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Unraveling the Enigma of Ogilvie Syndrome's Acute Colonic Pseudo-Obstruction Complicated with Multiple Comorbidities: A Case Report

Çoklu Komorbiditelerle Karmaşıklaşan Akut Kolonik Psödo-obstrüksiyonlu Ogilvie Sendromunun Gizemini Çözmek: Bir Olgu Sunumu

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ABSTRACT

Ogilvie syndrome, an uncommon condition characterized by acute colonic pseudo-obstruction. This presents unique diagnostic and management challenges. It is particularly difficult because it usually occurs in patients with a complicated medical history and is associated with variable outcomes.

A 61-year-old gentleman with cervical fracture-induced paraplegia, gastritis, and hemorrhoids presented with a distinct manifestation of Ogilvie syndrome. The patient presented with symptoms of abdominal distension, fever, shortness of breath, and a 2-week history of no bowel movements. The presence of comorbidities and the common occurrence of constipation complicate the diagnostic process. Radiological imaging revealed extensive colonic dilation from the cecum to rectosigmoid junction. The patient's management included a conservative approach involving intravenous fluids, intermittent aspiration, antibiotic therapy, and vigilant monitoring. As a result, the patient displayed improved clinical parameters, reduced abdominal distension, and gradual return of bowel function. However, the patient's intricate medical history continues to pose ongoing challenges, necessitating long-term follow-up. Previous cases of Ogilvie syndrome were retrieved from PubMed to characterize the clinicopathological features and identify prognostic factors of Ogilvie syndrome.

This case highlights clinical acumen in distinguishing Ogilvie syndrome, which presents symptoms of acute emergency abdomen and intestinal obstruction, as opposed to constipation with chronic and non-specific abdominal discomfort.

Keywords: Ogilvie's syndrome, acute colonic, pseudo-obstruction, paraplegia, multiple comorbidities, case report

ÖZ

Ogilvie sendromu, akut kolonik psödo-obstrüksiyon ile karakterize nadir bir durumdur. Bu durum, tanı ve yönetim açısından özel zorluklar sunar. Genellikle karmaşık tıbbi öyküsü olan hastalarda görüldüğü ve değişken sonuçlarla ilişkili olduğu için tanısı zordur.

Servikal kırığa bağlı parapleji, gastrit ve hemoroid öyküsü olan 61 yaşındaki erkek hasta, Ogilvie sendromunun belirgin bir klinik tablosu ile başvurdu. Hasta, karın şişliği, ateş, nefes darlığı ve iki haftadır dışkılamama şikayetleri ile başvurdu. Komorbiditelerin varlığı ve kabızlığın sık görülmesi tanı sürecini zorlaştırmaktadır. Radyolojik görüntülemede, çekumdan rektosigmoid bileşkeye kadar uzanan yaygın kolonik dilatasyon saptandı. Hastanın tedavisi; intravenöz sıvılar, aralıklı aspirasyon, antibiyotik tedavisi ve dikkatli izlem içeren konservatif bir yaklaşımı içerdi. Sonuç olarak, hastanın klinik parametrelerinde iyileşme, karın şişliğinde azalma ve bağırsak fonksiyonlarının kademeli olarak geri dönmesi gözlendi. Ancak hastanın karmaşık tıbbi geçmişi, uzun dönem takip gerektiren sürekli zorluklar oluşturmaya devam etmektedir.

PubMed'den daha önce bildirilen Ogilvie sendromu vakaları taranarak sendromun klinikopatolojik özellikleri ve prognostik faktörleri belirlenmiştir.

Bu olgu, Ogilvie sendromunun tanısında klinik sezginin önemini vurgulamakta; akut karın ve bağırsak tıkanıklığı belirtileriyle kendini gösteren bu acil durumu, kronik ve özgül olmayan karın rahatsızlıkları ile seyreden kabızlıktan ayırt etmenin gerekliliğine dikkat çekmektedir.

Anahtar Sözcükler: Ogilvie sendromu, akut kolonik, psödo-obstrüksiyon, parapleji, çoklu komorbiditeler, olgu sunumu

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INTRODUCTION

Massive colonic dilatation without mechanical blockage serves as a characteristic hallmark of Ogilvie syndrome, alternatively referred to as acute colonic pseudo-obstruction, which is an uncommon and challenging gastrointestinal illness (1,2). We present the case of a 61-year-old Malay male patient who developed Ogilvie syndrome alongside multiple underlying conditions, including a cervical fracture with paraplegia, gastritis, and hemorrhoids. This case sheds light on the complex interplay between the underlying health issues and other factors, and highlights the challenges in diagnosing and managing this condition (2).

Ogilvie syndrome often mimics mechanical colonic obstruction, making its diagnosis particularly challenging (3,4). Considering the patient's medical history and presenting clinical symptoms, this case report is significant due to the difficulty in teasing out the diagnosis in the context of constipation due to paraplegia. This also highlights the importance of a multidisciplinary approach for managing such cases. This case report aims to contribute to the medical literature by providing insights into the diagnostic intricacies and treatment strategies of Ogilvie syndrome in the context of a complex medical scenario. To avoid poor outcomes and mortality, emphasis has been placed on awareness, early diagnosis, and detection. Colonoscopic decompression can be considered an option, as it can avoid intestinal ischemia, perforation, and peritonitis, although sometimes conservative treatment is performed (5).

CASE REPORT

A 61-year-old Malay male presented to our facility with a complaint of abdominal pain that had persisted for two weeks. Symptoms started 2 weeks prior to admission. The patient reported mild diffuse abdominal pain. The pain was associated with distension and vomiting. The patient's medical history included paraplegia from a cervical fracture for the past 2 years, as well as gastritis and hemorrhoids in the past year. Notably, he had relied on rectal enemas for daily bowel movements in the past year due to chronic constipation. Otherwise, he was not on any other treatment, including antacids, proton pump inhibitors, or micronized purified flavonoid fractions. The patient denied fever, chest pain, or abnormal urinary patterns prior to admission. There was no rectal bleeding, loose stool, altered bowel habits, or tenesmus. The lack of previous abdominal surgery was also notable. The patient denied a family history of malignant tumors, including colorectal cancer, and denied a family history of tuberculosis.

On physical examination, the vital signs were as follows: body temperature, 36.5 °C; blood pressure, 125/83 mmHg; heart rate, 88 beats per minute; and respiratory rate, 20 breaths per minute. Abdominal examination revealed abdominal distension and mild diffuse abdominal tenderness, with no palpable masses. Digital rectal examination indicated mucous discharge, a lax anus with poor rectal tone, and no palpable masses. Notably, the patient exhibited lower-limb weakness and sensory loss on neurological examination. Symmetrical lower-limb weakness was characterized by severe flexor and extensor weakness (Medical Research Council grade 1). There was the lower-extremity sensory loss. In addition, the reflexes over the upper and lower limbs were normal, and the plantar responses were bilateral, demonstrated by flexion.

Laboratory investigations showed leukocytosis (total white blood cell count: 13 g/L; normal range: 4-11 g/L) in the full blood count and hyponatremia (Na: 133 mmol/L; normal range: 135-145 mmol/L) in the renal function test, with accompanying metabolic acidosis (pH, 7.33; HCO_3^-, 18 mmol/L; PO_2, 87 mmHg; PCO_2, 35 mmHg) upon venous blood gas analysis. Liver function tests showed a cholestatic picture with elevated alkaline phosphatase (alkaline phosphatases, 215 IU/L; normal range: 44-147 IU/L) and high total bilirubin (24 mmol/L; normal range: 3-17 mmol/L), as well as a direct bilirubin of 17 mmol/L (normal range: 0-3 mmol/L). Other blood test results were normal.

Considering the patient's condition, mechanical intestinal obstructions secondary to colorectal carcinoma and chronic constipation were initially considered on the 1st day of admission. However, after abdominal computed tomography (CT) was performed, the patient's presentation was deemed unlikely to be due to mechanical intestinal obstructions such as colorectal carcinoma, sigmoid volvulus, and constipation, based on specific clinical features and radiological findings. These findings indicated the absence of mechanical obstruction, suggesting Ogilvie syndrome.

The initial impression of Ogilvie syndrome was based on the absence of mechanical obstruction on CT and clinical features, including the degree of abdominal distension and absence of bowel sounds. The condition was complicated by community-acquired pneumonia (CAP), which then precipitated congestive heart failure. The patient complained of sudden onset of fever, occasional cough, and shortness of breath, especially while lying supine. Ischemic heart disease was ruled out after cardiac biomarkers, including troponin T, and electrocardiography showed normal results. On day 4 of admission, an incidental finding on serial abdominal CT revealed choledocholithiasis within the common bile duct. However, this patient was asymptomatic.

An initial impression of gallstone ileus was made; however, serial abdominal CT ruled out the cause. The definitive treatment, colonoscopic (endoscopic) decompression, was suggested to the patient; however, the patient refused and opted for conservative management. Surgery was advised if conservative or colonoscopic (endoscopic) decompression failed or if the patient had peritonitis or perforation. On day 7 of admission, a decreasing trend of urine output was noted based on the common bile duct, and further evaluation showed acute kidney injury (AKI) secondary to a stone at the left pelvic ureteric junction and proximal ureter, causing unilateral moderate hydronephrosis. The patient was medically managed.

On day 10 of admission, the patient developed AKI and hyponatremia secondary to overdiuresis. On day 12 of admission, he developed acute coronary syndrome, complaining of sudden onset of central chest pain associated with worsening shortness of breath, which was confirmed with a positively high troponin T level. However, during this time, the patient refused further management and finally opted for discharge (at his own risk) on day 13 of admission.

Imaging Examinations

Chest radiography revealed significant cardiomegaly without air under the diaphragm (Figure 1). Non-contrast abdominal and pelvic CT of the patient in the coronal view (Figure 2A), sagittal view (Figure 2B), axial view (Figure 2C), and oblique view (Figure 2D) revealed extensive diffuse large bowel distension. Choledocholithiasis with common bile duct dilation was also incidentally noted. Otherwise,

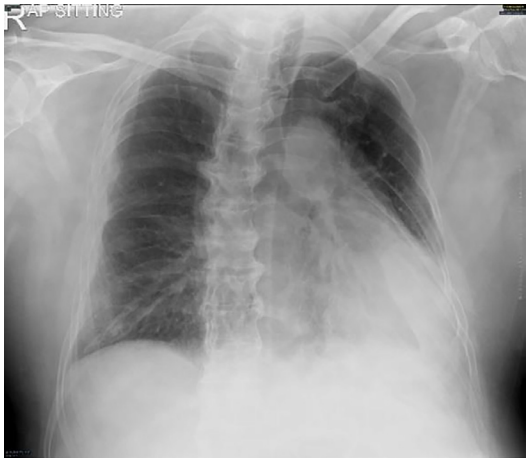

Figure 1. X-ray imaging of the Ogilvie syndrome. Chest X-ray in a posteroanterior view revealed significant cardiomegaly without air under the diaphragm.

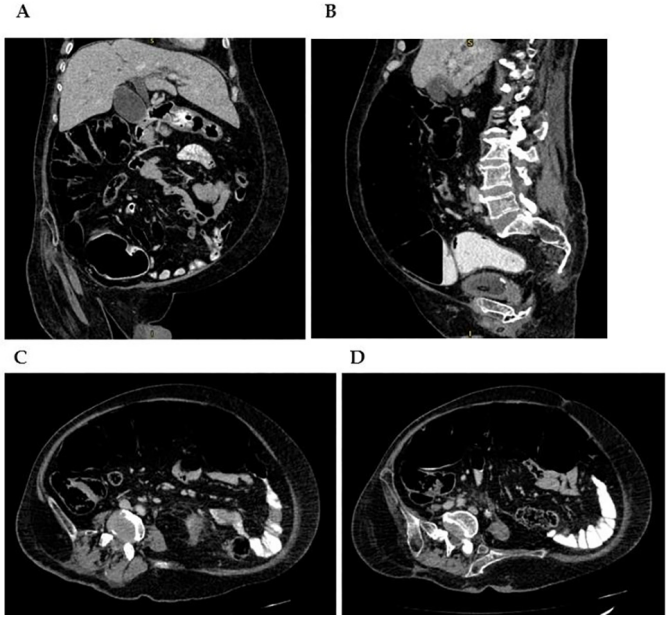

Figure 2. Computed tomography imaging of the Ogilvie syndrome. (A) Coronal view; B) Sagittal view; C) Axial view; D) Oblique view. General description for the four views of the computed tomography showed that there was segmental dilatation of the large bowel loops, one located and extending from the proximal sigmoid colon until the rectosigmoid junction.

there were no intraluminal/extraluminal masses, adhesions, or volvulus. Ultrasound of the kidney, ureter, and bladder revealed a stone at the left pelvic ureteric junction and proximal ureter with moderate hydronephrosis.

Final Diagnosis

The Ogilvie syndrome was diagnosed based on clinical presentation and complemented by initial CT findings to rule out any mechanically caused intestinal obstruction.

Treatment

The patient presented with Ogilvie syndrome and underwent a comprehensive treatment. Initially, intravenous fluids, antibiotics, and proton-pump inhibitors were administered. Simultaneously, conservative measures, such as strict I/O charting, elevated position, and nothing-by-mouth status, were implemented. Intermittent aspiration of 500 mL of fluid was performed as part of the therapeutic approach. Serial abdominal examinations were conducted to detect peritonism and promptly ensure vigilant monitoring.

During the course of treatment, the patient exhibited several complications, such as compensated acute heart failure, AKI, and CAP secondary to *Klebsiella pneumonia*, despite gradual improvement in symptoms of Ogilvie syndrome, with a decrease in abdominal distension and improved bowel sounds. Follow-up tests demonstrated improvements in laboratory parameters and reduced colonic dilation.

The prescribed regimen for Ogilvie syndrome, including neostigmine administration, nothing by mouth, two pints (1000 mL) of normal saline every 24 h, and intravenous cefoperazone and metronidazole administration, contributed to the overall positive outcome. Additional interventions such as fleet enema, 1/1 twice daily, were administered to alleviate constipation. Intravenous glycopyrrolate 1 amp diluted in 100 mL normal saline solution every 4 h was used to treat the respiratory secretions. Other interventions, such as intravenous paracetamol (1 g QID), intravenous bromhexine, saline nebulization, intravenous pantoprazole, tablet potassium citrate, and intravenous magnesium sulfate (1 amp in 100 mL normal saline per hour) were then administered to treat the comorbidities and complications.

Outcome and Follow-up

After 1 week of hospitalization, the patient's condition improved despite multiple complications; however, the patient was discharged on request. Telephone follow-ups were performed. Through regular telephone follow-ups, supplemented by a symptom diary, we tracked his overall well-being. The patient complained of residual abdominal distension and pain. Upon review in the clinic 2 weeks after discharge, our patient was active and had no residual gastrointestinal symptoms, except mild abdominal distension. The patient did not have any site-specific infections. The patient remained compliant with the medications for other comorbidities. One month after discharge, he did not complain of abdominal symptoms.

DISCUSSION

The presented case of Ogilvie syndrome in a 61-year-old male of Malay descent underscored the complex clinical presentation and diagnostic challenges associated with this condition. Ogilvie syndrome, characterized by colonic dilation without mechanical obstruction, poses diagnostic challenges owing to its clinical resemblance to mechanical bowel obstruction (6). Ogilvie syndrome has been reported to mimic mechanical obstruction in approximately 40%-50% of cases, making early differentiation crucial (7,8). Ogilvie syndrome is an uncommon entity, with <70 cases reported in the literature.

The precise pathophysiological mechanisms underlying Ogilvie syndrome remain the subject of ongoing investigation. These include

potential disruptions to the autonomic nervous system due to various factors such as trauma, spinal anesthesia, and pharmacological agents. Additionally, interruption of parasympathetic fibers spanning from S2 to S4 may play a pivotal role in the pathogenesis of this condition (9). These factors collectively lead to distension of the colon, which is characterized by an increase in colonic diameter. Consequently, this increased tension on the colonic wall gives rise to the hallmark clinical presentation of Ogilvie syndrome, primarily characterized by gradual abdominal distension occurring over 3-7 d, although rapid onset within 24-48 h is also possible. Patients with this syndrome may manifest symptoms such as abdominal pain, nausea, vomiting, and a combination of constipation and diarrhea.

The rate of cecal perforation (1%-3%) is associated with a high mortality rate (50%-71%) (2,10). Statistical data from prior research has shed light on the characteristics and associated risk factors of Ogilvie syndrome. Reports indicate that this syndrome primarily affects older individuals with underlying medical conditions, particularly chronic diseases such as kidney, lung, or heart disease; brain or nervous system disorders (such as paraplegia in this case); and severe pulmonary disease. (3,4,6). Our patient's male sex and age of 61 years align with the typical demographic profile of Ogilvie syndrome (6,11). The occurrence of pneumonia (as in this case) and sepsis is also considered common infections associated with Ogilvie syndrome (1,4,7), along with prolonged immobility in bed or poor underlying functional status (4-7,10).

Managing Ogilvie syndrome in a 61-year-old male with cervical fracture-induced paraplegia, gastritis, hemorrhoids, left pelvic ureteric junction and proximal ureter stones, moderate hydronephrosis, choledocholithiasis with common bile duct dilation, extended-spectrum β-lactamase-producing *Klebsiella pneumonia* pneumonia, AKI, ischemic heart disease with heart failure, and reduced ejection fraction presented multifaceted challenges (Table 1).

The management of Ogilvie syndrome includes conservative measures, endoscopic decompression, and surgery in severe cases (7). Initial interventions included nasogastric decompression, bowel rest, electrolyte correction, and discontinuation of exacerbating medications, especially opioids. If no improvement occurs within 24-48 h, neostigmine, an anticholinesterase, may be considered (2,12). Unresponsive cases may benefit from alternatives such as endoscopic decompression and cecostomy (6,7). The comprehensive approach of this case emphasizes the advantages of integrating medical, surgical, and radiological interventions by a multidisciplinary care team for complex Ogilvie syndrome cases. The patient's paraplegia from a cervical fracture introduced a unique dimension, potentially contributing to colonic dysmotility and dilation observed in up to 20% of Ogilvie syndrome cases (11,12).

The challenges in managing this complex case stemmed from the intricate interplay between Ogilvie syndrome, paraplegia, and gastrointestinal, urological, respiratory, and cardiovascular issues. Each comorbidity introduces a layer of complexity that requires a nuanced understanding of the underlying pathophysiology and tailored interventions to optimize patient outcomes. The delicate balance in addressing these multifaceted challenges underscores the need for a comprehensive and multidisciplinary approach for managing such intricate clinical scenarios.

While this case report provides a detailed account of the patient's condition, its single-case nature limits its generalizability. Nevertheless, it underscores the need for vigilant diagnosis of Ogilvie syndrome, particularly in patients with pre-existing conditions that may influence its development (2,13). The presence of gallstones, renal stones with moderate hydronephrosis, heart failure with reduced ejection fraction, and Ogilvie syndrome signifies a complex medical scenario with the potential for multiple complications.

Table 1. Challenges in managing Ogilvie syndromes in a complex case: A 61-year-old male with multiple comorbidities

Challenges	Key points
Mobility limitations	Cervical fracture-induced paraplegia restricted mobility, hindering conservative strategies like early ambulation.
Physiological response impairment	Paraplegia affected the patient's ability to respond to physiological cues, complicating bowel function.
Gastritis	The symptoms exacerbated fluid and electrolyte imbalances, potentially worsening colonic dilation and leading to AKI.
Hemorrhoids	Caused discomfort during bowel movements, necessitating pain management to prevent straining and exacerbation of colonic distension
Renal compromise	The presence of a left PUJ obstruction and a proximal ureter stone, with moderate hydronephrosis, demanded cautious fluid management to prevent AKI.
Choledocholithiasis with CBD dilation	Required careful management to prevent biliary complications and ensure optimal organ function Challenges whether the cause of intestinal obstruction was due to gallstone ileus
ESBL-producing *Klebsiella pneumonia*	Complicated respiratory status and antibiotic choices, increasing the risk of septicemia and lengthening hospitalization
Fluid dynamics (over diuresis)	AKI secondary to over-diuresis highlighted the complexity of fluid management in Ogilvie syndrome and associated conditions
Cardiovascular compromise	IHD with heart failure and reduced ejection fraction increased the risk during interventions involving neostigmine, necessitating careful medication and fluid management.

AKI: Acute kidney injury, IHD: Ischemic heart disease, PUJ: Pelvic ureteric junction, CBD: Common bile duct, IHD: Ischemic heart disease

CONCLUSION

In conclusion, this case report offers a comprehensive view of Ogilvie syndrome in a patient with a complex medical history. This underscored the importance of a multidisciplinary approach, vigilance in diagnosis, and the potential impact of neurological dysfunction on the development of the syndrome. The statistical data from prior research provided valuable insights into the demographics and risk factors associated with Ogilvie syndrome, aiding its clinical understanding and management. Although this case may not be fully generalizable, it is a valuable reference for clinicians addressing similar complex scenarios. Although Ogilvie syndrome associated with paraplegia is clinically rare, doctors should make a positive and accurate diagnosis and provide humane care and treatment because patients experience both mental and physical problems.

Ethics

Informed Consent: Informed written consent was obtained from the patient for the publication of this report and any accompanying images.

Footnotes

Authorship Contributions

Surgical and Medical Practices: T.H.K., A.D.Z., Concept: T.H.K., A.D.Z., Design: T.H.K., Supervision: A.D.Z., Resources: T.H.K., Material: T.H.K., A.D.Z., Data Collection or Processing: T.H.K., Analysis or Interpretation: T.H.K., A.D.Z., Literature Search: T.H.K., Writing: T.H.K., Critical Review: A.D.Z.

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