Pancreatic Transplantation: What Radiologists Need to Know

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INTRODUCTION

Pancreatic transplantation was introduced more than 40 years ago and is currently the treatment of choice for type 1 diabetic patients. It is often performed in conjunction with renal transplantation to protect the transplanted kidney from recurrent diabetic nephropathy. Multiple efforts have been made in order to improve pancreatic graft survival, so it is imperative for radiologists to familiarize themselves with the surgical technique, normal graft imaging and postoperative complications.

Since pancreatic transplantation poses a great imaging challenge due to the surgical technique, a multimodality imaging approach is often encouraged, ultrasound with Doppler being the first line modality. It is important to highlight that pancreatic transplants receive the highest amount of immunosuppression in comparison to other solid organ transplants. As a result, they are more susceptible to the complications of immunosuppressive therapy. We will present a pictorial review of the expected normal findings and most common post-transplantation complications.

SURGICAL TECHNIQUE - ANATOMY

The two important surgical aspects of pancreatic transplants is the exocrine and venous drainage.

Throughout the initial decades of pancreatic transplantation, exocrine drainage into the bladder was popular however given the multiple complications the majority of transplant centers now perform enteric drainage of exocrine secretions. This enteric drainage is either directly into a loop of jejunum or to a Roux limb of jejunum. The venous drainage of the graft is either to the systemic circulation (via an iliac vein or the inferior vena cava) or to the portal circulation.

The location of the graft will depend on the venous drainage of choice, mid-abdominal if portal approach or pelvic (most commonly the right side) if systemic venous drainage is preferred. At our institution, the pelvic approach is preferred.

When the graft is placed in the pelvis, the donor portal vein is anastomosed to the external iliac vein, the common iliac vein, or the inferior vena cava. In this pelvic position, the donor portal vein is anastomosed to the external iliac vein, the common iliac vein, or the inferior vena cava.

COMPLICATIONS

US is routinely performed in the initial evaluation of a failing graft. Complications can be categorized as below:

CASE 1

Normal Pancreas on US

CASE 2

Failed/chronic rejection of pancreatic transplant by ultrasound

CASE 3

Normal pancreas on CT

CASE 4

Peripancreatic abscess formation

CASE 5

Splenic vein thrombosis

CASE 6

Chronic transplant rejection and necrosis

CASE 7

Graft pancreatitis

REFERENCES:


AUTHORS & AFFILIATIONS

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