

# Scleromatous Changes in an Abdominal Wall Graft: Graft-Versus-Graft Disease, or Chronic Graft Rejection?

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**Abstract:** Abdominal wall transplants are relatively new procedures that are frequently performed in conjunction with multivisceral transplants. The skin of the abdominal wall transplant is often the first site for graft rejection to manifest itself. Prompt recognition can lead to appropriate treatment before the involvement of the underlying viscera. However, the signs of graft rejection are nonspecific and can overlap with other entities. We present a case of a patient who received a multivisceral and abdominal wall transplant from 2 different donors, who presented with acute and eventually chronic graft rejection of the abdominal wall graft. Serial biopsies performed during the course of her treatment demonstrated progressive sclerotic changes in the dermis. Because these changes were confined to the abdominal wall graft, they could represent either chronic graft rejection or graft-versus-graft disease. To date, graft-versus-graft disease has not been documented in these patients. This case illustrates the possibility that patients with multidonor transplants may be at an increased risk for graft failure secondary to multiple potential etiologies.

**Key Words:** abdominal wall transplant, graft rejection, graft-versus-graft disease, composite tissue allograft

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## CASE REPORT

A 19-year-old woman with a medical history of dermatomyositis, complicated by recurrent small bowel perforations and enterocutaneous fistulae, presented with a new rash over a transplanted abdominal wall graft. She had undergone an uncomplicated multivisceral and abdominal wall transplant 2 years before presentation. The abdominal wall graft was from a male donor, and the multiviscera (stomach, small bowel, liver, and pancreas) were from a female donor.

Her symptoms included increasing pruritus and hyperemia over her abdominal wall graft. Skin biopsies at the time revealed interface dermatitis (Fig. 1A) involving follicular units (Fig. 1B) with a dense interstitial infiltrate containing numerous eosinophils

(Fig. 1C) concerning for drug eruption or graft-versus-host disease (GVHD). She was started on topical tacrolimus, and the systemic tacrolimus was increased from 1 mg twice a day to 2.5 mg twice a day. The rash initially resolved but would sporadically return, and after 4 months of gradual worsening, additional skin biopsies were performed. These biopsies showed dense dermal sclerosis throughout the full thickness of the dermis with loss of all adnexal structures (Fig. 2A). There was also interface dermatitis with pigmented macrophages and necrotic keratinocytes (Fig. 2B). Based on these findings, and that the viscera and abdominal wall graft were from 2 different donors, the diagnosis of sclerodermoid GVHD was made. Her tacrolimus regimen was continued and she received 5 days of intravenous methylprednisolone followed by a 10-day taper of prednisone.

A referral to dermatology noted inflamed scaly sclerotic changes limited to the abdominal wall graft site, which did not involve her native skin (Fig. 3A). Subsequent biopsies (Fig. 3B) continued to show worsening sclerotic changes involving the subcutaneous tissue. During her follow-up, she had numerous biopsies of her intestinal graft, which showed healthy bowel and no signs of rejection.

## DISCUSSION

Closure of the abdominal wall has been a well-documented issue after intestinal and multivisceral transplantation because these patients often have multiple laparotomies, significant intraoperative edema, and discrepancies in size with the donor.<sup>1</sup> Around 20% of the time, there is inadequate tissue for closure, which has led to the emergence of abdominal wall transplants in conjunction with intestinal transplants.<sup>2</sup> Oftentimes, the intestinal and abdominal wall grafts are from different donors, and it has been shown that both can develop signs of rejection independently.<sup>3</sup>

Moreover as more composite tissue allografts (CTAs) have been transplanted, it has been shown that skin grafts are the most antigenic and are the first to show signs of acute rejection.<sup>4</sup> However, if acute rejection is promptly recognized, it will not influence graft survival. This has led to some to propose using distant skin allografts as an early marker for rejection of CTAs.<sup>5</sup> Therefore, in combined intestinal and abdominal wall transplants from the same donor, the abdominal wall allograft could be an early marker for intestinal graft rejection.

However, because abdominal wall transplantation is a relatively new procedure, there are very few studies

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