

## **ABRA Abdominal Wall Closure Clinical and Economic Highlights**

### **Highlights**

**In 92% of cases, full thickness primary closure of complex open abdomens was achieved in an average of 7 days by using ABRA Abdominal Wall Closure with Negative Pressure Wound Therapy (NPWT).<sup>1</sup>**

*ABRA + NPWT vs. NPWT alone*

- Majority primarily closed fascia vs. the majority left with mid-line hernia (92% vs. 36% fascial closure)
- 50% reduction in abdominal OR procedures (6.8 vs. 13.7)
- 68% reduction in the number of days to any closure (15.8 vs. 50.1)
- 73% reduction in fistula formation (1 vs. 4)
- No skin grafts required when using ABRA vs. 43% of patients without ABRA required skin grafts
- **Estimated cost reduction of \$12,370 to \$47,070 per patient**

**ABRA Abdominal Wall Closure and NPWT is an easy and reproducible option for primary fascial closure following severe Abdominal Compartment Syndrome (ACS).<sup>2</sup>**

**Achieve primary fascial closure following decompressive laparotomy using ABRA Abdominal Wall Closure.<sup>3</sup>**

**Using ABRA Abdominal Wall Closure resulted in a 95% reduction in wound area.<sup>4</sup>**

**ABRA Abdominal Wall Closure can restore lost abdominal domain and achieve complete repair of the musculofascial support of the abdominal wall, achieving primary closure.<sup>5</sup>**

**ABRA uses significantly fewer OR resources, 70% fewer trips to the OR and 76% less OR time because it is adjusted at bedside and allows bedside dressing changes.<sup>6</sup>**

Many of the published articles and posters make reference to the challenges of the open abdomen and the traditional approaches to managing them. Traditional methods include the use of mesh, skin grafts, NPWT, tissue expansion, component separation, pedicled flaps and free-tissue transfer, many of which do not achieve a full thickness primary closure.

ABRA Abdominal Wall Closure is an advancement that achieves a low-tension primary closure of full thickness abdominal wounds, and directly results in patient benefits and significant cost saving.

### **References and Details**

1. *Early Primary Closure of Open Abdominal Wounds Using the Abdominal Reapproximation Anchor (ABRA®) System.* Cinelli SM, Casey MJ, Kuhls DA, Browder TD, Coates JE, Fildes JJ. University of Nevada School of Medicine, Division of Trauma and Critical Care, University Medical Center of Southern Nevada, Las Vegas, NV. [Poster: Southwestern Surgical Congress, Coronado, CA, March 22-25, 2009.](#)

This retrospective study compared 27 patients, 13 for **ABRA Abdominal Wall Closure** combined with NPWT versus 14 treated using other methods including NPWT alone. The study concludes significant advantages of ABRA combined with NPWT, including improved patient outcomes and economic savings

related to these outcomes (eg. fewer abdominal procedures, fewer hernias, higher closure rate and reduced hospital length of stay).

2. *Fascial Closure Following Severe Abdominal Compartment Syndrome: A Case Report Regarding an Efficient Combination of Dynamic Abdominal Closure and Negative Pressure Wound Therapy.* Ferreira F, Barbosa E, Guerreiro E, Santos F, Soares G, Grade P, Fleming J. Department of Surgery, Hospital Pedro Hispano - ULS Matosinhos, Porto, Portugal. [Poster: 4<sup>th</sup> World Conference Abdominal Compartment Syndrome, Dublin, Ireland, June 25-27, 2009.](#)

There is increasing awareness of Abdominal Compartment Syndrome (ACS) and the need to manage it. In this published poster illustrating an experience using **ABRA Abdominal Wall Closure** in combination with EZCARE™ (trademark of Smith + Nephew), ABRA and negative pressure wound therapy was concluded to be an easy and reproducible option for primary fascial closure following severe Abdominal Compartment Syndrome (ACS). Of note are the morbidity and mortality rates (and their associated costs) associated with ACS, and the superior outcomes that are obtainable when ABRA is used.

3. [Case Discussion: Secondary ACS Due to Tight Abdominal Closure. Abdominal Compartment Syndrome \(WSACS\) Newsletter, December 2008, Volume 2, Issue 4, Pages 10 – 11](#)

A discussion on the published poster presented at the World Society of the Abdominal Compartment Syndrome (#2 above), is presented in the World Society of Abdominal Compartment Syndrome (WSACS) Newsletter and notes the ability to achieve primary fascial closure following a decompressive laparotomy using **ABRA Abdominal Wall Closure**.

4. [Management of Open Abdominal Wounds using a Dynamic Fascial Closure System. Reimer MW, Yelle YD, Reitsma B, Doumit G, Allen MA, Bell MSG. Canadian Journal of Surgery. 2008 Jun;51\(3\):209-214.](#)

This is an early study of 23 patients with open abdomens that could not be primarily closed, where an overall reduction in wound area of 95% was achieved using **ABRA Abdominal Wall Closure**. This study involved an early version of the ABRA Abdominal Wall Closure System and late management of open abdomens, where ABRA was placed an average of 18 days after the beginning of treatment for the open abdomen wound. In this early experience with ABRA, primary closure was achieved in 61% of these complex cases.

Today's results with ABRA are far superior to those shown in this study, due to updates in the ABRA system design, including the addition of a perforated silicone sheet to protect the bowel and to prevent granulation and adhesions, advances in procedural methods with ABRA, results of combined therapies (ABRA + NPWT) and the earlier placement of ABRA.

5. [Closure of Massive Abdominal Wall Defects - A Case Report Using the Abdominal Reapproximation Anchor \(ABRA\) System. Urbaniak RM, Khuthaila DK, Khalil AJ, Hammond DC. Annals of Plastic Surgery. 2006 Nov;57:573-577.](#)

A published case report using **ABRA Abdominal Wall Closure System** recommends ABRA as an effective instrument to accomplish closure of difficult wounds. This study describes the use of ABRA to restore lost abdominal domain and achieve a complete repair of the musculofascial support of the abdominal wall, achieving primary closure.

6. *ABRA Abdominal Wall Closure System with V.A.C.® Therapy Compared to V.A.C.® Alone in Management of Open Abdomen.* Hamilton D, Simpson M, Sonka B, Kearney P, Boulanger B, Bernard A, Chang P. University of Kentucky, Department of Surgery, Division of General Surgery, Lexington, KY. Poster Presentation: Abdominal Wall Reconstruction Conference, Washington, DC, June 17-19, 2010

Poster presentation of interim data for 11 of 30 patients enrolled in the study. “Early data clearly demonstrates decreased resource utilization of the study group in terms of operating room use. Additionally, the study group avoids the known risks associated with transportation of a critically ill patient such as loss of intravenous access, a need for additional ventilatory support, and cardiopulmonary arrest.”

### Case Summaries

1. [Case #054](#) – Full Thickness Abdominal Wall Closure – MRSA Patient
2. [Case #070](#) – Abdominal Wall Closure after Urological complications
3. [Case #071](#) – Bomb Blast victim Abdominal Wall Closure
4. [Case #072](#) – MVA victim Abdominal Wall Closure
5. [Case #212](#) – MVA victim Abdominal Wall Closure

Copies of these and other supporting references are available from Canica Design on request.