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THEME biomechanic

Christey: Corset

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Continuously-adjustable, transparent laparostomy closure with low-cost materials.

Aim

Temporary containment of an acute laparostomy must protect abdominal contents and prepare myofascial tissues for durable, definitive repairs. This paper presents a simple technique providing continuously-adjustable, transparent laparostomy containment using low-cost materials.

Methods

Prospective trial of a customised, transparent, bi-layer mesh construct providing continuously-variable tension adjustment or open access at the bedside without anaesthesia; direct visibility of abdominal contents, and protection of the linea alba for definitive repair. Two phases of use were identified: Index Temporary Abdominal Containment (TACO) [fig 1], and Intermediate TACO with the added functionality of tension being applied through a fascial corset construct [fig 2,3]. Corsets were placed in 26 patients with acute laparostomies. Twenty patients had laparostomies following trauma and 6 following bowel-related septic complications. Intra-abdominal pressure was continuously measured and adjusted via tension on the corset as required. Abdominal contents could be inspected through the bilayer mesh without the need for surgery.

Technique of Intermediate TACO Corset Deployment

1. A large sheet of polypropylene mesh is cut at 2/3rds, 1/3rd. A clear occlusive sheet is applied to the larger sheet then perforated and inserted into the abdomen over the abdominal contents

2. Running prolene sutures are placed around the periphery in small bites of the linea alba. A second continuous 1 cm medial to the peripheral suture.

3. O-prolene "corset' sutures are anchored at the ends of the mesh and strung in 5 throws toward the central portion then brought out through skin and clamped over an eye shield.

4. The smaller sheet (the lid) is placed over the drains and covered by occlusive dressing. Negative pressure is applied
Results .

Figure1: Index TACO

Figure 2. intermediate TACO with corset applied

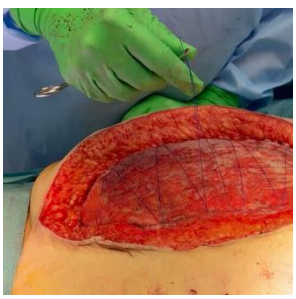

Figure 3. Intermediate TACO with corset under tension.

Results

Category	Value
Total Patients	26
Successful Closures	20
Trauma Patients	20
Falls (within trauma)	7
Road Traffic Crashes (within trauma)	13
Persistent Sepsis (No Closure)	3
Trauma Deaths (TBI)	3
Mean Age (years)	36 (range 18–66 yrs)
Male (%)	76%
Mean Injury Severity Score	26 (range 16–45)
Means Corset Placement Time (min)	16 (range 8-26 min)
Average Consumable Cost (€)	150
Mean Time to Closure (days)	3.6 (range 2-5.5 days)

Conclusion

This simple technique uses common, low-cost materials to allow continuous, myofascial tension adjustment during the Index and Intermediate phases of TACO. Inspection and reduction of the laparostomy can be done at the bedside prior to definitive laparostomy closure.

TE MANAWA TAKI TRAUMA SYSTEM
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