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# Dynamic Practice Guidelines for Emergency General Surgery

Committee on Acute Care Surgery, Canadian Association of General Surgeons

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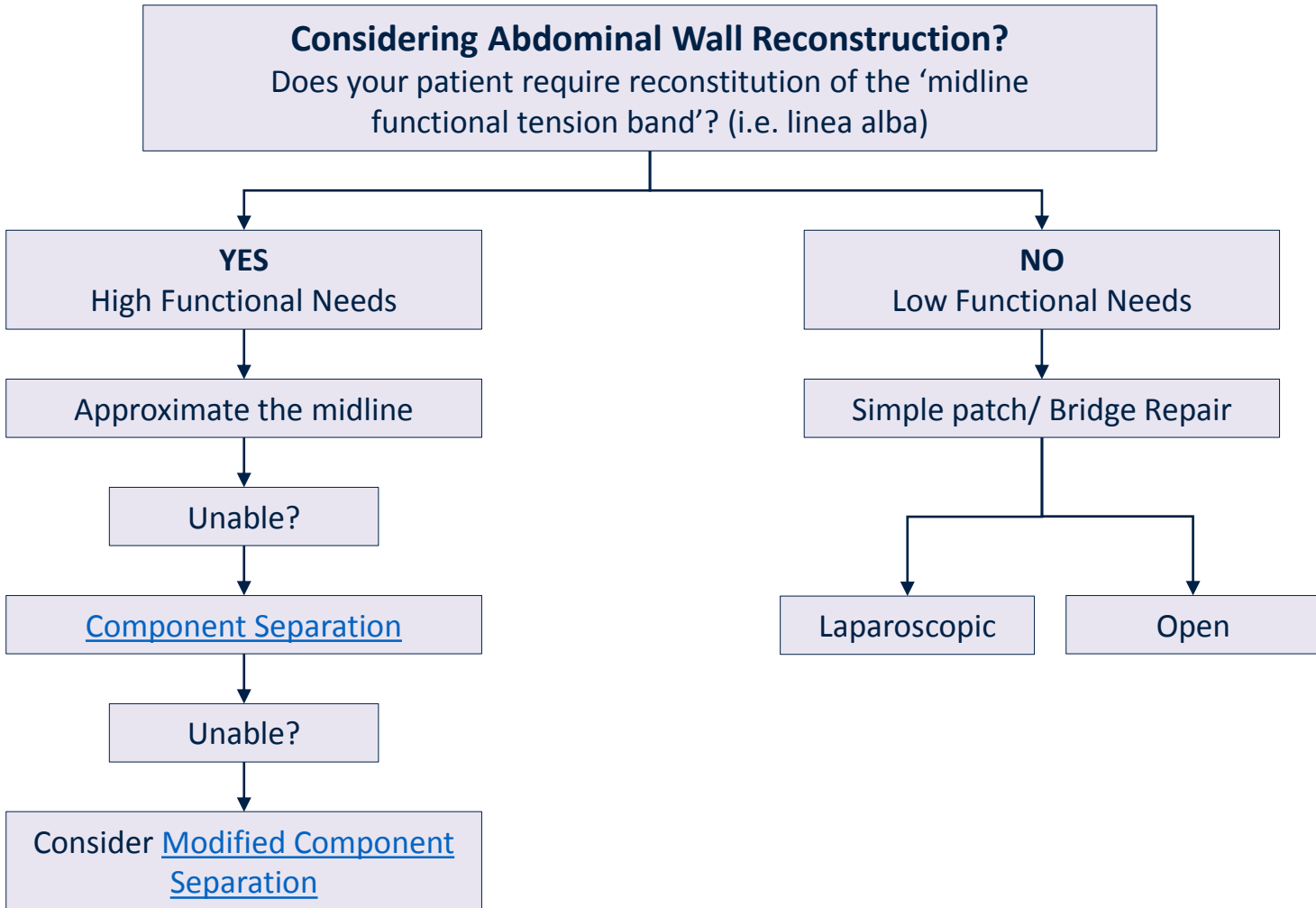
# ABDOMINAL WALL RECONSTRUCTION

Dynamic Practice Guidelines for Emergency General Surgery

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Committee on Acute Care Surgery, Canadian Association of General Surgeons

# ABDOMINAL WALL RECONSTRUCTION



## Pre-Operative Planning

Determinants for Surgery	Operative Considerations	Pre-operative Recommendations
<b>Patient</b>	<ul style="list-style-type: none"><li>• Obstructive sleep apnea</li><li>• COPD</li><li>• Smoking tobacco</li><li>• Steroids/ Immunosuppression</li><li>• Diabetes Mellitus – HbA1c</li><li>• Body-Mass-Index (BMI) &gt; 30</li></ul>	<ul style="list-style-type: none"><li>• Full cardiovascular/ respiratory exam</li><li>• Stop all smoking</li><li>• Improve glycemic control</li><li>• Controlled body weight loss</li><li>• Strengthen core musculature</li></ul>
<b>Technical</b>	<ul style="list-style-type: none"><li>• Waiting beyond 18 mo. following the acute event leads to lateral retraction of the abdominal musculature/ more difficult repairs</li></ul>	<ul style="list-style-type: none"><li>• Timing (wait 6-12 months following the acute event)</li></ul>
<b>Environmental</b>	<ul style="list-style-type: none"><li>• Preceding wound infection</li><li>• Infected mesh (may require a biologic mesh)</li><li>• Quality of the tissues comprising the abdominal wall</li><li>• Expertise/ training of the surgeon</li></ul>	

## Primary Prevention of Reconstruction

- Full cardio-pulmonary preoperative exam
  - Stop all smoking
  - Improve blood glucose control
  - Controlled body weight loss
  - Strengthen torso/core musculature
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## Determinants for Surgery – Technical Considerations

- Timing (wait 6-12 months following the acute event)
- Waiting beyond 18 months leads to lateral retraction of the abdominal musculature and more difficult repairs



## Determinants for Surgery – Environmental Considerations

- Preceding wound infection
  - Infected mesh (may require a biologic mesh)
  - Quality of the tissues comprising the abdominal wall
  - Expertise / training of the surgeon
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## Preparation for Surgical Intervention

On cross-sectional Imaging (e.g. CT Scan), review for the following factors that can aid in surgical planning for reconstruction:

- Defect size
  - Loss of tissue
  - Vascular supply to potential flaps/pedicles
  - Heterotropic ossification
  - Need for tissue expanders
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## Potential Peri-operative complications

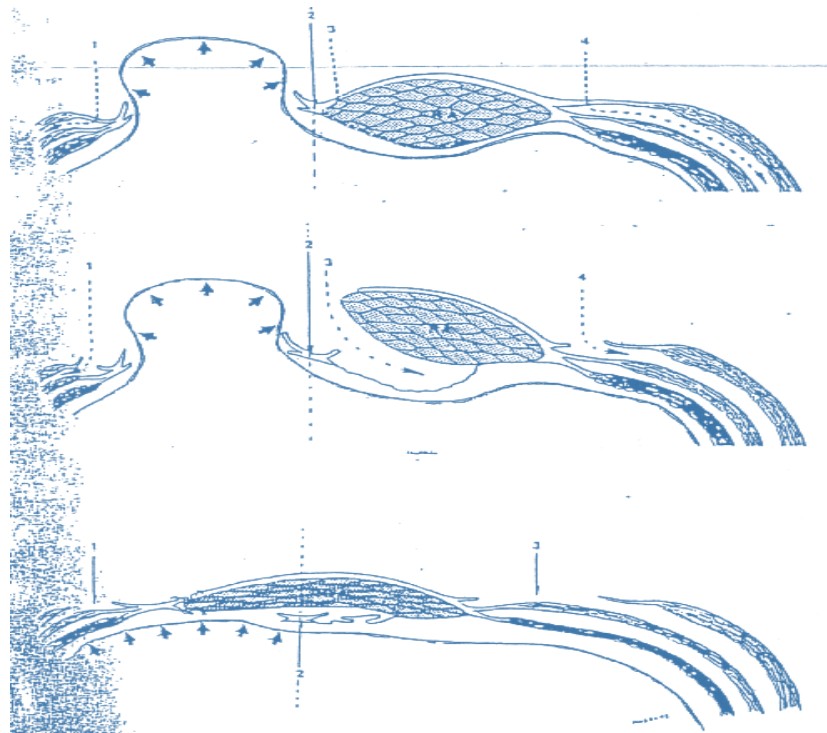
Each of the peri-operative complications listed below are typically predictable and potentially preventable:

- Long difficult operations
  - Incidental enterotomies
  - Contamination from fistulas or ostomies
  - Skin coverage
  - Large skin flaps
  - Wound seromas / infections
  - Skin breakdown
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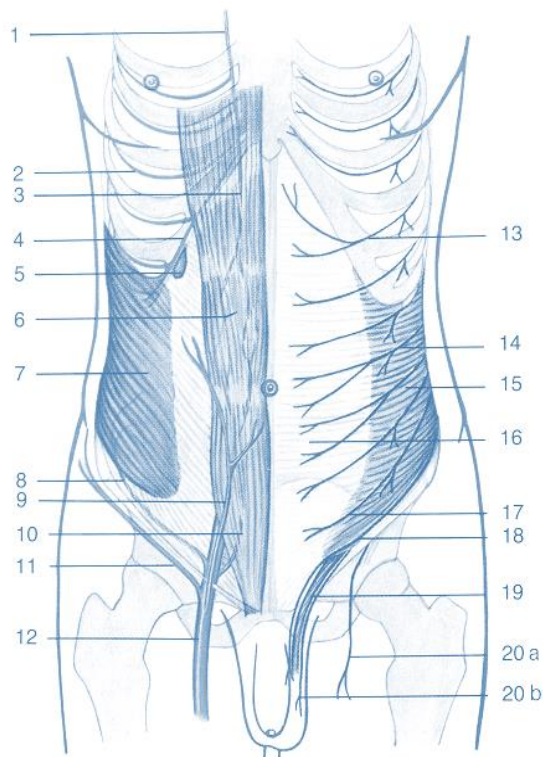
## Sequential Operative Steps

<b>1</b>	Removal of Skin graft (if needed)	
		<b>2</b>
<b>3</b>	Mobilize the remaining omentum.	Mobilize the lateral abdominal walls and re-establish the peritoneal cavity.
		<b>4</b>
<b>5</b>	Resection of fistulas – primary anastomosis.	Potential extensive lysis of adhesions.
		<b>6</b>
<b>7</b>	Abdominal wall reconstruction.	Closure of ostomies (immediate vs. delayed).

## Visual Representation of Component Separation

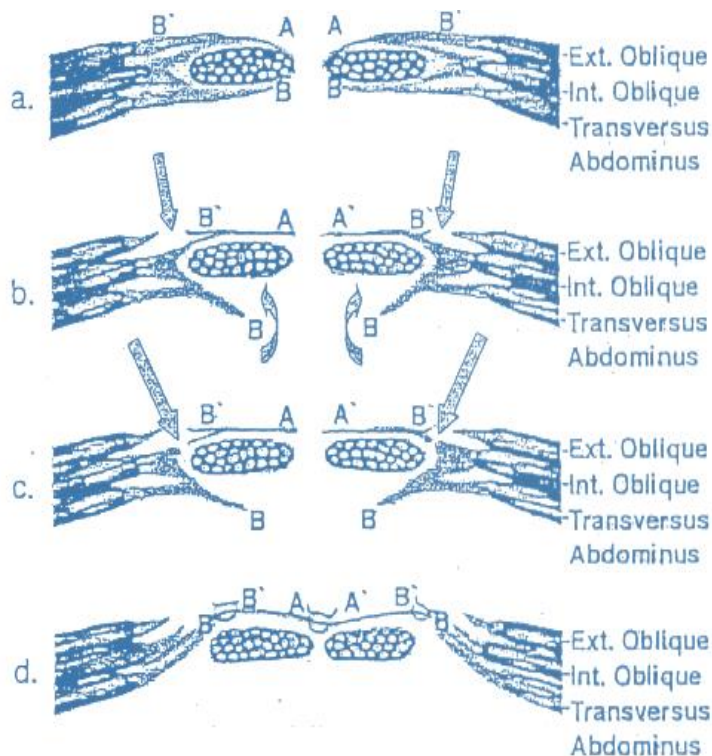


## Anatomical Considerations Component Separation



- Rectus blood supply is inferiorly and superiorly based off of the superior, inferior and superficial epigastric arteries
- Nerve supply to rectus lies in the deep tissue between internal oblique and transversus abdominus muscles
- CTA is extremely helpful in determining anatomical realities prior to embarking on a reconstruction

## Modified Component Separation



- Components Separation
  - 10 cm epigastric
  - 20 cm mid abdomen
  - 6 cm suprapubic
- Modified Components
  - 16-20 cm epigastric
  - 20-30 cm mid abdomen
  - 12-16 cm suprapubic

## Use of Biologics

Consider the use of biologic mesh in the following patient scenarios:

- Complex hernias
    - Loss of abdominal wall
    - Anatomical abnormalities/anomalies
  - Removal of previously infected mesh with associated compromised tissue quality
  - Patients with multiple comorbidities (i.e. COPD, obesity, diabetes, immunosuppression/transplantation)
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## Summary of Guidelines

### Crucial elements for the open abdomen:

- Maintain midline tension (multiple options)
- Maintain peritoneal domain

### During the reconstruction:

- Have a variety of reconstruction options available
  - Understand the level of function your patient requires
  - Select the right patient(s) for biologic prostheses
  - Set your patient up for success
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