



Ogilvie's syndrome following bilateral knee arthroplasty: a case report

Aysun YILMAZLAR¹, Remzi İŞÇİMEN¹, Ömer F. BİLGEN², Halil ÖZGÜÇ³

¹Department of Anesthesiology and Reanimation, Faculty of Medicine, Uludağ University, Bursa, Turkey;

²Department of Orthopedics and Traumatology, Faculty of Medicine, Uludağ University, Bursa, Turkey;

³Department of General Surgery, Faculty of Medicine, Uludağ University, Bursa, Turkey

Ogilvie's syndrome, also known as acute colonic pseudo-obstruction, is an uncommon but severe postoperative complication of total hip and knee arthroplasty. This syndrome should be borne in mind after arthroplasty surgery. We present a case of this serious postoperative complication and aim to identify the risk factors and alert surgeons to the possibility and appropriate management of Ogilvie's syndrome.

Key words: Arthroplasty; Ogilvie's syndrome; postoperative complication.

Ogilvie's syndrome may be the result of an autonomic imbalance, with a combination of excessive sympathetic stimulation or an impairment of sacral parasympathetic outflow.^[1] This pattern, which was first identified by Ogilvie^[2] in 1948 and also known as acute colonic pseudo-obstruction, is an uncommon postoperative complication of total hip and total knee arthroplasty. It is characterized by massive colonic dilatation and the potential for substantial morbidity and mortality.^[3,4]

We present a case of this uncommon yet serious postoperative complication following bilateral total hip and knee arthroplasty. We aimed to identify the risk factors and alert surgeons to the possibility and appropriate management of Ogilvie's syndrome following orthopedic surgery to reduce morbidity and mortality.

Case report

An 88-year-old, obese (BMI: 33.2 kg/m²) woman with hypertension and osteoarthritis was admitted elective-

ly for cemented bilateral total knee arthroplasty. The patient suffered a fracture from a fall 2 months previously and pseudarthrosis of her right proximal tibia. The pseudarthrosis field was cleaned, correction was done and stabilization was performed using a long tibial stem in the right knee. PCL-substituting prostheses (DePuy, Inc., East Warsaw, IN, USA) were implanted in both knees under general anesthesia. A total of 1,800 ml of crystalloid, 5 units of packed red blood cells and 2 units of fresh-frozen plasma were transfused during the operation. Perioperative hemodynamic parameters and laboratory measures were as follows; blood pressure (BP): 135/70 mmHg; Hb: 11 mg/dL; and Htc: 31%. 825 ml of surgical field bleeding was noted. The surgery duration was 210 minutes.

A postoperative prophylactic of adjusted low-molecular-weight heparin for deep venous thrombosis and a patient-controlled analgesia with a morphine drip for pain were applied. An intravenous H₂-blocker was also

Correspondence: Aysun Yilmazlar, Prof. MD. Uludağ Üniversitesi Tıp Fakültesi, Anesteziyoloji ve Reanimasyon Anabilim Dalı, Bursa, Turkey.

Tel: +90 - 224 295 44 75 e-mail: ayyil@uludag.edu.tr

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given. On postoperative Day 1, the patient was mobilized and she tolerated a full diet on Day 2. In the evening of the same day, her abdomen was significantly distended. Bowel sounds were still present but hypoactive. There was rebound and defense in the abdominal examination. She also had diffuse and severe abdominal pain, hypotension (BP: 70/35 mmHg), metabolic acidosis (pH: 7.23, pCO₂:49 mmHg, pO₂: 62 mmHg (with O₂ mask) and lactic acidemia (75 mg/dL). Abdominal radiography and abdominal CT revealed free air in the abdomen, especially under the diaphragm (Figs. 1 and 2). Oral intake was stopped immediately and gastrointestinal system decompression was performed using a nasogastric tube. General surgeons decided to perform an urgent laparotomy based on these clinical, radiological and laboratory findings.

A small (approximately 1 cm²) perforation was found in the caecum during the urgent laparotomy and a cecostomy was performed due to the presence of the mobile caecum and the critical condition of the patient. Following abdominal irrigation, the fascia was closed using a vicryl mesh to prevent abdominal compartment syndrome. The patient was managed in the intensive care unit under controlled ventilation and broad spectrum antibiotic therapy. She initially required inotropic support and slowly demonstrated septic shock and multisystem organ failure. The patient died of related complications 10 days after admission to the intensive care unit.

Discussion

Ogilvie's syndrome is associated with increased age, prolonged bed rest, multiple extremity trauma, major operation, continuous narcotic patient control analgesia, and sepsis. It is most commonly encountered after major operations, such as arthroplasty, renal transplantation, and cardiac by-pass surgery. The dominant clinical feature of Ogilvie's syndrome is abdominal distension. Symptoms often present on the second postoperative day. In direct X-ray of abdomen, the gas accumulation in the bowels is seen as dilatation in the caecum.^[1,2,5-10]

Nelson et al.^[4] collected data between 1995 and 2002 and found that 18 (1.5%) of 1,170 patients with Ogilvie's syndrome had undergone arthroplasty surgery. They found that the highest risk factors leading to postoperative Ogilvie's syndrome were age and gender, and the most common presenting symptom was abdominal distension. In addition, Clarke et al. reported an increased risk of acute Ogilvie's syndrome in patients of advanced age, male gender, and those who underwent non-elective hip arthroplasty; that is, following trauma.^[11] In their group of 31 patients, Petrisor et al. found



Fig. 1. Plain radiograph of the abdomen displaying air levels under the diaphragm and distended intestine.

slow postoperative mobility in bilateral total knee arthroplasty cases and revision total hip arthroplasty to be the only significant risk factors for Ogilvie's syndrome.^[12] In our case, advanced age, immobilization and the major surgery (bilateral total knee arthroplasty) were significant risk factors for the development of this complication. Finally, colonic perforation, the most feared sequela of Ogilvie's syndrome, occurred.

Simultaneous bilateral knee arthroplasty surgery can be performed with good outcomes and early and rapid rehabilitation and mobilization without a definite increase in perioperative risk.^[13] Single session surgery effectively reduces the duration of stay in hospital.

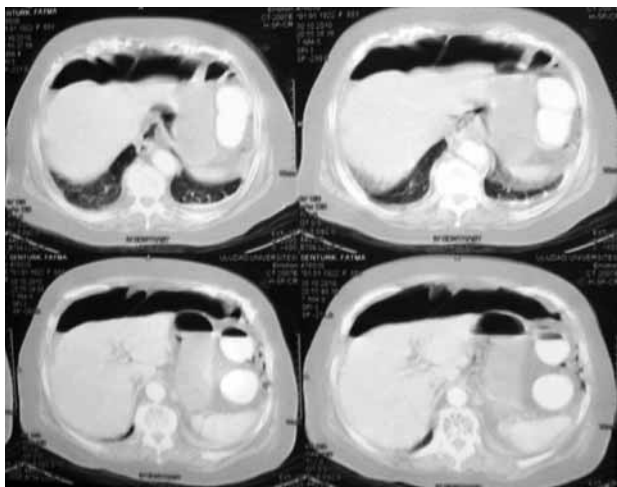


Fig. 2. Abdominal CT of the patient showing air levels.

Additionally, in patients undergoing simultaneous bilateral total knee arthroplasty, symmetrical rehabilitation of both knees is more convenient and beneficial than a cumbersome rehabilitation regime with a corrected deformity on one side.^[14]

We preferred simultaneous bilateral total knee arthroplasty in our case because of these benefits as was suggested by McInnis et al.^[13] and Patil and Wakankar.^[14] Duration of the first surgery on the right knee with pseudarthrosis and perioperative hemodynamic parameters, as well as bleeding and laboratory measures were not abnormal. Considering that the non-operated knee may prevent patient mobilization, we decided that symmetrical rehabilitation following simultaneous bilateral total knee arthroplasty was more effective and beneficial for our patient.

Opioid analgesic agents remain the first choice for common treatment of severe pain following major orthopedic surgery. The common adverse effects of these drugs include nausea, sedation, pruritus and respiratory depression. In addition, opioids have also been associated with some unpredictable severe adverse effects which may occasionally be life-threatening. One such adverse effect is Ogilvie's syndrome.^[15] Unfortunately, patient-controlled analgesia with a morphine drip was used in our case postoperatively.

Ogilvie's syndrome is a rare and severe "malignant" form of postoperative pseudo-obstruction, characterized by massive dilatation of the large bowel which, if untreated, results in caecal perforation. It is rare following joint arthroplasty, but if it occurs, has a high morbidity and mortality. Prompt recognition of the presenting features by orthopedic surgeons with expedient general surgical intervention is necessary to avoid potentially fatal consequences.

Tenofsky et al. devised a simple algorithm for treatment of patients diagnosed with Ogilvie's syndrome.^[16] Use of this algorithm should enable physicians to optimize their treatment of patients with this diagnosis.

Ogilvie's syndrome may appear as a postoperative serious complication of total arthroplasty surgery. Knowledge of these factors enables the orthopedic surgeon to anticipate which patients may be at higher risk for the development of Ogilvie's syndrome and this complication should be included in the differential diagnosis when a postoperative patient's abdomen becomes markedly distended.

We concluded that simultaneous bilateral total knee arthroplasty may be a relative contraindication for old and immobile patients, preoperative exercise is necessary and the choice of postoperative analgesic drugs is

important for these patients. In the postoperative period, early diagnosis and colonic decompression play a key role in the therapy for Ogilvie's syndrome which may otherwise lead to fatal caecal perforation.

Conflicts of Interest: No conflicts declared.

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