ileostomy presents stress to a patient’s psychological and physical health due to issues related to body image and personal hygiene. The peristomal skin integrity is an essential requirement for adequate base plate adhesion to prevent skin erosion from intestinal effluent. Often, stomal skin compromise leads to further leakage, erosion, and failure of plate adhesion. A suboptimal stoma appliance assembly can add to the already burdensome stoma care.

We report a case of a 56-year-old man who had a total proctocolectomy with permanent ileostomy in 1971 for Crohn’s disease. He developed a large parastomal hernia and abdominal wall abscess and required an ileostomy take down and resiting. He started experiencing significant issues with stoma flange adhesion, having to change the entire appliance every 1–3 days, despite the use of multiple adhesives (Fig. 1). Leakage of small bowel effluent caused erosions and scarring of the peristomal skin, leading to further skin damage and ineffective stoma application. In a collaborative case between plastic and general surgery, we used autologous fat transfer to repair the subcutaneous tissue defects.

**METHOD**

In an outpatient clinic, fat transfer was done under local anesthesia. Adhering to sterile technique, a tumescent solution consisting of 150 mL of normal saline and 45 mL of 1% lidocaine was injected into the right iliac crest harvest zone. A fine tip 15 cm Coleman aspiration cannula on a 10-mL syringe was then used to harvest the subcutaneous fat. These syringes were centrifuged at 3000 rpm for 3 minutes to separate usable tissue from tissue oil and blood. After removing the upper layer of oil and lower layer of blood, 4–8 mL of fat harvest was introduced into

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the subcutaneous defects with an 18-gauge needle (result shown in Fig. 1).

A 2-month observation period was used to assess the volume of fat transplant. As the patient developed an interim Crohn’s ileitis flare, we performed a combined procedure involving 1) a terminal ileum resection, 2) another autologous fat transfer to smooth out the contour around stoma, and 3) rematuration of the ileostomy. A complete seal of the stoma appliance around the stoma was accomplished at the conclusion of the operating room (Fig. 1).

The patient started changing his stoma appliance every 7 days following the surgery and the functional improvement of the stoma appliance has persisted through the 1-year follow-up period. A touch-up procedure was performed at 4 and 10 months following the index surgery for small areas of skin depression. Overall, the patient has experienced significant improvement a year following his surgery and was very satisfied with the result of the replenished stoma site. He has good stoma sealing and is able to increase the interval of appliance changes to every 7 days with little skin irritation.

**DISCUSSION**

Stoma-related complications may lead to significant morbidity and distress with negative impact on patient’s quality of life. It is estimated that up to 60% of patients have experienced peristomal skin-related problems.² Effective strategies can reduce the burden of stoma skin care and help patients adapt to their stoma.

Autologous lipomodeling offers a biocompatible, readily available, inexpensive, and safe alternative to replenishing soft-tissue defects around a stoma.³,⁴ The donor site of abdomen is the most common area for adipose tissue harvesting.³ The fat transplant procedure was similar to that described by Coleman.⁶ Essentially, the adipose tissue is collected with a Coleman cannula via an atraumatic technique, centrifuged to isolate usable cells, and implanted into the new site. The 1-year outcome in our case has been very encouraging.

The long-term persistence of transferred adipocytes has been extensively examined in the literature with variable reports on fat survival. Coleman⁷ first observed fat survival in over 400 patients after 6 years. Meier⁸ recently found an average of 32% volume preservation in 16 months, whereas Choi et al⁹ found 38–52% of volume was retained after 140 days. Although long-term survival is variable according to existing literature, studies differ widely in their definition of “survival” and the recipient sites that are targeted. There is also little agreement on the extent that volume contraction is associated with functional results of autologous fat transfer. In our patient, the ileostomy functional outcome was not affected by fat volume change since the surgery.

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**Fig. 1.** Ileostomy site before fat transfer (A), after initial fat transfer (B), with a stoma appliance properly sealed immediately after the index surgery (C), and at 2-month follow-up (D).
CONCLUSIONS

Our report is the first description of using fat transfer to replenish an ileostomy site. The patient in the study presented a challenging scenario as a result of chronic peristomal skin damage and mal-adaptive soft-tissue healing. Our effort to combine sequential fat transfer with an ileostomy revision has offered a useful solution to this lingering problem.

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REFERENCES

1. Jansen L, Koch L, Brenner H, et al. Quality of life among long-term (≥5 years) colorectal cancer survivors—systematic review. *Eur J Cancer* 2010;46:2879–2888.
2. Lyon CC, Smith AJ, Griffiths CE, et al. The spectrum of skin disorders in abdominal stoma patients. *Br J Dermatol.* 2000;143:1248–1260.
3. Kaufman MR, Miller TA, Huang C, et al. Autologous fat transfer for facial recontouring: is there science behind the art? *Plast Reconstr Surg.* 2007;119:2287–2296.
4. Coleman SR. Structural fat grafting: more than a permanent filler. *Plast Reconstr Surg.* 2006;118(3 Suppl):108S–120S.
5. Kaufman MR, Bradley JP, Dickinson B, et al. Autologous fat transfer national consensus survey: trends in techniques for harvest, preparation, and application, and perception of short- and long-term results. *Plast Reconstr Surg.* 2007;119:323–331.
6. Coleman SR. Facial recontouring with lipostructure. *Clin Plast Surg.* 1997;24:347–367.
7. Coleman SR. Long-term survival of fat transplants: controlled demonstrations. *Aesthetic Plast Surg.* 1995;19:421–425.
8. Meier JD, Glasgold RA, Glasgold MJ. Autologous fat grafting. *Arch Facial Plast Surg.* 2013;15:24–28.
9. Choi M, Small K, Levovitz C, et al. The volumetric analysis of fat graft survival in breast reconstruction. *Plast Reconstr Surg.* 2013;131:185–191.