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Canadian Surgery Forum / Canadian Hernia Society
Hernia Case Competition Submission

Title: What to expect when your management is expectant…
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Case Presentation:

- WM is a 44-year-old male
- He was admitted to hospital in the context of a trauma activation, transferred from a peripheral hospital after suffering a stab wound to the left leg involving a popliteal artery injury.
- Initially was found to have absent vital signs, underwent CPR x 30 minutes prior to achieving ROSC & being transferred to our Level 1 trauma centre.
- He was brought to the operating room urgently by Vascular + Plastic surgery for repair of his arterial injury, sciatic nerve and fasciotomies; postoperatively he remained in a Level 1 ICU, intubated
- At the time of admission thorough exam and imaging review were conducted. The patient was noted to have a "large umbilical hernia containing sigmoid colon" (CT: 3.3x2cm defect) which was fully reducible on examination.
- On POD 6, patient was documented to have a distended abdomen, with a "new blister to skin of umbo hernia (longstanding) with small leakage of clear fluid. Appears to be coming for the blister not intraabdoiminal"; patient was tolerating feeds and passing bowel movements at this time.
- On POD 7: "hernia sac reducible, ongoing blistering to skin with scant serous drainage" ; patient was febrile, Tmax 38.3, with other vital signs normal, no pressors
- On POD 8, the Trauma team was rounding in the ICU and noticed the following: *picture here:* "loss of skin coverage over hernia sac with necrotic appearing colon visible." → booked as an A case
- The patient had developed skin breakdown in the umbilical / supraumbilical region over top of a protrusion of herniated tissue, concerning in external appearance for ischemic bowel.
- Patient was booked as an A case and was brought to the operating room later that morning for a laparotomy, sigmoid colon resection with primary anastomosis, and repair of his ventral hernia

Operative Intervention:

- Midline laparotomy above + below the umbilical hernia; fascia entered above & below, separately; fascial bridge to hernia opened separately once controlled BL
    - Preventing contamination

- Entered hernia sac: necrotic sigmoid colon, no evidence of free perforation, obvious mechanical obstruction & nonviable bowel
- Nonviable colon divided using EndoGIA 60 stapler, mesentery controlled with LigaSure
- Anastomosis: side to side, functional end to end colonic stapled anastomosis with the common channel closed in 2 layers with 3-0 Maxon
- Necrotic skin was debrided to expose the underlying fascial edges; sac was debrided to get to healthy fascia
- Myocutaneous flaps raised to identify healthy tissue and provide enough laxity
- *Size of defect (measured on CT):*
- Hernia was closed: running #1 PDS with interrupted 0 Vicryl sutures
- Skin closure: 0 prolene vertical mattress sutures + staples

Postoperative course:

- Kept on 72h antibiotics
- NPO, NGT to LIS
- Experienced ROBF on POD 3
- POD 5 – noted to have a seroma with small degree of serous drainage from wound
- POD 7 – early SSI with removal of selected staples + packing of incision

Outcome: patient remains admitted to hospital for management of traumatic injuries and wound care at the laparotomy site. He has experienced return of bowel function and no evidence of hernia recurrence.

Up to three points of discussion justifying your surgical approach – to facilitate discussion amongst moderators and audience (Max: 100 words)

(1) *Contaminated field influences repair*: mesh was not used. A partial anterior component separation was performed to facilitate closure. What alternative strategies could have been employed if tension-free closure was impossible? Would a biologic mesh, or open abdomen with delayed closure (primarily vs. mesh) be considered?
(2) *Primary closure:* abides by Carbonnell's rule. PDS (synthetic, monofilament, absorbable) + interrupted Vicryl (synthetic, braided, absorbable) with a quicker absorption time (half-life of tensile strength: 14 days) used to distribute the tension in the early postoperative period. What alternative strategies could be used? Does a braided stitch in a contaminated field increase infection risk?

Why your case should be selected (Max: 100 words)

- Hernias are a common presentation accounting for up to 15% of operative emergency General Surgery cases in one Canadian study.
- Our case highlights the natural evolution and management of an incarcerated ventral hernia in a polytrauma patient where the hernia was not the presenting concern at admission.

- Complicating factors: infected field, emergency presentation without consideration to preoperative optimization (i.e., weight loss, nutrition)
- This case also highlights principles of hernia repair (component separation to facilitate tension-free primary repair for a sizable defect) and can facilitate discussion regarding wound infection, critically ill patients
- Relevant to all General Surgeons

Works Cited:

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3. Rosen MJ, Krpata DM, Petro CC et al. Biologic vs synthetic mesh for single stage repair of contaminated ventral hernias: a randomized clinical trial. JAMA Surgery 2022.
4. Patel SV, Paskar DD, Nelson RL, et al. Closure methods for laparotomy incisions for preventing incisional hernias and other wound complications. The Cochrane Database of Systematic Reviws. 2017.
5. Storch M, Scalzo H, Van Lue S, et al. Physical and functional comparison of coated VICRYL* plus antibacterial suture (coated polyglactin 910 suture with triclosan) with coated VICRYL* suture (coated polyglactin 910 suture). Surgical Infections, 2003.