent this imaging should occur. At our institution, we follow vHL patients with only cystic lesions of the pancreas with CT and MRI every two years.

There have only been twelve cases of vHL patients developing obstructive jaundice because of pancreatic cystic disease reported in the literature [5-11]. When looking at our own non-published series of 123 patients with vHL and pancreatic cystic lesions followed regularly with imaging, we have not previously encountered this particular scenario.

In our opinion, surgical intervention for patients presenting with biliary obstruction due to cystic disease should be recommended, because of the inability to rule out malignancy and the necessity to address the biliary obstruction. Although there have been reports of biliary decompression with endoscopic stent placement in this scenario, there are no long-term follow up results on these patients in regards to oncologic outcomes [8]. Additionally, although previously reported in a patient with vHL and simple cystic lesions, we felt that surgical biliary bypass was not an option in this case, due to the massive size of the cystadenoma, its extension into the hepatoduodenal ligament and the potential for future obstruction of the biliary limb due to further growth [7]. Another argument for surgical resection in this rare scenario is that even though pancreatic cystic lesions are considered benign in patients with vHL, there are reported cases of primary carcinoid tumors of the bile duct, pancreatic neuroendocrine tumors hiding in cystadenomas, and pancreatic adenocarcinomas in this patient population, which can all present with obstructive jaundice [2, 9, 12, 13]. Herein, we report a rare presentation of a serous cystadenoma of the pancreas causing obstructive jaundice in a vHL patient, which was managed with a total pancreatectomy.

Author's contributions

Xavier M Keutgen: Study design, drafting of manuscript
 Joanne Glanville: Study design, drafting manuscript
 Sid Kerkar: Pathology review and editing of images
 Electron Kebebew: Study design, editing of manuscript

Conflict of interest

The authors have no conflict of interest to declare.

References

- Melmon KL, Rosen SW. Lindau's Disease. Review of the Literature and Study of a Large Kindred. *Am J Med* 1964; 36:595-617. [PMID: 14142412]
- Hammel PR, Vilgrain V, Terris B, Penforis A, Sauvanet A, Correas JM, et al. Pancreatic involvement in von Hippel-Lindau disease. The Groupe Francophone d'Etude de la Maladie de von Hippel-Lindau. *Gastroenterol* 2000; 119:1087-95. [PMID: 11040195]
- Igarashi H, Ito T, Nishimori I, Tamura K, Yamasaki I, Tanaka M, et al. Pancreatic involvement in Japanese patients with von Hippel-Lindau disease: results of a nationwide survey. *J Gastroenterol* 2014; 49:511-6. [PMID: 23543325]

4. Charlesworth M, Verbeke CS, Falk GA, Walsh M, Smith AM, Morris-Stiff G. Pancreatic lesions in von Hippel-Lindau disease? A systematic review and meta-synthesis of the literature. *J Gastrointest Surg* 2012; 16:1422-8. [PMID: 22370733]
 5. Beerman MH, Fromkes JJ, Carey LC, Thomas FB. Pancreatic cystadenoma in Von Hippel-Lindau disease: an unusual cause of pancreatic and common bile duct obstruction. *J Clin Gastroenterol* 1982; 4:537-40. [PMID: 7161467]
 6. Boujaoude J, Samaha E, Honein K, Noun R, Abboud B, Ghorra C, et al. A benign cause of obstructive jaundice with von Hippel-Lindau disease. A case report and review of the literature. *JOP* 2007; 8:790-4. [PMID: 17993732]
 7. Cheng TY, Su CH, Shyr YM, Lui WY. Management of pancreatic lesions in von Hippel-Lindau disease. *World J Surg* 1997; 21:307-12. [PMID: 9015176]
 8. Deboever G, Dewulf P, Maertens J. Common bile duct obstruction due to pancreatic involvement in the von Hippel-Lindau syndrome. *Am J Gastroenterol* 1992; 87:1866-8. [PMID: 1449159]
 9. Fellows IW, Leach IH, Smith PG, Toghil PJ, Doran J. Carcinoid tumour of the common bile duct--a novel complication of von Hippel-Lindau syndrome. *Gut* 1990; 31:728-9. [PMID: 2379881]
 10. Gallego Sanchez JA, Pereira Arias JG, Larrinaga Simon J, Astobieta Odriozola A, Prieto Ugidos N, Ibarlucea Gonzalez JG, et al. [Renal carcinoma and von Hippel-Lindau disease]. *Actas Urol Esp* 1998; 22:428-30. [PMID: 9675924]
 11. Issar SK, Kumar N, Sachdeva AK, Jain P, Puri SK. von Hippel Lindau syndrome presenting as obstructive jaundice with involvement of pancreas in two siblings. *T Trop Gastroenterol* 1996; 17:30-2. [PMID: 8783974]
 12. Sadowski SM, Weisbrod AB, Ellis R, Patel D, Alimchandani M, Quezado M, et al. Prospective evaluation of the clinical utility of 18-fluorodeoxyglucose PET CT scanning in patients with von hippel-lindau-associated pancreatic lesions. *J Am Coll Surg* 2014; 218:997-1003. [PMID: 24661849]
 13. Turcotte S, Turkbey B, Barak S, Libutti SK, Alexander HR, Linehan WM, et al. von Hippel-Lindau disease-associated solid microcystic serous adenomas masquerading as pancreatic neuroendocrine neoplasms. *Surgery* 2012; 152:1106-17. [PMID: 23107912]
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