



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.

INTRODUCTION:

Abdominal closure is a challenging objective for any surgeon after severe abdominal compartment syndrome (ACS).

AIM:

Alert to a specific combination of methods that are reproducible and cost-effective in the pursuit of primary fascial closure following severe ACS.



Pic. 1

PATIENTS AND METHODS:

A previously healthy female, 29 years old, hit and projected by a high speed motorcycle into an oncoming automobile. Transferred to our institution from a rural hospital in shock four hours post-injury. She sustained: mild head trauma; severe thoracic, abdominal and pelvic trauma, as well as, moderate right lower limb trauma and was taken to the operating room (OR).



Pic. 2

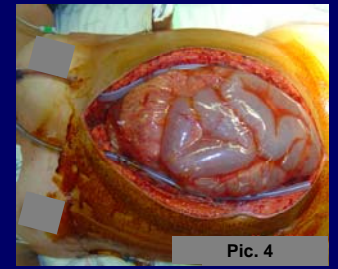
A splenectomy, left nephrectomy, abdominal and pelvic packing were performed.

In a desperate move for haemostasis, the surgical team closed her fascia and skin over the abdominal packing. (pic. 1 & 2)

24 hours later after initial clinical improvement, she suffered a deterioration of her respiratory and urinary systems attributed to ACS. We took this patient to the OR decompressed her abdomen and created a temporary abdominal closure. (pic. 3 & 4)



Pic. 3



Pic. 4

After the decompression, the patient was stable in the ICU and recovering. 48 hours later, we revisited the abdomen removed all of the previous packing and managed to control minor bleeding with a few sutures.

During the next 4 days, we submitted this woman to forced diuresis of 30 liters of excess fluid. At this point, we returned the patient to the OR and despite a negative fluid balance, extreme retroperitoneal edema prohibited a full closure of the fascia. An ABRA® dynamic abdominal closure system from *Canica* was installed in the abdomen with the purpose of progressively approximating the fascial margins. On top of this, negative pressure wound therapy was adapted – *Ezcare®* from *Smith & Nephew*, with the purpose of reducing the inflammatory response.



Proof of prohibitive fascial closure



Day 8 post-injury
ABRA Day 0



Day 8 post-injury
ABRA Day 0



Day 8 post-injury
ABRA + Ezcare Day 0



ABRA + Ezcare Day 1

After only 3 days of fascial mobilization and during the first change of the *Ezcare®* device it was evident that the fascial margins were almost approximated; Six days Post-ABRA + *Ezcare* placement we closed the fascia with little tension and this patient was discharged from our hospital 34 days post-injury.



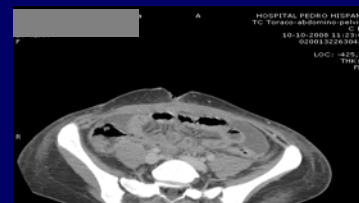
ABRA + Ezcare Day 3
Fascial mobilization - «The Move»



ABRA + Ezcare Day 6
fascial closure made possible



ABRA + Ezcare Day 6
fascial closure



After ABRA Day 10
Proof of adequate fascial closure



During a follow-up visit
1,5 months latter

Conclusion:

Dynamic fascial closure in association with negative wound pressure therapy is an easy and reproducible option for primary fascial closure following severe ACS.

References:

1. Sugrue M, D'Amours SK, Kolkman KA. Temporary abdominal closure. *Acta Clinica Belgica* 2007; 62(Supplement):210-214.
2. Deenichin GP. Abdominal compartment syndrome. *Surg Today* 2008; 38(1):5-19.
3. Reimer MW, Yelle YD, Reitsma B, Doumit G, Allen MA, Bell MSG. Management of Open Abdominal Wounds using a Dynamic Fascial Closure System. *Canadian Journal of Surgery* 2008; Jun 51(3):209-214