Case Report

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Ogilvie syndrome with caecal perforation following cesarean section: a rare case report from Jordan

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Introduction: Ogilvie syndrome is a rare condition characterized by acute colonic dilation. In 1948, H. Ogilvie first described it in medical literature. Its incidence is estimated at 100 cases per 100 000 per year in the US. Both abdominal distention and pain are considered major symptoms.

Presentation of case: A 32-year-old woman, 36 + 1 weeks pregnant, experienced labour pain and was admitted to the hospital. Upon examination, she was in labour, but the foetus was in a breech position, necessitating a caesarean section. After 36 h later, she returned to the emergency department with severe, 1-day-old diffuse abdominal pain, accompanied by moderate bilious vomiting and significant abdominal distension. Abdominal CT with contrast revealed pneumoperitoneum, abdominal wall emphysema, and pneumatosis intestinalis involving the caecum and ascending colon, suggesting bowel necrosis. Emergency laparotomy revealed a caecal perforation, which was closed surgically without resection.

Clinical discussion: Ogilvie syndrome is more common in males but can occur in females for several reasons, including pregnancy, caesarean section, pelvic surgeries, and trauma. Several factors contribute to the occurrence of this syndrome, such as pelvic fractures and cardiac events. Surgery may be required if there is suspicion of bowel perforation or ischaemia.

Conclusion: OS is a rare condition in women, often seen after childbirth or pelvic surgery, with an unclear cause but believed to be related to autonomic nervous system imbalance. Patients with abdominal pain and distension, without evidence of obstruction, should be evaluated for pseudo-obstruction using abdominal pelvic CT, and treatment may involve conservative measures, medication, and colonoscopic decompression.

Keywords: case report, caesarean section, colonic pseudo-obstruction, laparotomy, ogilvie syndrome

Introduction

Ogilvie syndrome (OS), also known as acute colonic pseudo-obstruction, is a rare condition characterized by the acute dilation of the colon in the absence of any mechanical obstruction. It was initially described by Heneage Ogilvie in 1948[1,2]. It is a rare syndrome with an incidence of 100 cases per 100 000 adult inpatients per year in the United States[3,4]. Typically, patients with OS experience abdominal distention and pain. Other symptoms include nausea, vomiting, constipation and fever[5–7].

HIGHLIGHTS

- Ogilvie syndrome is a rare condition that is characterized by acute dilation of the colon without any mechanical obstruction.
- This is the first case report from Jordan and only the second in the Middle East.
- Abdominal imaging, particularly abdominopelvic CT with contrast, is the preferred method for diagnosis.
- Conservative management is the initial approach, while pharmacologic therapy or surgical intervention may be considered if noninvasive measures fail.

OS can rarely occur as a critical obstetric complication in the young age group, and many predisposing factors are associated with it, but the most common is caesarean section[8]. In contrast, it is relatively rare after normal vaginal delivery, with only two cases documented in the literature[9].

Although several hypotheses have been proposed, the exact mechanism underlying OS remains unclear. The most accepted hypothesis suggests an impairment in the colon autonomic nervous system; interruption of the parasympathetic fibres leaves an atonic distal colon and a functional proximal obstruction[10–12].

Abdominal imaging, particularly abdominopelvic computed tomography (CT) with intravenous contrast, is the preferred method for diagnosing OS[6,13]. Conservative management is usually the initial treatment for acute colonic pseudo-obstruction[6], while pharmacologic therapy is reserved for patients with

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a caecal diameter greater than 12 cm or for those who have failed conservative therapy for 48–72 h[14,15]. If noninvasive measures fail, colonoscopic decompression or surgical intervention may be considered as the last option[16]. Notably, prolonged OS can lead to bowel ischaemia, bowel perforation, and peritonitis, with reported mortality rates of 15% and 44% for uncomplicated and complicated cases, respectively[17].

We present a unique case of Ogilvie syndrome with caecal perforation following a caesarean section, and to the best of our knowledge, this is the first case report from Jordan and only the second in the Middle East. Our report also provides an up-to-date account of this syndrome, which will help clinicians and healthcare providers in the region recognize and manage this rare but serious obstetric complication and increase awareness of OS in the gynaecologic and obstetric community. SCARE 2023 criteria have been followed in reporting this work[18].

Presentation of case

A 32-year-old pregnant woman presented to labour ward at King Abdullah University Hospital (KAUH) on 14 September 2020. She was gravida 2 para1, with 36 + 1 weeks gestational age. She was medically free and had no previous surgeries. Her previous delivery was an uneventful full-term vaginal delivery. Her current pregnancy was uncomplicated with regular antenatal care. Upon evaluation, the patient was found to be vitally stable with regular labour pain. Ultrasound examination showed a single live foetus with breech presentation, upper placenta, average liquor, and an estimated foetal weight of 2.5 kg. She had no vaginal bleeding or watery leakage, and foetal movement was good. Cardiotocography (CTG) was reactive. A vaginal examination revealed a 5 cm dilated cervix with intact membranes. The patient was counselled about the risk of vaginal delivery for term breech and she preferred caesarean delivery.

Preoperative blood test results showed low haemoglobin of 10.2 g/dl (normal range 11.6–15), normal platelets 246 10^3/mm^3 (normal range 150–450), and raised white cell count of 14.8 10^3/mm^3 (normal range 4.5–11). An emergency caesarean section was performed at 08:30 pm under spinal anaesthesia through a Pfannenstiel skin incision. The abdominal wall was opened in layers, then the bladder was dissected and pushed down away from the lower uterine segment. The uterus was opened by a transverse incision in the lower uterine segment. The foetus was delivered by breech extraction without complications. The outcome was a live female with a body weight of 2.44 kg and an Apgar score of 8/8/9. The uterus was closed in two layers using continuous vicryl 0 sutures. The rectus sheath and skin were closed using continuous vicryl 2 and monocryl 2-0 sutures, respectively. The estimated operation time was 25 min, with no intraoperative complications. No electrosurgery was used during the surgery. The estimated blood loss was 500 ml, and the urine output was adequate and clear. A single dose of intravenous (IV) cefazoline was prescribed. Other medications that were given include prophylactic low molecular weight heparin while she was an in-patient, regular famotidine, regular subcutaneous morphine and IV paracetamol on the first day and oral diclofenac sodium and oral paracetamol on the second day.

On the first day post-surgery, her vital signs, including blood pressure, pulse, temperature, respiratory rate and oxygen saturation, were normal. Her urine output was adequate, and the uterus was well contracted with no abnormal vaginal bleeding. The Foley catheter was removed 12 h after surgery and the diet was started 6 h after the operation. Her haemoglobin post-surgery was 9 g/dl. On the second day post-surgery, her vital signs were within the normal range. She experienced mild abdominal distention but she tolerated a regular diet with no nausea or vomiting, she passed flatus and a small amount of stool and thus she was discharged on 16/09/2020 at about 11:00 am. However, 36 h later, the patient returned to the emergency department on 18/09/2020 at 05:00 pm as she was complaining of severe diffuse abdominal pain of 1-day duration, radiating to her shoulders. The pain was associated with a few episodes of moderate amount of bilious vomiting. She also noticed distension in her abdomen that increased significantly over the preceding few hours. She passed flatus on the same morning and she reported passing stool the day before. She denied fever or any other symptoms.

Upon clinical evaluation, her vital signs showed a respiratory rate of 19, a pulse of 78 bpm, blood pressure of 109/67 mm Hg and a temperature, of 36.7°C. Abdominal examination revealed a hugely distended abdomen that was tender to superficial and deep palpation, especially on the right side, with palpable subcutaneous emphysema. Bowel sounds were hyperactive. Blood test results showed a haemoglobin of 9.8 g/dl, platelets of 321 10^3/mm^3, white cell counts of 15.7 10^3/mm^3, C-reactive protein 102 mg/l, and ESR 50 mm/h. In addition, kidney function tests and liver function tests were normal.

A CT scan of the abdomen and pelvis with IV contrast revealed a huge pneumoperitoneum with diffuse abdominal wall emphysema and evidence of pneumatosis intestinalis seen involving the caecum and ascending colon, suggestive of bowel necrosis. Also, there was segmental dilatation of both small and large bowel loops, but no specific site of perforation was identified (Fig. 1). Also, there was no free fluid in the abdomen or pelvis. An emergency laparotomy was performed through the same caesarean incision, releasing a gush of foul-smelling gas. The distal anteromedial aspect of the caecum had a 2 × 2 patch of gangrene with a pinpoint perforation. The remaining bowel was normal through dilated. The bowel was repaired by debridement of the necrotic patch, followed by the closure of the defect by purse-string suture using vicryl 2-0, overlaid by interrupted vicryl 2-0 sutures. Peritoneal lavage was done using 2 l of warm saline followed by drain insertion and closure in layers. She vomited on the third postoperative day requiring a nasogastric tube (NGT) for 24 h. WBCs dropped gradually to 10.7. The drain yielded a total of 200 ml of serous fluid in 4 days and was removed on day 4 on 22/09/2020 when she was discharged. No recurrence has been observed so far from follow-up.

Discussion

OS is more common in males than females (1.5:1)[5,19] and occurs after childbirth in ~1 in 1460 deliveries, as indicated by two studies[3,8]. Its prevalence after a caesarean section is suggested to be 0.4%[3,20]. However, OS occurrence after vaginal delivery is extremely rare[9]. In women, the most frequent causes of Ogilvie syndrome are caesarean section and pregnancy, followed by pelvic surgery and trauma[21]. Orthopaedic interventions, especially pelvic fractures, contribute to 18% of cases, while systemic infections and acute cardiac events account for 10% of cases each[13]. Intensive

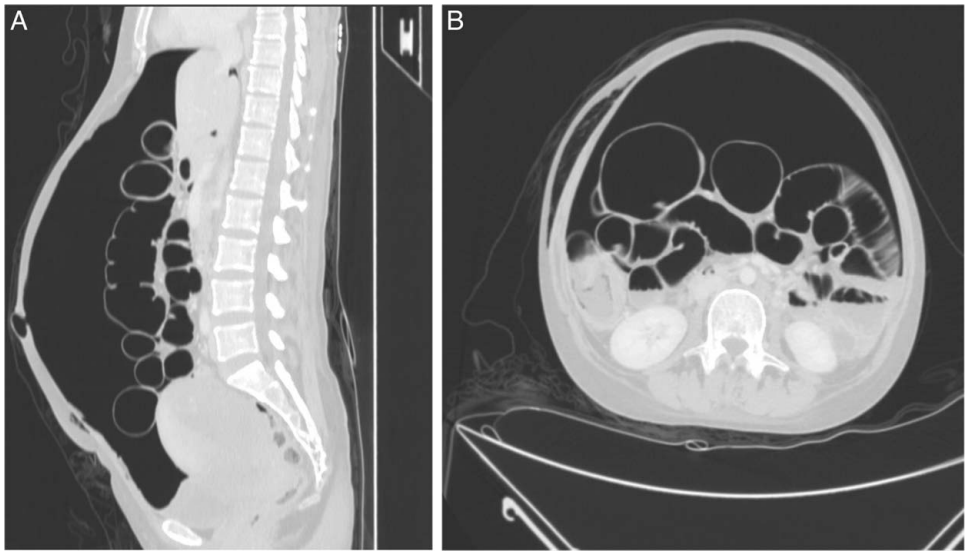

Figure 1. Computed tomography of the abdomen and pelvis showing a huge pneumoperitoneum and dilatation of bowel loops.

care or volume resuscitation may increase the risk of acute colonic pseudo-obstruction by 9%. Additionally, the use of opioids, antidepressants, or transplantation may be associated with the development of this condition[13]. The main reported presentation of OS is abdominal distention; other presentations include abdominal pain (80%), nausea and vomiting (62%), constipation (50%), diarrhoea (40%) and fever (37%)[5,6].

The exact mechanism underlying OS remains unclear. Some studies suggest that the loss of tone in parasympathetic nerves S2–S4 causes this condition, which is supported by the appearance of the cut-off sign at the splenic flexure where vagal and sacral parasympathetic nerve supplies meet[9–11]. Also, a combination of sympathetic system overactivity and parasympathetic underactivity has been attributed to the condition[22]. In addition, several other theories, including vascular, hormonal, pharmacological, metabolic, and infectious processes, have been postulated. Some studies proposed that micro-thrombosis and hypoperfusion of the bowel wall may be contributing factors to the development of this condition[12,23]. Furthermore, a report published in 2022 discusses two cases of OS that suggest a possible link between nimodipine, a medication used for aneurysmal subarachnoid haemorrhage, and OS[24]. Another case report published in 2021 describes Ogilvie in association with herpes zoster infection[2]. Therefore, ongoing research is necessary to identify the potential causes of Ogilvie syndrome and to develop effective treatments for this condition.

When patients present with abdominal pain or distension and exhibit a distended and tympanitic abdomen, it is important to consider the possibility of OS. Diagnosis is typically confirmed

Table 1

Reports of ogilvie syndrome in the medical literature.

Case description	Author	Patient demographics	Presentation	Diagnostic methods	Treatment
Case 1[24]	De Jesus *et al.*	61-year-old female	Abdominal distention	Abdominal X-ray, abdominal CT scan	Stopping nimodipine then giving her neostigmine, colonoscopy, rectal tube
Case 2[24]	De Jesus *et al.*	46-year-old female	Abdominal distention	Abdominal X-ray, abdominal CT scan	Stopping nimodipine, nasogastric tube, rectal tube
Case 3[5]	Elsebay *et al.*	40-year-old female	Abdominal distention	Abdominal X-ray, CT scan	Surgery
Case 4[9]	E H *et al.*	22-year-old woman	Abdominal pain and distension, constipation, vomiting and fever	Abdominal X-ray	Surgery
Case 5[3]	Peng *et al.*	39-year-old pregnant woman	Abdominal pain and distension	Abdominal and pelvic CT scan	Surgery
Case 6[11]	Beshai *et al.*	31-year-old female	Abdominal distension with nausea and vomiting	abdominal CT scan	Sigmoidoscopy with rectal tube
Case 7[23]	Liu *et al.*	84-year-old male	Abdominal pain and distension	Abdominal X-ray, abdominal CT scan	Conservative treatment
Case 8[12]	Aguiar *et al.*	67-year-old man	Abdominal pain and tenderness	Post-mortem computed tomography (PMCT)	None (died)
Case 9[19]	Hussain *et al.*	90-year-old man	Abdominal distention	Ultrasound abdomen and pelvis, abdominal X-ray, abdominal CT scan	Surgery
Case 10[25]	Rothfuss *et al.*	29-year-old woman	Abdominal pain and distension	Abdominal ultrasound, abdominal X-ray, CT scan	Surgery

through abdominal imaging; the most useful initial imaging studies include abdominal and chest X-rays. Abdominopelvic CT with intravenous contrast is the preferred diagnostic test of OS with a high sensitivity and specificity of 96% and 93%, respectively, for confirming proximal colonic dilatation and ruling out intrinsic or extrinsic mechanical obstruction[6,7,13]. Serial abdominal X-ray may be recommended to rule out pneumoperitoneum indicating perforation. OS requires continuous monitoring and serial physical exams along with regular laboratory tests such as complete blood count and electrolytes[6,16]. Initial management of OS is generally conservative, particularly for patients with reversible potential factors, no significant abdominal pain, extreme colonic distension, or signs of peritonitis[6]. Conservative management involves discontinuing oral intake, placing a nasogastric tube for proximal gut decompression, hydration and correction of electrolytes[13,24]. Pharmacologic therapy with neostigmine is used for patients with a caecal diameter greater than 12 cm or those who have failed conservative therapy for 48–72 hours[3,6,14,15]. For patients who fail or have contraindications to neostigmine treatment, colonoscopic decompression is another option for treatment when bowel perforation is not suspected[6]. Surgery is recommended when there is a high suspicion of bowel perforation or ischaemia, or conservative, medical and colonoscopic decompression has failed[16].

According to the American Society for Gastrointestinal Endoscopy (ASGE), treatment options for Ogilvie syndrome should be evaluated in a specific order. The suggested steps include: (1) Conservative management for 24 h, (2) Administration of neostigmine if appropriate, (3) Colonoscopic decompression, and (4) Surgical intervention, such as percutaneous colostomy. Each step should be evaluated for its impact on treatment[16] (see Table 1).

Conclusion

In women, Ogilvie syndrome is a rare but potentially serious condition primarily seen postpartum or in those who have undergone pelvic surgery. Although the exact cause is unclear, an imbalance in the autonomic nervous system is considered the leading hypothesis. Pseudo-obstruction should be suspected in patients with abdominal pain and marked distension, with no evidence of organic obstruction. Abdominal pelvic CT is the preferred diagnostic modality. Management involves conservative measures, pharmacotherapy, and colonoscopic decompression. Further research is needed to determine the potential causes and develop more effective treatments for this condition.

Ethical approval

The ethical approval and informed consent statements are applicable and approved for this research.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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Author contribution

All authors contributed to the conception, writing, and editing of the case report. All authors are agreed to be accountable for all aspects of it.

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The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Research registration unique identifying number (UIN)

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Data availability statement

The authors of this manuscript are willing to provide any additional information regarding the case report.

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