

# Silent Acute Abdomen In Patients With High Spinal Cord Injuries: A Case Study

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## Abstract

This case report describes the presentation of a 70-year old male with asymptomatic gangrenous colonic perforation. The significant history in this patient of an incomplete high spinal cord injury is presumed to have affected his intra-abdominal symptoms. Throughout his whole admission he remained comfortable with no complaints of intra-abdominal pain that would be expected with his pathological process. As a consequence, the diagnosis was difficult to determine clinically and required confirmation by imaging.

## CASE PRESENTATION

A 70-year old male presented to the emergency department with abdominal distension and diarrhea for 8 days. The patient had no abdominal pain and was still tolerating a normal diet. He had no recent sick contact, no recent travel and no recent courses of antibiotics. The patients' vital signs were all within normal limits at presentation. The patients' significant past medical history included an incomplete C3-C5 spinal cord injury 10 years ago which required extensive rehabilitation. He was currently able to mobilise slowly with a walking aide and was able to use all four limbs. Due to the level of injury he routinely self-catheterised to pass urine but generally had no fecal incontinence.

During his admission at the peripheral hospital he had intermittent fevers and episodes of hypotension which were presumed to be secondary to ongoing diarrhea. On day 6 of his admission his abdomen became remarkably distended although non-tender with a small reducible umbilical hernia. The rectal examination was unremarkable. Investigations at this time revealed a WCC of 14.2 and an abdominal x-ray that showed left and right sided colonic distension with air-fluid levels in the colon on the decubitus film. His stool had been tested at the peripheral hospital and was *Clostridium difficile* toxin negative. The decision to transfer to a tertiary center with appropriate surgical coverage was made after an x-ray showing possible large bowel obstruction.

At the tertiary center an abdominal CT was performed which

showed dilated large bowel loops with tapering in the distal sigmoid and a small amount of free fluid. The small bowel was also mildly dilated with an incompetent ileocaecal valve. In addition to this his urine culture was found to have grown *Serratia* for which the patient was started on Gentamicin antibiotics. Despite the CT findings the patient remained clinically well with ongoing diarrhea. During the first 24-hours his WCC and CRP continued to increase with CRP peaking at 346. The patients' abdomen continued to be distended, however despite a persistent low-grade tachycardia the patient had no pain and was often sitting comfortably in bed reading the newspaper. The only difference noted was that the patients' daughter thought he seemed more vague than usual in terms of his cognition. The patient continued to receive IVF therapy for mild dehydration thought to be secondary to the diarrhea that was ongoing. An x-ray was performed to ensure correct NGT placement which showed free air under the diaphragm, however this was thought to be inconsistent with the patients' clinical picture as he was still completely pain free and in no distress. A subsequent CT was performed overnight which confirmed the presence of a large amounts of intra-abdominal free gas.

The patient was taken to theatre in the early morning and the entire colon was found to be gangrenous with multiple areas of perforation. A subtotal colectomy with formation of an ileostomy was performed. The histopathology of the colon showed signs of severe acute colitis with pseudo-membrane

formation and transmural inflammation. There were additional areas of segmental infarction with associated gangrene. There was no evidence of dysplasia or malignancy. The patient recovered well post-operatively with a small period of high output ileostomy and a small superficial wound infection.

### DISCUSSION

The normal visceral and somatic pathways that are involved in the production of symptoms that permit diagnosis may be disrupted in patients with SCI. This concept seems to be true for both symptoms as well as vital signs and even more innate immunological responses. For instance, concept of 'silent sepsis' in high SCI patients was noted by Ohry, and colleagues, when describing patients who presented only with hypothermia, leukopenia and mental deterioration [1]. There are similar reports in the literature demonstrating the need for a different approach to diagnosing acute abdomens in these types of patients' due to the lack of clinical features [1-9]. One study of 12 patients with SCI and acute abdomens found that the diagnosis was often delayed by between 1 to 4 days [2]. This same study noted that the classical signs of abdominal tenderness, rigidity, rebound tenderness, fever and leukocytosis were often not as reliable in these types of patients. Similarly, Miller and colleagues found that the time to diagnosis in 133 patients with previous SCI and abdominal pathology ranged between one day to 3 months [3]. The literature and this case demonstrates the need to have a high index of suspicion and aggressive approach in investigating potential abdominal emergencies in patients with previous SCI.

#### Learning Points:

- Patients with spinal cord injury may not present any of the classical symptoms of acute intra-abdominal emergencies.
- A high index of suspicion and low threshold for imaging should be maintained in spinal cord injury patients that may have potential abdominal pathology.

#### List of Abbreviations:

SCI – Spinal Cord Injury

WCC – White Cell Count

CRP – C-reactive Protein

#### Declaration Sections:

Ethics approval and consent to participate: Ethics approval is not required for a case report by our institutional review board (Hunter New England Health Research Ethics Committee). Consent to participate has been obtained from the patient about which the article is written.

Consent for Publication: Patient consent was sought and obtained with written documentation prior to the patients' initial discharge from the operation. This consent was obtained after clearly explaining that his medical record information would be de-identified and images would be used in a case study publication.

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