"Square Peg into a Round Hole": Closure of a Laparotomy Wound Dehiscence with a Modified Rhomboid Flap

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Citation

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Abstract

The case of closure of a laparotomy wound dehiscence using a modified rhomboid flap is reported. A 61-year-old man, with a body mass index of 37.3 and a 120 pack-year smoking history, developed an incisional hernia following a left hemicolectomy.

Repeated recurrences resulted in four mesh repairs. The fourth was complicated by a polymicrobial wound infection and superficial dehiscence in the supra-umbilical portion of the wound. The residual defect, composed of granulation tissue overlying polypropylene mesh, measured 10cm by 12cm.

Both vacuum-assisted closure and split thickness skin grafting were attempted before successfully closing the defect with a modified rhomboid fasciocutaneous flap.

Although there have been many technical innovations since the advent of rhomboid flaps, it offered a simple, yet effective therapeutic option in this case.

INTRODUCTION

First described by Alexander Limberg [1], the classical rhomboid flap is constructed around a defect converted into a geometric four-sided rhombus. Later modifications suggested that the flap could also be used to fill circular and irregular shaped defects [2]. A modified rhomboid flap was used, in this case, to close an irregularly shaped laparotomy wound dehiscence.

CASE REPORT

A 61-year-old man, with a body mass index of 37.3 and a 120 pack-year smoking history, developed an incisional hernia following a left hemicolectomy.

Repeated recurrences resulted in four mesh repairs over a nine-year period. The fourth repair was complicated by a polymicrobial wound infection, and following clip removal on the tenth post-operative day, superficial dehiscence in the supra-umbilical portion of the wound.

Vacuum-assisted closure therapy was commenced. Two months later the defect, composed of granulation tissue overlying polypropylene mesh, measured 10cm by 12cm (Figure 1). A fenestrated split thickness skin graft was applied. It was complicated by a beta haemolytic streptococcus wound infection and only 40% take was achieved (Figure 2).

Figure 1

Figure 1: Superficial dehiscence in the supra-umbilical portion of the wound resulting in a 10 by 12cm defect composed of granulation tissue overlying polypropylene mesh.

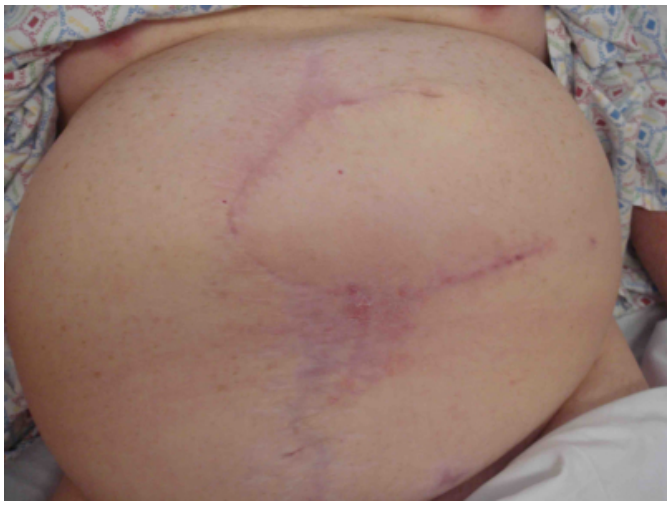
Figure 2

Figure 2: Modified rhomboid fasciocutaneous flap oversized to allow for debridement of the defect.

The defect was subsequently closed using a modified rhomboid fasciocutaneous flap incorporating the laparotomy scar (Figure. 3). The flap was oversized to allow for debridement of the defect and inserted using a combination of polyglactin and poliglecaprone sutures and skin clips. The post-operative course was uneventful and the wound healed without complication (Figure 4). The cosmetic appearance was satisfactory to the patient.

Figure 3

Figure 3: Healed wound at 16 weeks post procedure.



DISCUSSION

Most commonly used in head and neck reconstruction [2], rhomboid flaps may also play a role in the management of pilonidal sinus disease [3], decubitus ulcers [4] and contractures [5]. This case further highlights its versatility. Quaba and Sommerlad's modification [2] was used in this case, whereby no attempt was made to engineer a rhombic defect. Despite this, the flap provided effective closure of a large, irregularly shaped wound dehiscence.

Although there have been many technical innovations since the advent of the rhomboid flap, it provided a simple, effective solution in this case and should still be considered as a therapeutic option in certain cases.

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