ACG CASE REPORTS JOURNAL

CASE REPORT | SMALL BOWEL

Multidisciplinary Diagnosis and Management of a Rare Dysplastic Adenoma Involving a Pancreas Transplant

Cemil Kayaalp, MD[1], Vijay S. Are, MBBS[1], Raja Kandaswamy, MBBS[2], and Stuart K. Amateau, MD, PhD[1,2]

[1]*Department of Medicine, University of Minnesota Medical School, Minneapolis, MN*
[2]*Department of Surgery, University of Minnesota Medical School, Minneapolis, MN*

ABSTRACT

A 52-year-old man with a history of type 1 diabetes mellitus with diabetic nephropathy who underwent simultaneous pancreas–kidney transplant over a decade ago presented with small bowel obstruction and was found by enteroscopy to have a carpeted lesion encompassing the small bowel anastomosis in the region of the donor pancreas. As endoscopic mucosal resection was impracticable because of technical limitations, the patient was referred to transplant surgical team for surgical exploration and ultimately required organ resection. This represents a unique presentation of an ampullary adenoma with high-grade dysplasia requiring device-assisted enteroscopy requiring multidisciplinary management.

KEYWORDS: pancreas; transplant; small bowel; jejunum; adenoma; enteroscopy

INTRODUCTION

Pancreas transplantation has improved the quality of life and life expectancy of patients with diabetes mellitus since it was first described in 1966 at the University of Minnesota. However, surgical revision might be necessary because of many procedure-specific and long-term complications.[1] In addition, immunosuppressive therapy, which is essential for prevention of allograft rejection, makes these patients prone to developing malignancies at a higher rate than the normal population. In this article, we present a patient who developed recurrent small bowel obstruction several years after pancreas transplantation, leading to evaluation by device-assisted enteroscopy and diagnosis of a high-grade dysplastic carpeted lesion originating from the donor duodenum and ampulla and spreading to encompass the native jejunum.

CASE REPORT

A 52-year-old man with a medical history of type 1 diabetes mellitus with diabetic nephropathy and distant simultaneous pancreas–kidney transplant with small bowel exocrine drainage who was treated with the immunosuppressives mycophenolate mofetil and tacrolimus presented with signs and symptoms of recurrent bowel obstruction. Notable imaging included intravenous and oral contrasted computed tomography of the abdomen demonstrating a partial small bowel obstruction at the jejunum near the transplanted organ (Figure 1). The patient was treated conservatively; however, these presentations recurred. A single-balloon device-assisted enteroscopy was then organized revealing an estimated 4 × 2-cm sessile adenomatous-appearing lesion involving the transplanted duodenum with lateral spread, expanding across the anastomosis to the patient's jejunum (Figure 1). Biopsies that were taken of the lesion confirming high-grade dysplasia without overt malignancy. Given the need for an enteroscopy with a narrow working channel and an unstable platform, piecemeal, endoscopic management such as endoscopic mucosal resection was not practical, and a collaborative decision was made with transplant surgical team to pursue surgical resection. During surgery, the lesion was found to involve the donor ampulla, donor duodenum, the anastomosis, and a small portion of the recipient jejunum (Figure 1). As a result, both the transplanted duodenum and pancreas were resected along with a short section of recipient jejunum. Pathology confirmed an ampullary tubulovillous adenoma with multifocal high-grade dysplasia with lateral spread across the anastomosis. Lymph nodes and pancreas were without dysplasia, although the pancreas demonstrated features of

ACG Case Rep J 2023;10:e01122. doi:10.14309/crj.0000000000001122. Published online: August 4, 2023

Correspondence: Stuart K. Amateau, MD, PhD (amateau@umn.edu).

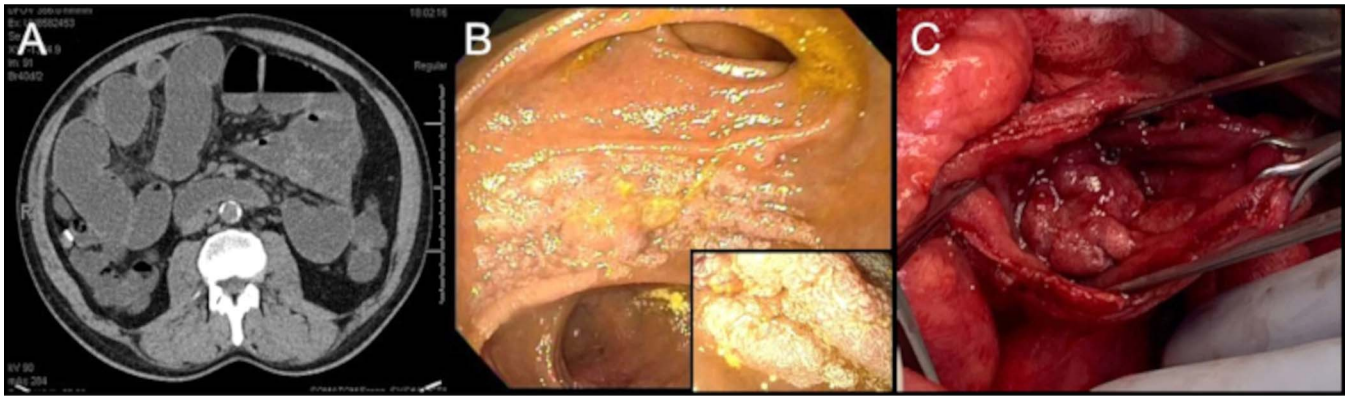

Figure 1. (A) Axial noncontrasted computed tomography image demonstrating small bowel dilation with suspected transition point in the region of the pancreas transplant in the right lower quadrant. (B) White light enteroscopy images revealing a carpeted adenomatous lesion appearing to involve both the native jejunum and transplanted duodenum with insert showing a higher powered view. (C) Intraoperative photography of the sessile lesion between the large forceps.

chronic pancreatitis. The patient recovered from the surgery well without any complications and is currently on insulin and pancreatic enzyme replacement therapy with ongoing consideration for retransplant.

DISCUSSION

There are 2 types of surgical techniques used during pancreas transplantation. Both methods involve harvesting a section of duodenum, the ampulla, and the pancreas from the donor and transplanting the organ into the right iliac fossa of the recipient, securing arterial inflow from the iliac artery. Each differs, however, in the modes of venous outflow (branch of iliac vs hepatic portal vein) and exocrine drainage of the transplanted pancreas (intestine vs bladder). Our patient had enteric drainage for the transplanted pancreas.

The principles of outpatient surveillance for patients after pancreas transplant mirror those of other organ transplants.[2] Graft function and the efficacy/toxicity of immunosuppressives are the most critical. These patients are also known to be vulnerable to multiple comorbidities, and therefore, they routinely receive preventive care and are screened for cardiovascular diseases, bone marrow function, nutrition and metabolism issues, cancers, and infections.[3] Developing a small bowel premalignant lesion leading to recurrent small bowel obstructions represents an unusually rare complication, and to the best of our knowledge, this is the first reported case.

Long-term immunosuppressive therapy after solid organ transplant is unfortunately associated with an increased risk of dysplasia and malignancy. The most common regimen for patients after pancreas transplant, such as with our patient, involves a combination of tacrolimus and mycophenolate mofetil.[4] Although older agents such as tacrolimus and azathioprine have been linked with post-transplant malignancies, newer agents such as sirolimus and mycophenolate mofetil have not. In fact, these newer agents may have antitumor properties.[5,6] The choice of immunosuppressive medications after pancreas transplant is critical because these patients require higher doses of immunosuppression compared with other solid organ transplant recipients and are therefore more vulnerable to the development of post-transplant malignancies. Based on the location and late symptom onset of the lesion, we detected in our patient; we suspect that the donor's duodenum and or ampulla had a preexisting lesion or at least a microscopic precursor. It is also possible this lesion progressed more rapidly under immunosuppression.

This case has several unique features including a small bowel premalignant lesion developing from donor tissue in a post-transplant immunosuppressed individual presenting as recurrent small bowel obstruction and highlights the importance of collaborative and multidisciplinary care. Diagnosis required balloon-assisted enteroscopy, and therapy dictated a surgical approach. Although a wide range of techniques are now at the disposal of modern advanced endoscopist, choosing the right option for a particular patient often involves thoughtful discussion and combination of interventions across specialties.

DISCLOSURES

Author contributions: All authors made substantial contributions to the conception or design of the work. Drafting the work or revising it critically for important intellectual content. SK Amateau is the article guarantor.

Financial disclosure: None to report.

Informed consent was obtained for this case report.

Received May 11, 2023; Accepted July 10, 2023

REFERENCES

1. Dhanireddy KK. Pancreas transplantation. *Gastroenterol Clin North Am.* 2012;41(1):133–42.
2. Mai ML, Ahsan N, Gonwa T. The long-term management of pancreas transplantation. *Transplantation.* 2006;82(8):991–1003.
3. Baker RJ, Mark PB, Patel RK, et al. Renal association clinical practice guideline in post-operative care in the kidney transplant recipient. *BMC Nephrol.* 2017;18:174.
4. Kandaswamy R, Stock PG, Gustafson SK, et al. OPTN/SRTR 2016 annual data report: Pancreas. *Am J Transpl.* 2018;18(Suppl 1):114–71.
5. Buell JF, Gross TG, Woodle ES. Malignancy after transplantation. *Transplantation.* 2005;80(2 Suppl l):S254–64.
6. Krendl FJ, Messner F, Bösmüller C, et al. Post-transplant malignancies following pancreas transplantation: Incidence and implications on long-term outcome from a single-center perspective. *J Clin Med.* 2021;10(21):4810.