Case Report

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Diagnostic Approach and Therapeutic Interventions in Ogilvie Syndrome in Burn Patients: A Report of Two Clinical Cases

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ABSTRACT

Ogilvie Syndrome, also known as acute colonic pseudo-obstruction (ACPO), is a rare condition characterized by the acute dilation of the colon without any obvious mechanical obstruction. It is most commonly seen in critically ill patients with severe underlying conditions. Its occurrence in burn patients is rare, yet significant, given the clinical challenges it presents. We present two cases of Ogilvie Syndrome in burn patients. The first patient was a 63-year-old male who sustained third-degree burns over 40% of his total body surface area (TBSA). On day 12 post-burn, he developed significant abdominal distension, and imaging confirmed severe cecal dilation (15 cm in diameter). The diagnosis of Ogilvie Syndrome was made, and initial treatment included nasogastric tube insertion, electrolyte correction, and discontinuation of opioids and other motility-inhibiting medications. After a partial response to intravenous neostigmine, a therapeutic colonoscopy was performed, which successfully relieved the gas buildup and led to a marked improvement in the patient's condition within two days. The second patient, a 45-year-old female, presented with second or third-degree burns covering 30% TBSA. On day 10 post-burn, she developed mild abdominal distension and vague abdominal pain. Imaging confirmed cecal dilation of 16 cm. Treatment was initiated with nasogastric decompression, oral laxatives, intravenous neostigmine, and electrolyte correction. Within three days, her condition significantly improved, and no invasive procedures were required. Both cases highlight the effectiveness of supportive care, electrolyte management, and pharmacological treatments such as neostigmine in facilitating recovery. The main takeaway is the necessity for vigilant monitoring of burn patients, particularly those at high risk for Ogilvie Syndrome, and the importance of early, appropriate interventions to ensure better patient outcomes.

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Introduction

Ogilvie Syndrome, also known as acute colonic pseudo-obstruction (ACPO), is characterized by the acute dilation of the colon, typically affecting the cecum, without mechanical obstruction [1]. This syndrome most commonly occurs in critically ill patients, particularly those with severe underlying conditions or those following major surgical procedures. It has been sporadically reported in burn patients, with an incidence in intensive care units ranging from 0.5% to 1%. Despite being rare, the development of Ogilvie Syndrome in burn patients presents a significant clinical challenge due to the high-risk nature of these individuals [2].

Burn patients represent a distinct population in whom gastrointestinal dysfunction may substantially complicate critical care management. Extensive thermal injury induces a systemic inflammatory response, catecholamine surge, prolonged immobilization, aggressive fluid resuscitation, electrolyte disturbances, and frequent exposure to opioid analgesics, all of which may impair autonomic regulation and gastrointestinal motility. Development of Ogilvie Syndrome in this setting may interfere with enteral nutrition, delay wound healing and rehabilitation, prolong intensive care unit stay, and increase morbidity. Therefore, recognizing acute colonic pseudo-obstruction in burn patients carries particular clinical importance beyond its occurrence in the general critically ill population [1-3].

The pathophysiology of Ogilvie Syndrome remains unclear, but contributing factors may include opioid use, electrolyte disturbances, and the stress associated with severe burn injuries. Delayed diagnosis and treatment can lead to severe complications, including cecal perforation and sepsis, which can worsen patient prognosis significantly [3].

In burn patients, delayed recognition of Ogilvie Syndrome may have consequences extending beyond bowel dysfunction. Progressive colonic dilation can compromise nutritional support, worsen metabolic stress, increase intra-abdominal pressure, impair respiratory mechanics, and predispose patients to bowel ischemia, perforation, systemic infection, and deterioration of burn recovery. These complications may ultimately interfere with essential burn management priorities, including wound care, fluid balance, and early mobilization [4].

This case report discusses two patients who developed Ogilvie Syndrome following severe thermal injuries, contributing further to the limited literature on this rare but critical condition in burn patients.

Case Presentation

The first patient was a 63-year-old male with a history of coronary artery disease (CAD), who was admitted to the burn unit on April 13, 2018, following a severe thermal injury. He had sustained third-degree burns over approximately 40% of his total body surface area (TBSA), primarily involving his chest and abdomen. His condition was complicated by significant cardiovascular comorbidities, which included hypertension and ischemic heart disease, making him a high-risk patient. At the time of admission, he was administered standard burn care, including intravenous fluids and opioid analgesics for pain management. On day 12 post-burn (May 5, 2018), the patient developed severe abdominal distension. Physical examination revealed a distended, tympanic abdomen with decreased or absent bowel sounds, and no rebound tenderness or guarding on palpation. His general condition was stable, with a normal level of consciousness and no significant respiratory compromise.

Diagnostic imaging, including an abdominal X-ray and ultrasound on May 6, 2018, revealed marked cecal dilation, approximately 15 cm in diameter, consistent with Ogilvie Syndrome (Figure 1). No mechanical obstruction or masses were observed, and the colon appeared distended from the cecum to the rectum. Blood tests indicated elevated D-dimer levels, suggesting a systemic inflammatory or thrombotic process. Given the clinical findings, the diagnosis of acute colonic pseudo-obstruction was made.

The patient was started on supportive care, including nasogastric tube placement for gastric decompression, electrolyte correction (especially sodium and potassium due to the observed hyponatremia and hypokalemia), and discontinuation of motility-inhibiting medications such as opioids. Despite initial treatment, the patient showed partial improvement with intravenous neostigmine (2 mg), but further management was needed. On May 12, 2018, the patient underwent a therapeutic colonoscopy, which successfully relieved the gas accumulation, and he experienced significant clinical improvement. His bowel motility returned to normal within two days of the procedure, and he was discharged from the intensive care unit after stabilization. Follow-up tests, including blood cultures and urinalysis, showed no signs of systemic infection or sepsis, although his creatinine levels remained slightly elevated, suggesting early renal compromise. Management decisions

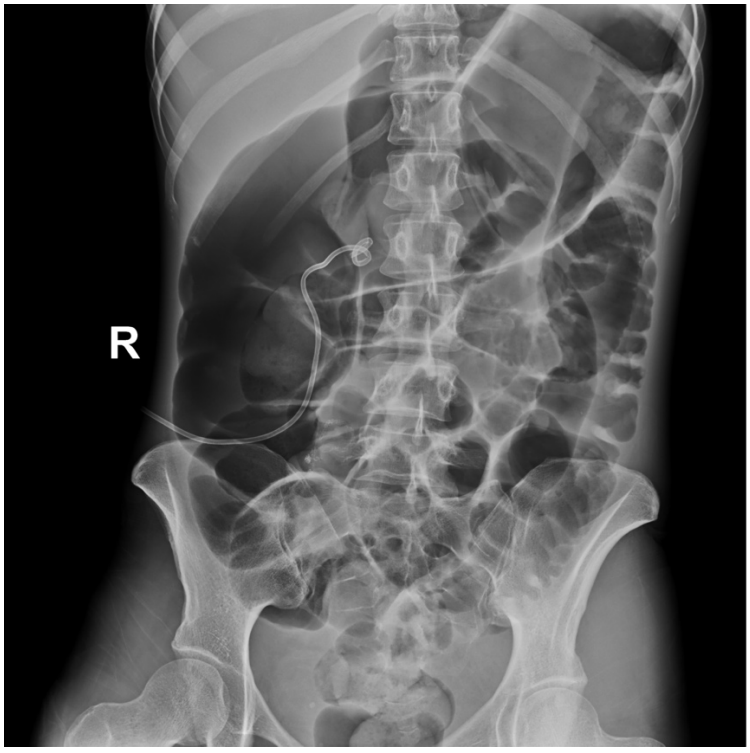

Fig. 1. Abdominal X-ray with marked cecal dilation, consistent with Ogilvie Syndrome

in this patient required balancing gastrointestinal recovery with ongoing burn treatment priorities. Fluid administration was carefully monitored because excessive fluid replacement could aggravate bowel edema and abdominal distension, whereas inadequate resuscitation could compromise tissue perfusion and burn recovery. Additionally, reduction of opioid exposure to improve gastrointestinal motility had to be weighed against adequate analgesia requirements for burn care.

In the second case, the patient was a 45-year-old female who was admitted to the burn unit due to second- or third-degree burns covering 30% of her TBSA, predominantly on her lower body. Her burn injuries were less severe than the first patient's, and she had no significant comorbidities, making her a relatively lower-risk patient. The patient was stable upon admission, receiving standard burn care, intravenous fluids, and analgesics. Ten days after admission (April 23, 2018), she developed mild abdominal distension and vague abdominal pain. Her vital signs were stable, and she was alert and oriented. On examination, her abdomen was mildly distended, and slight discomfort was noted on palpation, but there was no significant guarding or rebound tenderness. Bowel sounds were reduced.

Abdominal X-ray confirmed cecal dilation, approximately 16 cm in diameter, with no evidence of mechanical obstruction. Based on these findings, the diagnosis of Ogilvie Syndrome was made (Figure 2). Treatment was initiated with nasogastric decompression, oral laxatives, and intravenous neostigmine. Electrolyte imbalances, particularly hypokalemia, were corrected as part of the management. Given the coexistence of burn injury and gastrointestinal dysfunction, supportive management emphasized maintenance of adequate hydration while avoiding unnecessary fluid overload. Pain management strategies were also reassessed to minimize opioid-related impairment of bowel motility without compromising patient comfort.

Within three days, the patient showed significant clinical improvement, and her abdominal distension resolved without the need for invasive interventions such as colonoscopy. The patient was closely monitored for complications, including sepsis and renal dysfunction, but no adverse events were noted during the hospital stay.

Discussion

Ogilvie Syndrome, while relatively rare, is increasingly recognized in critically ill patients, particularly those with significant comorbidities, including cardiovascular disease, trauma, and after major surgeries [5]. In burn patients, the occurrence of Ogilvie Syndrome presents unique challenges due to

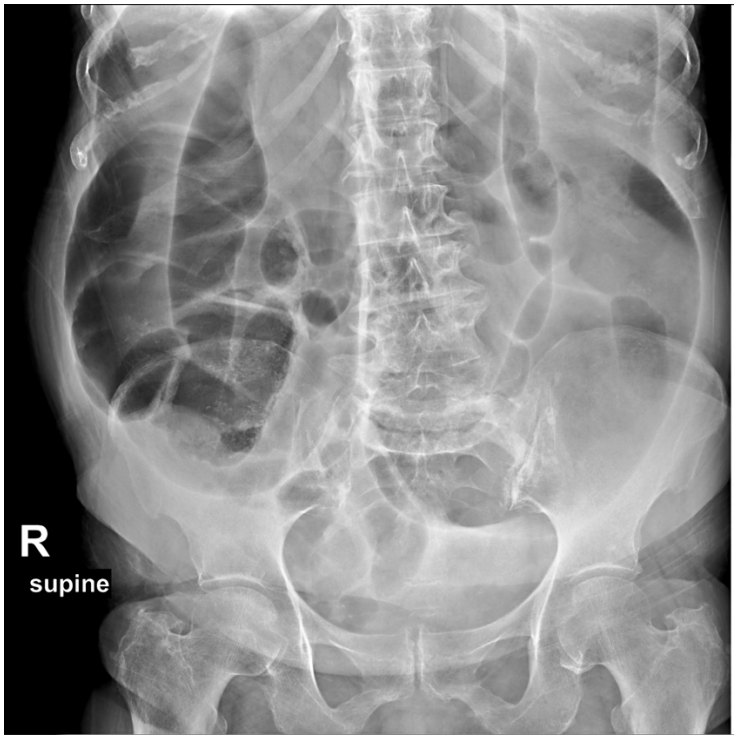

Fig. 2. Abdominal X-ray confirmed cecal dilation, approximately 16 cm in diameter

the complex interplay between burn-related stress, medications, and electrolyte disturbances [6]. The patients in this case report highlight the critical role of early recognition and treatment in preventing severe complications such as cecal perforation, sepsis, and death [7].

As evidenced by this case, several factors likely contributed to the development of Ogilvie Syndrome in these burn patients [8]. In the first patient, his advanced age, history of coronary artery disease, and opioid use for pain management may have played a significant role in the development of colonic pseudo-obstruction [9]. Studies have shown that 95% of Ogilvie Syndrome cases are linked to underlying medical or surgical conditions, and burn patients often face additional risks due to systemic inflammatory responses and medications that inhibit gut motility [10].

These factors, combined with the stress response following extensive burn injuries, can result in delayed gastric and colonic motility, leading to the development of Ogilvie Syndrome [11]. Management of Ogilvie Syndrome in burn patients requires consideration of challenges that are less prominent in other patient populations. Burn resuscitation protocols often necessitate careful fluid administration, yet excessive fluid exposure may contribute to bowel wall edema and aggravate gastrointestinal dysfunction. Furthermore, opioid analgesics remain fundamental for burn-related pain control but may worsen intestinal hypomotility. Although neostigmine is considered an effective pharmacologic treatment for acute colonic pseudo-obstruction, its cholinergic adverse effects—including bradycardia, increased secretions, and potential hemodynamic instability—require close monitoring in critically ill burn patients who frequently exhibit altered cardiovascular physiology. Consequently, treatment decisions should balance decompression strategies with preservation of adequate analgesia, nutritional support, and burn recovery [8-10].

In contrast, the second patient, who had fewer comorbidities, experienced a milder form of Ogilvie Syndrome and responded well to supportive care and non-invasive treatment, underscoring the importance of individualized management [12]. This highlights a significant strength of this case report: it demonstrates how Ogilvie Syndrome can vary in severity depending on patient characteristics and underscores the importance of personalized treatment plans in critically ill patients [13].

The diagnostic approach in both cases, involving imaging techniques such as abdominal X-rays and CT scans, was crucial in differentiating Ogilvie Syndrome from mechanical bowel obstructions [14]. This distinction is vital, as the management strategies for

these conditions differ significantly. Initial treatment with nasogastric decompression, electrolyte correction, and discontinuation of motility-inhibiting drugs is well-established as the first-line approach [15]. The use of neostigmine, a cholinergic agent, was successful in both cases, but as seen in the first patient, further interventions such as therapeutic colonoscopy were necessary to achieve complete resolution [16]. The success of colonoscopy in relieving gas accumulation is consistent with reports indicating that therapeutic colonoscopy can be highly effective when the cecum is severely distended [17].

Despite these successful outcomes, there are limitations to this case report. The relatively small sample size (only two patients) limits the generalizability of the findings, and there is a need for further studies to explore the effectiveness of different management strategies for Ogilvie Syndrome in burn patients [18]. Additionally, the lack of detailed information on the patients' nutritional status, wound healing progress, and long-term follow-up outcomes leaves some unanswered questions about the full scope of recovery [19].

Ogilvie Syndrome in burn patients is uncommon but clinically significant, because it can complicate nutritional support, prolong critical care management, and increase the risk of gastrointestinal and systemic complications. These cases emphasize that abdominal distension in burn patients should not be attributed solely to ileus or routine critical illness. Early diagnostic evaluation and prompt intervention are essential to prevent progression to ischemia, perforation, and sepsis. Management should remain individualized and account for burn-specific considerations, including fluid balance, opioid requirements, and close monitoring during pharmacologic decompression. Increased awareness among burn and critical care teams may facilitate earlier recognition and improved outcomes.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to address in this article.

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Conflict of Interests

The authors have no conflict of interest to declare.

Informed Consent

Informed consent for publication of this case report has been obtained from the patient and is available upon request.

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