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## Case report

# Fever in a paraplegia patient with a pressure ulcer

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### ABSTRACT

The incidence rates of pressure ulcers (PUs) in patients with SCI in the United States varies by clinical setting, ranging from 0.4%–38% in acute care, 2.2%–23.9% in long-term care, and 0%–17% in home care [1,2]. Unrelieved pressure is the most important factor in the development of PUs. Other factors associated with PUs in patients with SCI include age at the time of injury, men, blacks, completeness of the injury, functional dependence, behavioral protective factors such as frequent pressure relief, self-positioning, daily skin monitoring, nutritional state, cigarette smoking, alcohol (ab)use, and being depressed [3]. Presence of PUs affects functional physical outcomes; thus, prevention of PUs is the key [4]. Infection is a common complication of PUs which can be local such as cellulitis or osteomyelitis or systemic such as septicemia with a greater than 50% mortality. We present a case of a 58-year-old paraplegic man with pressure ulcer who presented with fever in the presence of an osteomyelitis and had a pelvic abscess on magnetic resonance imaging which needed surgical drainage.

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## Introduction

The presence of a fever, defined as elevation of core body temperature at or above 37.7°C, is common after a spinal cord injury (SCI), with incidence ranging from 38.5%–71.7% and a mean incidence of 48.9% [5]–[6]. Patients with traumatic SCI are at increased risk of fever if they have cervical and thoracic level injury and the injury is complete. This is due to thermoregulatory abnormalities from dysfunction of the autonomic system [7]. Other causes of fever include infections (urinary tract, pulmonary, upper respiratory tract, soft tissues, gastrointestinal, and spinal abscess), deep venous thrombosis, pulmonary embolism, colitis, heterotopic ossification, and

drug fevers. However, the urinary tract infection is the most common identifiable cause of fever [8]–[9].

## Case report

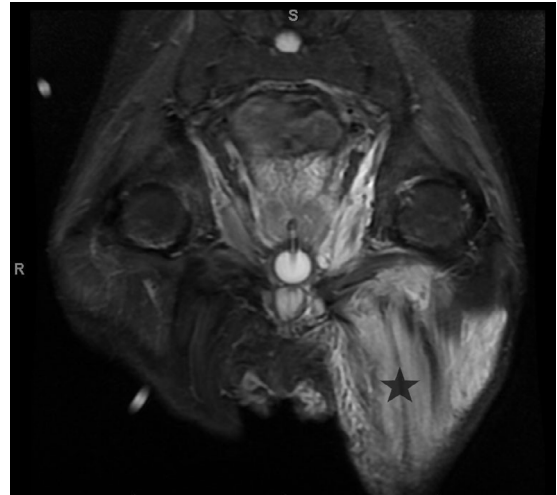
A 58-year-old man with a history of paraplegia with neurogenic bowel and bladder after a motor vehicle accident (T10, AIS A (American Spinal Injury Association Impairment Scale) presents to the emergency department with a 2 weeks' history of low-grade fever, weight loss and increasing frequency of painful spasms in both legs. On evaluation he had a temperature of 100°F and stage 4 pressure ulcers on both glutei.

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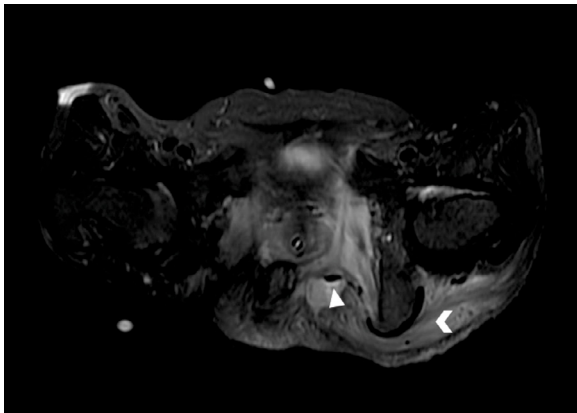
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**Fig. 1 – Stage 4 pressure ulcers on both gluteal, with left gluteal pressure ulcer has a necrotic base.**



**Fig. 3 – Thigh magnetic resonance imaging shows extensive edema of the thigh muscles (black star).**



**Fig. 2 – Pelvic magnetic resonance imaging shows A Ischio-rectal abscess (white arrow head), osteomyelitis of ischial tuberosity and pelvic wall edema (white chevron).**



**Fig. 4 – Stage 4 Right gluteal pressure ulcers after debridement.**

The left gluteal pressure ulcer was 6.5 × 4.5 cm, depth 1.8 cm with a necrotic base with a foul-smelling discharge (Fig. 1) while the right gluteal pressure ulcer was clean and healed. Pelvic magnetic resonance imaging showed osteomyelitis of the left ischial tuberosity, an adjacent soft tissue abscess within the ischio-rectal fossa (Fig. 2), with extensive edema of the soft tissues and musculature of the left buttock with extension into the presacral space, retroperitoneum, left pelvic sidewall, and inferiorly along the posterior musculature of the left thigh (Figs 2 and 3). Blood work-up showed a WBC count of 20.5 K/cmm (N: 4.5-11 K/cmm), CRP 130 mg/L (N: 0-3 mg/L), Sed rate 100 mm/Hr (N: 0-15 mm/Hr), serum albumin 2.5 gm/dL (N: 3.3-4.8 gm/dl), and urine showed WBC 35/HPF (N: 0-5/HPF). Blood culture grew gram positive cocci while urine culture and sensitivity grew *Klebsiella oxytoca*. The patient was started on IV antibiotics (vancomycin and ertapenem) based on the culture and sensitivity report and then underwent surgical debridement of the pressure ulcer and drainage of the abscess under general anesthesia (Fig. 4). The patient had a wound vac placed while awaiting skin flap

on completion of 8-weeks of IV antibiotics and nutritional build-up.

## Discussion

This case highlights the need for physicians taking care of SCI patients who present with fever that prompt diagnosis is crucial and entails combination of clinical, diagnostic, and as in this case magnetic resonance imaging of the pressure ulcer site to help delineate the presence of underlying wound infection (osteomyelitis) but also the presence of any pelvic abscess which could have been easily overlooked. Animal and human studies of SCI with fever have shown delayed diagnosis leads to (1) impaired functional outcome with exacerbation of tissue damage [10]·[11], and (2) poor health status outcomes such as increase rates of hospitalization, prolong hospital stay, cost of care, with increased mortality rates [12]·[13].

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## Author contributions

Dr. Meheroz H. Rabadi - Study concept and design, Data acquisition, Analysis and interpretation, Write-up of the manuscript for intellectual content, Study supervision.

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## Patient consent

Patients consent could not be obtained as patient passed away from covid-19 pneumonia while hospitalized.

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## Declaration of Competing Interest

There is no conflict of interest.

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