



Preserving the Fascial Edge: Wittmann Patch[®] Placed as Underlay with Skin Protecting Bolster

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BACKGROUND

The use of the Wittmann Patch[®] for closure of complex open abdominal wounds has been well described. We describe a modification for the insertion of the patch that maximizes the physics of the abdominal wall to protect the leading edge of the fascia. In prior descriptions, the Wittmann Patch[®] has been secured directly to the fascial edges. This is often done with a plastic interposition skirt to protect the bowel.

METHODS

We modified the method of insertion by placing the patch as an underlay with each side being secured with large braided suture through the entire abdominal wall at the lateral edge of the rectus muscle. Additionally, we created a skin protection system. Duoderm was placed on the skin and pre-drilled padded aluminum finger splints or large foley catheters, as bolsters, were placed above the duoderm. An intra-abdominal plastic interposition skirt and VAC[®] sponge were also used with this method.

RESULTS

We used our modified technique on 12 patients with complex open abdominal wounds. Average wound size was 587 cm². Ten patients were damage control laparotomies, one was a decompressive laparotomy for ACS, and one was a non-trauma abdominal catastrophe. Placement of the patch decreased the initial wound size by an average of 365 cm². All twelve patients were closed within 15 days from patch insertion. The mean time to closure was 8.8 days. Patients were taken back to the OR for tightening an average of 2 times. The wound size decreased by an average of 86 cm² with each tightening. At two weeks eleven primary closures remained intact with one patient experiencing failure due to dehiscence secondary to subfascial abscess.

TABLE 1. Summary descriptive statistics

n=12	Mean	St. Dev.
Initial wound length (cm)	29.8	6.7
Initial wound width (cm)	18.9	6.4
Initial wound area (cm ²)	587.5	267.3
Wound area after		
Patch placement (cm ²)	222.5	91.7
Tightening 1 (cm ²)	137.1	70.2
Tightening 2 (cm ²)	99.1	27.7
Change in wound area after		
Patch placement (cm ²)	-364.9	219.7
Tightening 1 (cm ²)	-85.5	28.9
Tightening 2 (cm ²)	-86.1	17.6
Time between closure and		
Initial laparotomy (days)	18.2	7.4
Patch placement (days)	8.8	3.7
Number of tightenings	1.3	0.7

FIG. 1. Wittmann Patch[®] insertion kit with skin protecting bolsters.



FIG. 2. Example of an edematous open abdomen.

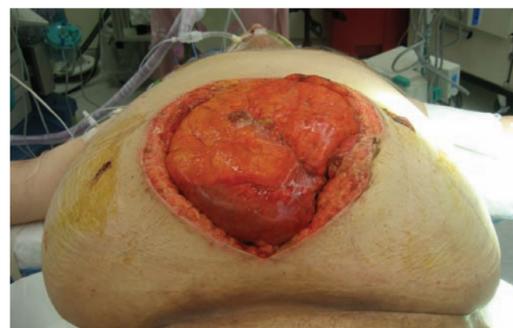


FIG. 3. Open abdomen with protective plastic skirt.

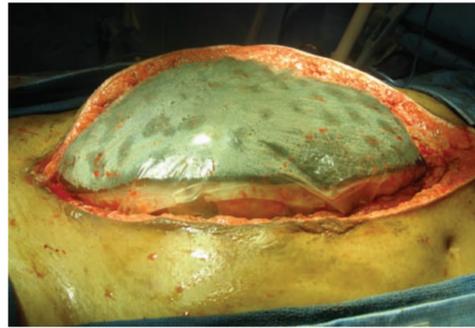


FIG. 4. Wittmann Patch[®] sewn in as underlay.

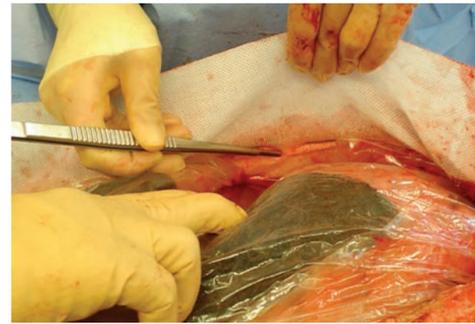


FIG. 5. Wittmann Patch[®] inserted as underlay with skin protecting bolsters.

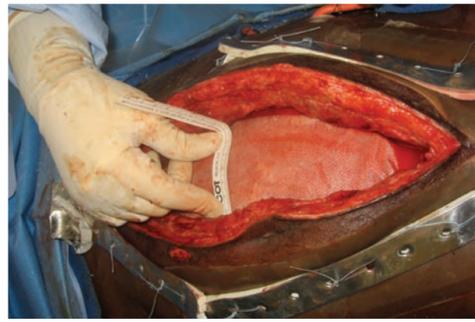
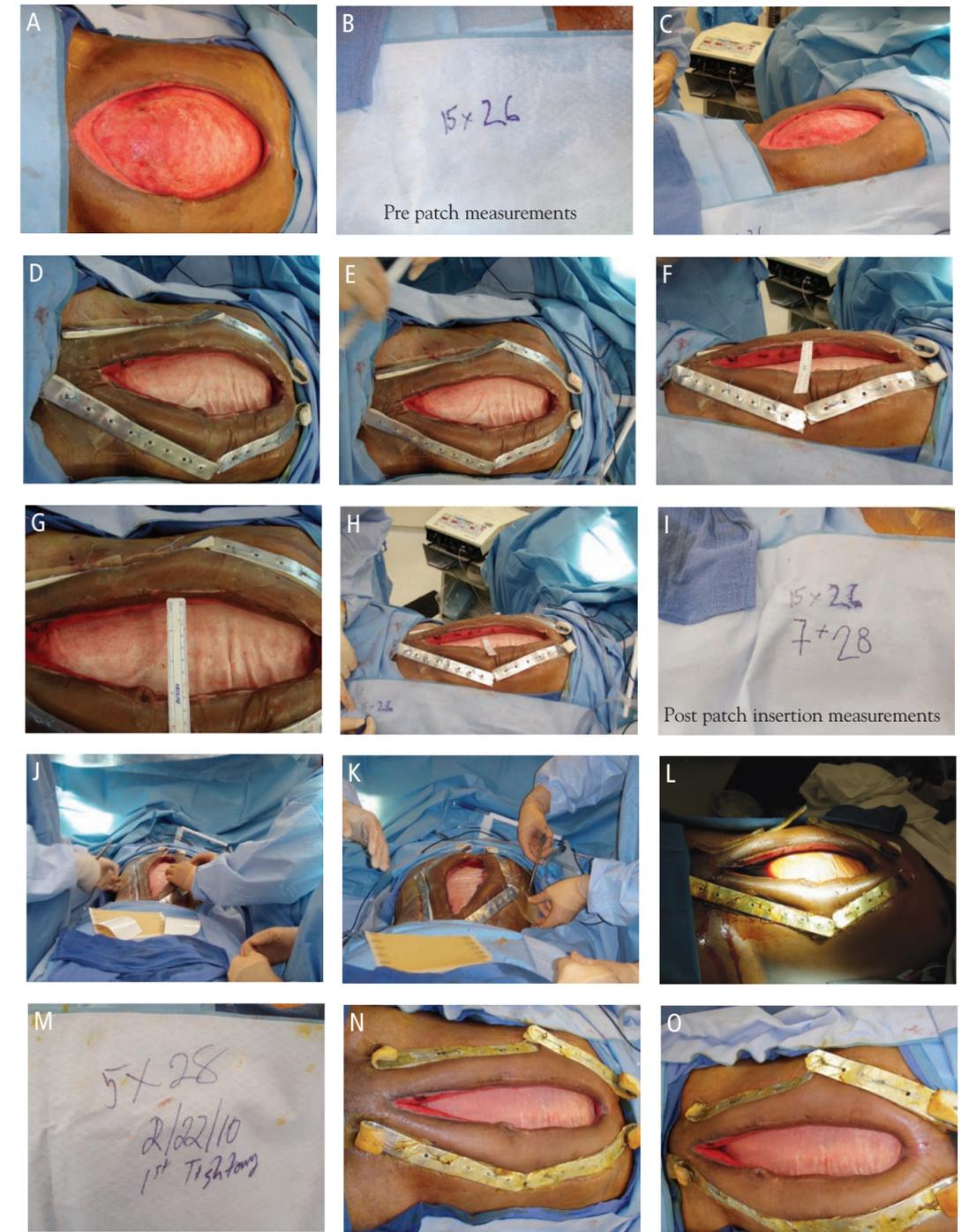


FIG. 6. Patch with negative pressure VAC[®] sponge (KCI) in place.



FIG. 8. Sequential depiction of modified abdominal closure using skin bolster technique.



CONCLUSIONS

We believe this modified technique is superior to techniques described previously. Using this technique we were able to eliminate suture trauma at the fascial edge. At the time of closure minimal fascial debridement was required, thereby preserving viable tissue.