

Use of dynamic wound closure system in conjunction with vacuum-assisted closure therapy in delayed closure of open abdomen

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Abstract

Aim Definitive abdominal closure may not be possible for several days or weeks after laparotomy in damage-control surgery, abdominal compartment syndrome and intraabdominal sepsis, until the patient has stabilized. Vacuum-assisted closure (VAC therapy[®], KCI, San Antonio, TX, USA) and abdominal re-approximation anchor system (ABRA, Canica, Almonte, Ontario, Canada) are novel techniques in delayed closure of open abdomen. Our aim is to present the use of these strategies in the management of 7 patients with open abdomen.

Methods Between August 2010 and December 2011, 7 patients with severe peritonitis were stabilized by laparotomy and treated with either ABRA system or ABRA system in conjunction with VAC dressing. VAC dressing applied to 4 patients initially and followed by ABRA. ABRA was applied alone to remaining 3 patients. Demographic data and patient characteristics, timing of VAC dressing and ABRA system were recorded. ICU and hospital stay and

development of incisional hernia were also recorded. Stage of open abdomen, width of abdominal defect, extent to damage to fascia, and pressure sores were staged.

Results The mean duration with VAC dressing before ABRA application was 18 days. The mean duration of ABRA application was 53 days. The average width of the abdominal defect was 18 cm. The average length of defect was 20.8 cm. Delayed primary abdominal closure was accomplished in 6 patients without further surgery. Incisional hernia with a small abdominal defect developed in 2 patients.

Conclusion Abdominal re-approximation anchor system and VAC dressing can be used separately or in conjunction with each other for closure of delayed open abdomen successfully.

Keywords Severe sepsis · Fascia · Abdomen

Introduction

Open abdomen is very important in the management of patients with abdominal compartment syndrome, damage-control surgery and abdominal sepsis [1, 2]. It has been proven to decrease mortality and early postoperative complications. However, delayed morbidity and need for further surgical procedures remain uncertain. Several novel methods and devices have been improved and used to increase the chance of definitive closure of open abdomen. When closure of the open abdomen is not possible, various sequelae-like large abdominal wall defects, enterocutaneous fistulas and ventral hernias are not uncommon [2, 3].

Vacuum-assisted closure (VAC therapy, KCI, San Antonio, TX, USA) is a novel strategy based on the use of defined and controlled negative pressure over a polyurethane or

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