

Navigating Complex Polytrauma in the Critical Care Unit: Novel Approaches to Pain Relief When Multimodal Options Run Out

Stephanie Amaefuna MD, MPH; Abbie Chase, MD; Nicole Spence, MD; Dominic Pisano, MD



- Case Description:
- 79 y/o man, PMHx HTN, obesity presented after fall from a truck bed resulting in bilateral rib fractures, right hemopneumothorax, thoracic vertebral body fractures, grade II splenic injury
 - Underwent posterior fusion of thoracic vertebrae (**Figure 1**)
 - Post-operative course complicated by severe acute colonic pseudo-obstruction (Ogilvie's syndrome) s/p colectomy complicated by fascial dehiscence and anastomotic leak
 - Return to OR for anastomotic resection and end ileostomy creation (**Figure 2**)
 - Liposomal bupivacaine injected by surgical team

- How We Improved Analgesia:
- Single shot intrathecal morphine injection (200 mcg) at L4 - L5
 - Day after, intrathecal catheter placement with fentanyl-bupivacaine infusion (2ml/hr)

Pain Puzzle

- 79-year-old man
- Fall from truck bed
- Thoracic vertebral body fractures s/p posterior fusion of T5-11
- SICU course c/b severe acute colonic pseudo-obstruction (Ogilvie's syndrome) s/p colectomy c/b leak and dehiscence
- Recent liposomal bupivacaine
- Need to use incentive spirometer
- Need to participate in physical therapy

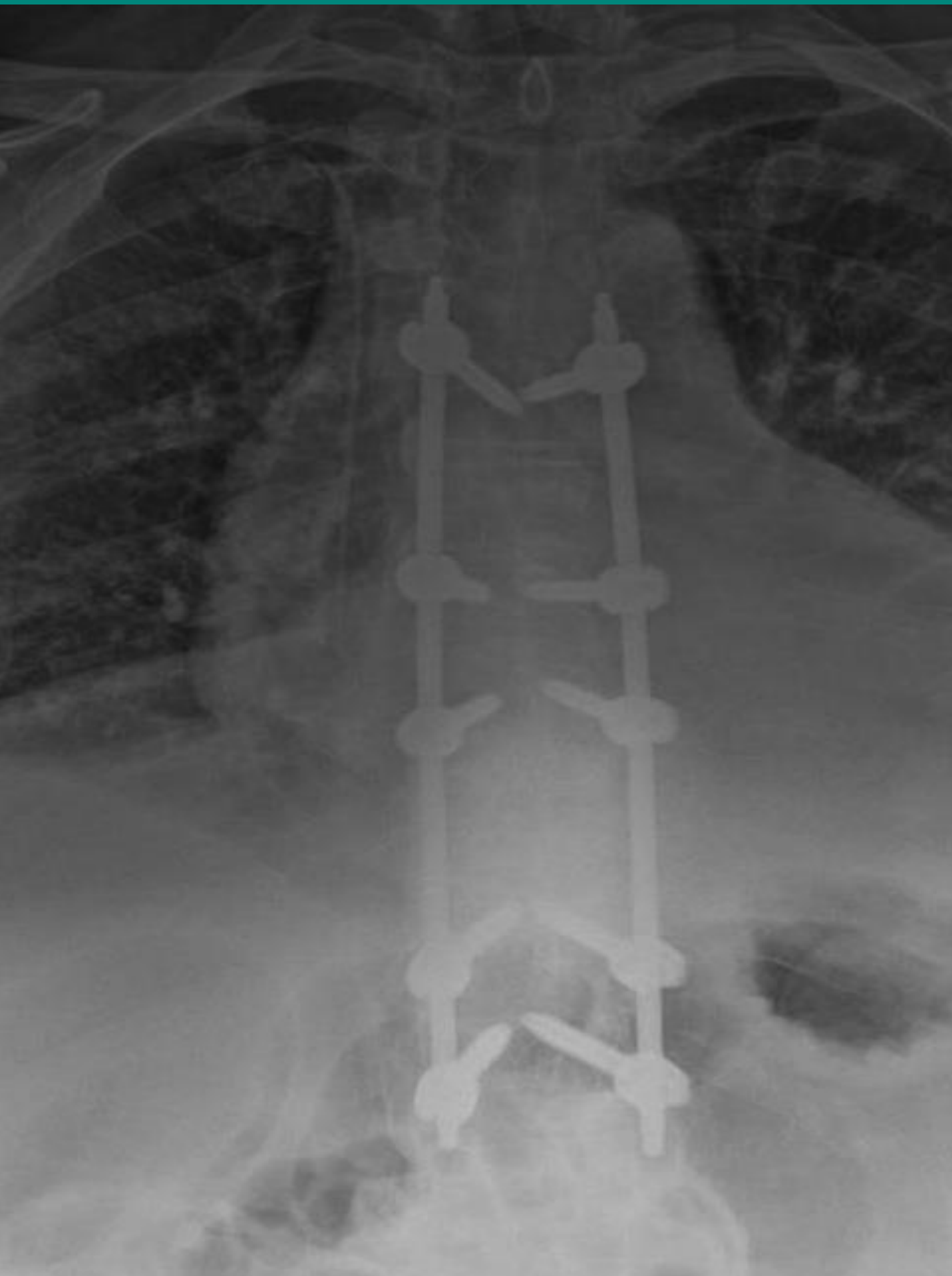


Figure 1. Chest X-Ray with thoracic spinal hardware Postoperative Day 10 following thoracic spinal fusion



Figure 2. Midline abdominal laparotomy incision with red rubber retention suturing

Our Solution

1. Lumbar interspace 4 - 5 intrathecal morphine injection (200 mcg) once
2. Next day, fentanyl-bupivacaine intrathecal infusion (2ml/hr) through catheter (>96 hours since liposomal bupivacaine)



Find the full abstract here

Result:

- Prior to intervention, patient reported pain 10/10 (NRS), followed by improvement of pain to 2/10 after intrathecal morphine injection on POD1.
- Placement of intrathecal catheter with infusion on POD2 continued to provide pain relief and improve involvement in PT/OT.

Discussion:

- **Polytrauma creates unique pain profiles that often limit pain modalities due to trauma burden**
- **Creative pain modalities tailored to patient trauma can decrease hospital stay, improve pain scale, and lead to improvement in involvement in care**