

ABDOMINAL COMPARTMENT SYNDROME IN CRITICALLY ILL PATIENTS: WHAT CAN WE LEARN?



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BACKGROUND:

Abdominal compartment syndrome (ACS) is defined as an elevation in intra-abdominal pressure (IAP) above 20 mmHg and can be determined by bladder pressures with correlation to clinical picture. Most often developed in critically ill patients, management of ACS requires a multidisciplinary approach and has fatal outcomes when treatment is delayed or when left untreated. Physicians should maintain a high clinical suspicion in critically ill patients with physical exam features suggestive of intra-abdominal pathology with associated increase in ventilator settings, decreased urine output, and/or other markers of end-organ damage. Utilizing osteopathic principles and techniques in the management of abdominal compartment syndrome can help address restrictive patterns in the abdominal wall and surrounding tissues.

INTEGRATION OF OMT:

Osteopathic Manipulative Therapy (OMT) can potentially mitigate disease progression in complex abdominal presentations. Caution should be taken when considering these techniques in the critically ill patient.

- **Mesenteric Lift** can mobilize abdominal viscera to stimulate colonic movement. Some studies have demonstrated the benefits of this technique in critically-ill patients
- **Suboccipital Decompression** and **Sacral Rocking** can enhance parasympathetic tone, thereby improving peristalsis and relieving stool burden.

Berry, J., Ogunlade, J., Kashyap, S., Berry, D., Wacker, M., Miuelli, D. & Saini, H. (2020). Clinical Efficacy of Mesenteric Lift to Relieve Constipation in Traumatic Brain Injury Patients. *Journal of Osteopathic Medicine*, 120(9), 597-600. <https://doi.org/10.7556/jaoa.2020.094>

CASE KEY POINTS:

69 y.o. male with past medical history of hypertension, hyperlipidemia, BPH, type 2 diabetes on metformin, morbid obesity, paranoid schizophrenia presented with intractable vomiting, weakness, and constipation for a few days. Became hypoxic and hypotensive during CT imaging studies, requiring intubation, pressor support and ICU admission.

→ **Admission Vitals:**

Tmax: 101, HR 115, RR 34, BP 118/59, 353 lb (BMI 44.1)

→ **Pertinent Labs:**

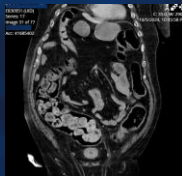
WBC 30.5, Anion Gap 17, Lactic Acid 7.8 → 9.1, Glucose 502, Troponin 7, VBG 7.03/80/21

→ **Imaging:**

CT CAP: Large amount of solid stool within the mid to distal colon, notably within the distended rectosigmoid colon. Rectum distended to 9 cm. Minimal perirectal fat stranding. Correlate for fecal impaction and stercoral colitis.

→ **Key Physical Exam Findings:**

Abdomen distended but non-peritonitic. Generally ill appearing, tachycardic and tachypneic, with accessory muscle use



Coronal CT image showing distended sigmoid colon

CLINICAL COURSE:

- Delayed operative intervention as clinical exam, limited by body habitus, was not suggestive of ACS
- Underwent exploratory laparotomy with decompression and sigmoidectomy
 - ◆ Severely dilated and ischemic sigmoid colon (image below)
- Despite medical and surgical intervention:
 - ◆ Remained on high pressor requirement worsening cardiopulmonary function.
 - ◆ After discussing goals of care with the family, patient was palliatively extubated.



Intraoperative photo: Markedly distended sigmoid colon

KEY TAKEAWAY:

Thorough examination of this case provides opportunity for multidisciplinary discussion on early recognition of ACS in patients with a large body habitus and timing to surgical intervention.