

Original Article

Ogilvie's syndrome following posterior spinal instrumentation in thoraco lumbar trauma

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Abstract

Objectives: To report unique cases of Ogilvie's syndrome (acute intestinal pseudo-obstruction) following posterior spinal instrumentation in thoraco lumbar trauma. **Materials and Methods:** A single centre retrospective study. We reviewed the surgical data of 420 patients who underwent thoracolumbar spinal surgery over a period of four years. Two patients who developed post operative Ogilvie's syndromes were identified. **Results:** The clinical presentation and blood investigations ruled out any infectious pathology. Computed tomography scans ruled out the mechanical obstruction. All patients improved with conservative management. **Conclusion:** Ogilvie's syndrome should be considered as a differential diagnosis in patients with postoperative significant abdominal distension who had undergone posterior instrumentation for spinal trauma. Early recognition and appropriate conservative treatment would be necessary to prevent complications such as bowel ischemia and perforation.

Key words: Acute intestinal pseudo-obstruction, ileus, Ogilvie's syndrome, posterior spinal instrumentations, spine fracture

INTRODUCTION

Ogilvie's syndrome was first described by Sir William Heneage Ogilvie in 1948. Ogilvie's syndrome presents with symptoms, sign and radiographic appearance of acute large bowel obstruction of non-mechanical etiology. The clinical features include abdominal distension and pain (80%), as well as nausea with or without associated vomiting (60%). Tympanic abdomen, although bowel sounds are preserved in almost 90% of patients. Plain abdominal X-ray and computed tomography show varying degrees of colonic dilatation. The reason, it develops in patients of

posterior spinal instrumentation is unknown. Interruption of the parasympathetic fibers from S2 to S4 level after spinal trauma or corrective spinal surgery, spinal anesthesia, and pharmacological agents leads to impairment of the autonomic nervous system. A kind of imbalance between sympathetic and parasympathetic stimulation, an atonic distal colon, and a functional proximal obstruction, if left untreated can result in bowel ischemia and perforation with an estimated mortality rate of 40%.^[1-5]

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MATERIALS AND METHODS

Retrospective analysis of single center surgical data of patients undergoing thoracolumbar instrumented spinal fusion from January 2010 to December 2013. Of the 420 patients who had undergone thoracolumbar spine surgery, two patients developed postoperative Ogilvie's syndrome. First had burst fracture (Type C) of T-12 vertebrae with kyphosis [Figure 1], second with Type B fracture L-1 vertebrae and split fracture of L-5 vertebrae [Figure 2]. Both patients were neurologically preserved with intact bowel and bladder function. Both patients underwent posterior instrumented spine surgery within 48 h. In addition, transpedicular grafting was done for the first patient [Figures 3 and 4]. On the second postoperative day, both patients developed significant abdominal distension and abdominal pain. On examination, abdomens were firm, and bowel sounds were absent with tympanic abdomen. Laboratory values were within normal limits. Computed tomography scan was done for both patients on the same day, which demonstrated dilation of the large

intestine [Figures 5 and 6]. Gastromedicine consultation was sought, and both patients were diagnosed to have Ogilvie's syndrome. Both patients were kept nil per orally (NPO) with serial measurement of abdominal girth and serum electrolytes monitoring. Bowel decompression with Ryle's tube and flatus tube were done with the maintenance of adequate hydration. The abdominal distention and symptoms improved in 4 days, and both were discharged on day 7.

RESULTS

Both patients did not have any significant abdominal problems during the 2 years follow-up period.

DISCUSSION

Ogilvie syndrome is an unusual complication following thoracolumbar burst fractures. The exact incidence is unknown. The diagnosis of Ogilvie's syndrome is mainly based on clinical symptoms and sign, natural history and radiology, It manifests in patients with predisposed medical and surgical conditions like



Figure 1: X-ray showing burst fracture of a D12 vertebra with kyphosis of the first patient

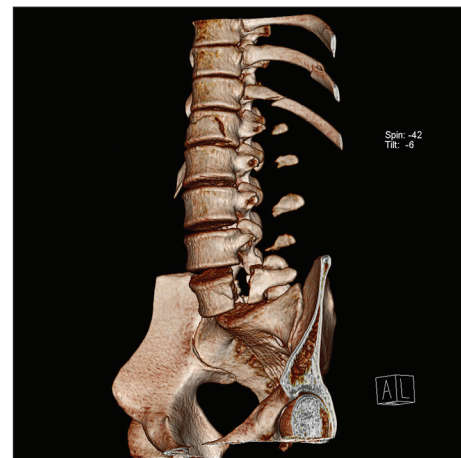


Figure 2: Three-dimensional computed tomography image showing Type B fracture L1 vertebrae and split fracture of L5



Figure 3: Postoperative X-ray of a first patient showing posterior instrumentation with kyphosis correction with trans pedicular grafting



Figure 4: Postoperative X-ray of second patient showing posterior instrumentation



Figure 5: Computed tomography scan of first patient showing dilated intestinal loops

spinal trauma.^[1,6] Ogilvie's syndrome should be considered as a differential diagnosis in postoperative spinal instrumentation patients presenting with unexplained abdominal distension can often be managed by conservative therapy.^[2] However, unrecognized and untreated distension associated with Ogilvie's syndrome can lead to perforation that is associated with a high mortality rate, early diagnosis and fomentation of conservative management can prevent major morbidity and mortality.^[3] Ogilvie's syndrome often associated with operative procedures including cesarean section, abdominal, and pelvic surgery, urologic/thoracic/neurosurgical and coronary bypass procedures.^[7,8] It has been reported following hip and knee surgery, as well as after lumbar or cervical spine operations like discectomy.^[9-13] Neurological conditions and the use of medication such as opioids calcium channel blockers and anticholinergic can also precipitate Ogilvie's syndrome.^[5]

Posterior spinal corrective surgeries for scoliosis is often associated with abdominal complications such as superior mesenteric artery syndrome and paralytic ileus. There are evidences available for the development of Ogilvie syndrome in spinal trauma patients postoperatively, but still the diagnosis of Ogilvie syndrome is an exclusion.^[3]

Pathology of acute intestinal obstruction without mechanical obstruction is not clear, but persistent and increasing intestinal dilatation of intestine will eventually lead to bowel ischemia and perforation.^[5]

Various intestinal diseases has to be ruled out before making the diagnosis of Ogilvie's syndrome such as acute megacolon, acute mesenteric ischemia, chronic constipation, diverticulitis, hirschsprung disease, intestinal perforation, mechanical colonic obstruction, toxic megacolon, fecal impaction, and tumors. Patients with mechanical obstruction will present with crampy abdominal pain; but the absence of pain with opiates treatment does not rule out the mechanical obstruction. Toxic megacolon patients appear very ill with fever tachycardia and abdominal tenderness with a history of bloody diarrhea.

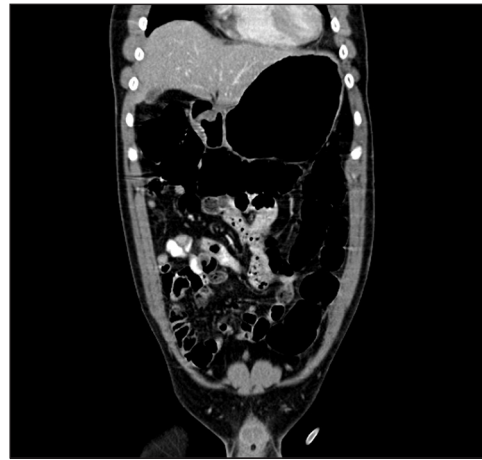


Figure 6: Computed tomography scan of second patient showing dilated intestinal loops

Electrolyte monitoring is a necessity. Computer tomography scan was done for both of our patients keeping in mind to rule out tumors, cecal and sigmoid volvulus, perforation, peritonism, ischemia, obstruction, and toxic megacolon.^[14]

Neostigmine, a parasympathomimetic, is an anticholinesterase, and acts to increase the acetylcholine concentration at the synapses. In this case, neostigmine's action is directed at the imbalance in sympathetic- parasympathetic activity. Maloney and Vargas in their trial, first used guanethidine, followed by neostigmine. The improvement was noted following administration of neostigmine, proving that the pseudo-obstruction arises from parasympathetic underactivity rather than sympathetic overactivity.

Early diagnosis and fomentation of conservative management, with removal of precipitating factors after excluding mechanical obstruction, is the key factor for successful outcome and prevention of development of colonic ischemia and perforation, and reduces the need for surgical intervention.

NPO, electrolyte balancing, maintaining adequate hydration, nasogastric decompression, flatus tube (rectal tube) to decompress distal bowel, discontinuing the opiates, spirometry and frequent change of posture in bed were instigated as a conservative management. The success rate is as high as 96% with conservative management.^[15,16] An analysis of 1027 cases reported in the literature concluded that a nonoperative approach (including conservative measures and colonoscopic decompression as the initial therapy of choice) was associated with few complications and high efficacy.^[17] Delay in diagnosis leads to bowel ischemia and require laparotomy and resection of a large section of bowel that may be detrimental for the patient.^[3] A higher rate of perforation reported with a cecal diameter of 12 cm or more when the distension persisting for more than 6 days.^[18] Several studies have documented mean durations of conservative management ranging from 3 days to 6.5 days and have reported even longer periods if clinical signs of perforation were absent, and cecal diameters were <9 cm.^[19-21] Surgical intervention is required only when signs of bowel

ischemia or perforation were present and not responding to conservative management.

In our patients, no pharmacological agents were instigated. Both patients had early instrumented spine surgery within 48 h of spinal trauma. Surgical exploration was not required for both patients, and they recovered successfully in 5 days. We recommend that Ogilvie's syndrome should be considered as a differential diagnosis in patients with postoperative significant abdominal distension who had undergone posterior instrumentation for spinal trauma. Early recognition and appropriate conservative treatment would be necessary to prevent complications such as bowel ischemia and perforation.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Vanek VW, Al-Salti M. Acute pseudo-obstruction of the colon (Ogilvie's syndrome). An analysis of 400 cases. *Dis Colon Rectum* 1986;29:203-10.
2. Maloney N, Vargas HD. Acute intestinal pseudo-obstruction (Ogilvie's syndrome). *Clin Colon Rectal Surg* 2005;18:96-101.
3. Tsirikos AI, Sud A. Ogilvie's syndrome following posterior spinal arthrodesis for scoliosis. *Indian J Orthop* 2013;47:408-12.
4. Ogilvie WH. William Heneage Ogilvie 1887-1971. Large-intestine colic due to sympathetic deprivation. A new clinical syndrome. *Dis Colon Rectum* 1987;30:984-7.
5. Saunders MD, Kimmey MB. Ogilvie's syndrome. *Evidence Based Gastroenterology and Hepatology*, 2nd ed. Malden, USA, Blackwell Publishing; 2004. p. 303-9.

6. De Giorgio R, Cogliandro RF, Barbara G, Corinaldesi R, Stanghellini V. Chronic intestinal pseudo-obstruction: Clinical features, diagnosis, and therapy. *Gastroenterol Clin North Am* 2011;40:787-807.
7. Saha AK, Newman E, Giles M, Horgan K. Ogilvie's syndrome with caecal perforation after Caesarean section: A case report. *J Med Case Rep* 2009;3:6177.
8. Guler A, Sahin MA, Atilgan K, Kurkluoglu M, Demirkilic U. A rare complication after coronary artery bypass graft surgery: Ogilvie's syndrome. *Cardiovasc J Afr* 2011;22:335-7.
9. Feldman RA, Karl RC. Diagnosis and treatment of Ogilvie's syndrome after lumbar spinal surgery. Report of three cases. *J Neurosurg* 1992;76:1012-6.
10. Caner H, Bavbek M, Albayrak A, Altinörs TC. Ogilvie's syndrome as a rare complication of lumbar disc surgery. *Can J Neurol Sci* 2000;27:77-8.
11. Cakir E, Baykal S, Usul H, Kuzeyli K, Cinel A. Ogilvie's syndrome after cervical discectomy. *Clin Neurol Neurosurg* 2001;103:232-3.
12. Nelson JD, Urban JA, Salsbury TL, Lowry JK, Garvin KL. Acute colonic pseudo-obstruction (Ogilvie syndrome) after arthroplasty in the lower extremity. *J Bone Joint Surg Am* 2006;88:604-10.
13. Reverdy D, Gebhart M, Kothonidis K, Gallez J, De Becker D, Liberale G. Pseudo-colonic obstruction after lumbar spine surgery: A case report. *Acta Orthop Belg* 2006;72:769-71.
14. Macari M, Spieler B, Babb J, Pachter HL. Can the location of the CT whirl sign assist in differentiating sigmoid from caecal volvulus? *Clin Radiol* 2011;66:112-7.
15. Fausel CS, Goff JS. Nonoperative management of acute idiopathic colonic pseudo-obstruction (Ogilvie's syndrome). *West J Med* 1985;143:50-4.
16. Sloyer AF, Panella VS, Demas BE, Shike M, Lightdale CJ, Winawer SJ, et al. Ogilvie's syndrome. Successful management without colonoscopy. *Dig Dis Sci* 1988;33:1391-6.
17. Wegener M, Börsch G. Acute colonic pseudo-obstruction (Ogilvie's syndrome). Presentation of 14 of our own cases and analysis of 1027 cases reported in the literature. *Surg Endosc* 1987;1:169-74.
18. Johnson CD, Rice RP, Kelvin FM, Foster WL, Williford ME. The radiologic evaluation of gross cecal distension: Emphasis on cecal ileus. *AJR Am J Roentgenol* 1985;145:1211-7.
19. Alwan MH, van Rij AM. Acute colonic pseudo-obstruction. *Aust N Z J Surg* 1998;68:129-32.
20. Bachulis BL, Smith PE. Pseudo-obstruction of the colon. *Am J Surg* 1978;136:66-72.
21. Tenofsky PL, Beamer L, Smith RS. Ogilvie syndrome as a postoperative complication. *Arch Surg* 2000;135:682-6.