Use of the Wittmann Patch™ for Delayed Primary Closure of the Abdominal Wall

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Introduction

There is no consensus on the best management of the open abdomen that can result from damage control laparotomy whether from trauma or general surgery catastrophies. Initial primary closure of the fascia may not be technically feasible or advisable in the early care of the patient. Delayed abdominal wall reconstruction for the resulting large ventral hernias remains a surgical challenge. The Wittmann Patch™ has been described as a tool for primary closure in the early phase of care [Figure 1]. This case report demonstrates its use in the reconstructive phase.

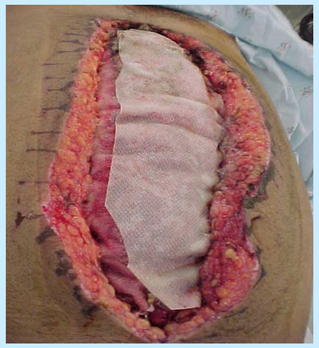

Figure 1: Wittmann Patch™ utilized in stage 3 damage control laparotomy for trauma.

Methods

This case involved a 44 year old female on steroids for COPD who was involved in a motor vehicle collision in which she sustained a ruptured left hemidiaphragm, major splenic injury and a sigmoid colon mesenteric injury. She underwent damage control laparotomy with splenectomy and diaphragm repair. Due to bowel edema, temporary abdominal closure was done using a Bogota bag. At re-exploration the sigmoid colon was resected for ischemia and an end colostomy placed. Due to bowel edema, fascial closure could not be obtained, and she ultimately had a split thickness skin graft placed over the open granulating wound.

Methods

The plan was for abdominal reconstruction approximately 1 year after her hospitalization; however, the patient presented 8 months later with the large ventral hernia and a colostomy stomal stricture with local cellulitis [see Figure 2]. The stoma was dilated to allow for a bowel prep, then the patient was taken to the OR for colostomy takedown and planned restoration of her abdominal wall.

At the time of surgery her abdominal wall defect was 24 cm wide [see Figure 3], and primary fascial closure was not feasible, nor was there an option of using prosthetic mesh due to the infected wound. Because there was no fascial attenuation or loss of abdominal wall tissue, a Wittmann Patch™ was placed [see Figure 4], and with 2 succeeding surgeries, the Wittmann Patch™ allowed the fascia to be sequentially tightened until primary closure was obtainable without the use of prosthetic material or need for components separation.

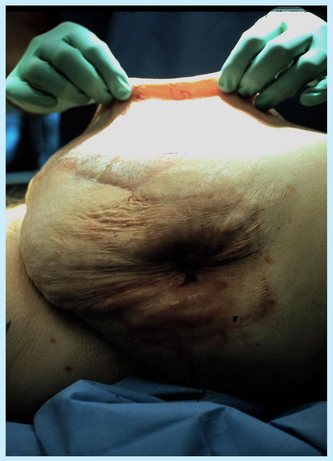

Figure 2: Skin graft easily lifted off underlying bowel. Strictured colostomy stoma with surrounding cellulitis.

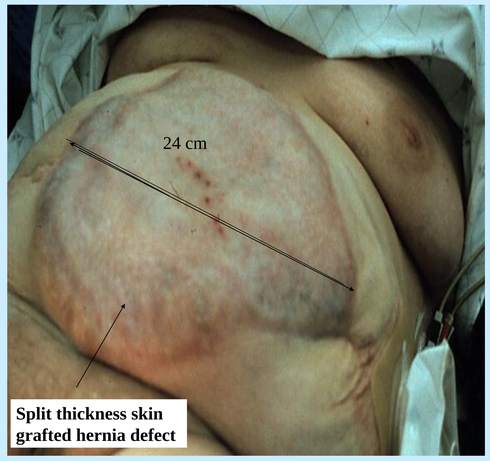

Figure 3: Skin grafted hernia defect measuring 24cm. Colostomy stoma bag in left lower quadrant.

Results

The use of the Wittmann Patch™ allowed delayed primary closure of the retracted, but normal, fascia of the ventral hernia that ensued following damage control laparotomy. With a contaminated surgical field, prosthetic material is contraindicated, and the large size of the defect made biological material and primary components separation less than optimal.

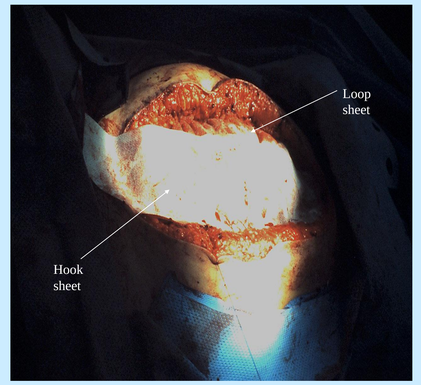

Figure 4. Second layer Wittmann Patch™ being sewn onto fascia. Trimmed to fit patient.

Conclusion

The Wittmann Patch™ can be used successfully for delayed primary abdominal wall closure in large ventral hernias when prosthetic material is contraindicated.