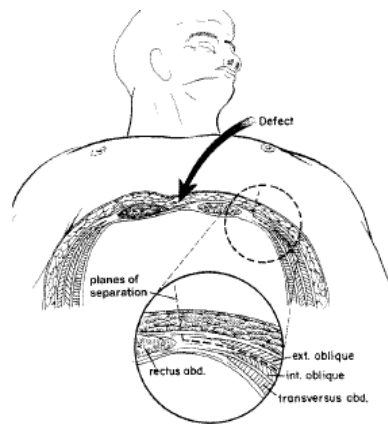
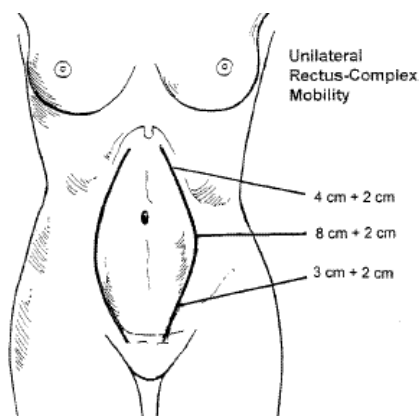


## THE “SEPARATION OF ANATOMIC COMPONENTS” TECHNIQUE FOR THE RECONSTRUCTION OF MASSIVE MIDLINE ABDOMINAL WALL DEFECTS

- Separation of anatomic components technique by Ramirez et al, in 1990 (1)
- Bilateral, innervated, bipedicle, rectus abdominis-transversus abdominis-internal oblique muscle flap complexes transposed medially to reconstruct the central abdominal wall.

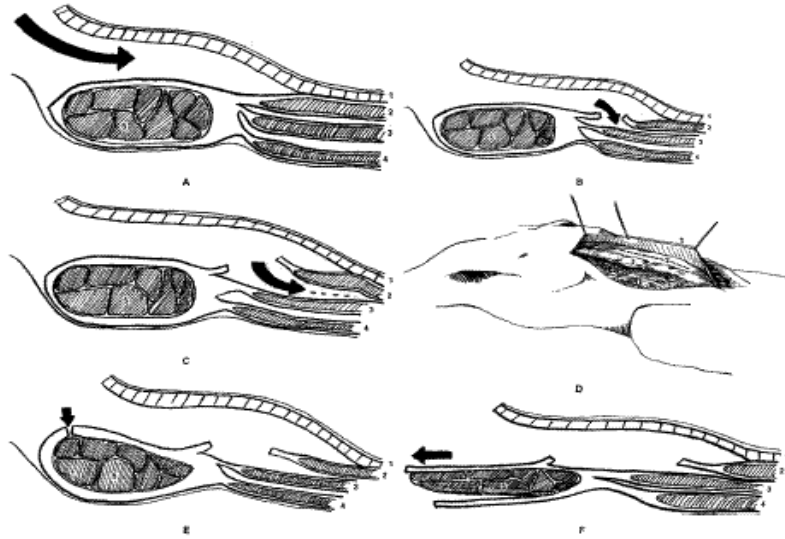
**Shestak et al. The Separation of Anatomic Components Technique for the Reconstruction of Massive Midline Abdominal Wall Defects: Anatomy, Surgical Technique, Applications, and Limitations Revisited. *Plast Reconstr Surg.* 2000 Feb;105(2):731-8**

- PURPOSE:
  - Identify limitations, complications and to quantify functional outcome with the use of this technique.
- PATIENTS AND METHODS:
  - 4 years (1995-1999)
  - 22 patients (17 female and 5 male)
- CAUSES:
  - Removal of infected synthetic mesh material
  - recurrent hernia
  - removal of split-thickness skin grafts
  - dense abdominal wall cicatrix
  - parastomal hernia
  - primary incisional hernia
  - trauma and enteric sepsis
  - tumor resection (abdominal wall desmoid tumor involving the rectus abdominis muscle)
- SIZE:
  - from 84 cm<sup>2</sup> (7 × 12 cm) to 375 cm<sup>2</sup> (15 × 25 cm) in dimension,
  - > 6 cm: closure most often requires application of synthetic mesh,
  - however the complication rate accompanying the use of synthetic mesh is significant.<sup>i</sup>



Maximum defect dimension that can be reconstructed in upper, middle, and lower abdominal area

## Plane of dissection for separation



- RESULTS:
  - Average stay 8 days after surgery
  - Suction drains average 7 days postoperative
  - Complications: Wound infection (2), seroma (1), recurrent incisional hernia (1), death (1)
- DISCUSSION:
  - The procedure of choice for the autogenous tissue reconstruction of massive midline defects of the abdominal wall
  -

## Reilingh et al. Component separation technique for the repair of large abdominal wall hernias. *J Am Coll Surg.* 2003 May;196(5):825-6.

- PURPOSE:
  - To evaluate the early and late results of component separation.
- METHOD:
  - Retrospective study: 1994-1999
  - Total patients: 43, 11F and 32 M
  - Mean age 49.7
  - Component separation technique without release of the posterior rectus sheath
  - Followed for at least 12 months post-op
- RESULTS:
  - Mean length of defect 18cm  $\pm$  6
  - Mean width of defect 13cm  $\pm$  7
  - Mean body mass index 27.3 kg/m<sup>2</sup>  $\pm$  4.5
  - Ramirez technique 38 pts while in 5 patients transection of EOM aponeurosis
- POST OP COURSE:
  - Uneventful 25 patients (58.1%)
  - Wound complications 14 patients (32.6%)
  - Respiratory insufficiency 2 patients
  - Rupture of abdominal wall 1 patient

- Death 1 patient
- FOLLOW UP:
  - Mean 15.6 months
  - Recurrent hernia 12 pts (after a mean period of 13.4 months).
  - 6/12 removal of prosthetic material implanted during previous hernia operations.
  - Occurs more frequently in morbidly obese pts (BMI 30.1 kg/m<sup>2</sup> vs 25.6 kg/m<sup>2</sup> in nonrecurrence group).

## DISCUSSION

Table 1. Results of the Repair of Large Abdominal Wall Defects with the Component Separation Technique

First author	Year	Patients	Clean/ contaminated	Complications (n)	Reherniation n (%)	Followup mean (range, mo)
Ramirez <sup>a</sup>	1990	11	8/3	0	0 (0.0)	? (4-42)
DiBelle <sup>b</sup>	1996	35 <sup>a</sup>	20/15	Wound infection (2) Hematoma (1) Seroma (1)	3 (8.6)	22 (1-43)
Girtono <sup>20</sup>	1999	33	30/3	Wound infection (8) Enterocutaneous fistula (1)	2 (6.1)	21 (6-57)
Shestak <sup>11</sup>	2000	22	?	Wound infection (2) Seroma (1) Death (1)	1 (5)	52 (8-84)
Lowe <sup>12</sup>	2000	30 <sup>b</sup>	?	Wound infection (12) Skin ischemia (6) Skin dehiscence (13)	3 (10)	12
Cohen <sup>19</sup>	2001	24	15/9	Skin dehiscence (2) Seroma (1)	1 (4)	? (12-36)
Authors	2002	43	28/15	Wound infection (6) Hematoma (5) Seroma (2) Skin necrosis (1) Facial dehiscence (1)	12 (30)	15.6 (12-30)

<sup>a</sup>In 15 patients, an onlay synthetic prosthesis was implanted as well.

<sup>b</sup>In 10 patients, an onlay polypropylene mesh was implanted as well.

- Major Disadvantages:
  - Reherniation rate relatively high
  - Large area mobilization
  - Destabilization of the outer layer of the abdominal wall
- What is the role of:
  - Onlay prosthetics support to decrease re-herniation?
  - Transection of the EOM via separate incisions to diminish the extent of dissection?

## References

1. Ramirez, O. M., Ruas, E., and Dellon, A. L. Components separation method for closure of abdominal wall defects: An anatomic and clinical study. *Plast. Reconstr. Surg.* 86:519, 1990.
2. Leber, G. E., Garb, J. L., Alexander, A. I., and Reed, W. P. Long-term complications associated with prosthetic repair of incisional hernias. *Arch. Surg.* 133:378, 1998

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