REFRACTORY ACUTE COLONIC PSEUDO-OBSTRUCTION COMPLICATED BY UROSEPSIS AND PARKINSONISM

Chao-Kai Hu¹, Chih-Chung Liu², Ming-Hui Hung²
Wing-Sum Chan³, Yu-Chang Yeh²

Abstract

Acute colonic pseudo-obstruction (ACPO), also known as Ogilvie’s syndrome, consists of massive colonic dilatation in the absence of distal colonic mechanical obstruction. It develops in hospitalized patients and is associated with a variety of surgical and medical conditions, such as autonomic dysregulation of colonic motor activity, after major surgery, electrolyte imbalance, or systemic infection. Conservative management or pharmacological therapy with neostigmine is usually sufficient to control ACPO, but colonoscopy for intestinal decompression is sometimes needed. We report a patient with Parkinson’s disease who developed ACPO after septic shock. Low dose of neostigmine (1 mg) is effective for short-term symptom relief; but the symptoms might be recurrent and refractory if the underlying risk factors are not improved. Without appropriate management, ACPO will prolong the duration of mechanical ventilation and ICU stay of those critical patients.

Key words: Acute colonic pseudo-obstruction, Ogilvie’s syndrome, Neostigmine

INTRODUCTION

Acute colonic pseudo-obstruction (ACPO), also known as Ogilvie’s syndrome, consists of massive colonic dilatation in the absence of distal colonic mechanical obstruction. It is associated with a variety of surgical and medical conditions, especially in intensive care unit patients. Ogilvie first described the syndrome in 1948, in two patients with colonic pseudo-obstruction resulting from malignant infiltration to the celiac plexus, and attributed the syndrome to sympathetic deprivation.¹ However, the autonomic innervation of the colon is better understood now, so that ACPO is associated with excessive sympathetic stimulation, parasympathetic suppression, or both. ACPO is usually self-limited and relieved by conservative management. We report a patient with Parkinson’s disease, who developed ACPO after uroseptic shock. Neostigmine, an acetylcholinesterase inhibitor, was repeatedly used to relieve the symptoms of ACPO after failure of conservative management.

CASE REPORT

An 82-year-old woman was sent to our emergency department because of fever and
decreased urine output for 2 days. Her previous history included old extra-pulmonary tuberculosis and grade IV Parkinsonism with being bedridden for several years. She was frequently admitted to hospital due to aspiration pneumonia and urinary tract infection. Levodopa (250 mg per day) was used to control of her rigidity and akinesia.

At our ER, physical examination revealed body temperature 38°C, heart rate 83 beats per minute, respiration rate 20 cycles per minute, and blood pressure of 95/56 mmHg. The abdomen was flat, soft, and non-tender, with normal bowel sounds. Laboratory data showed leukocytosis of 17,940 cells/mm³ and elevated blood level of creatinine (2.3 mg/dl). Urine analysis revealed evidence of pyuria. Abdominal sonography revealed right hydronephrosis with urolithiasis. The patient was then admitted for percutaneous nephrostomy (PCN) pigtail catheter insertion and urinary tract infection treatment. However, acute onset of unconsciousness with dyspnea and unstable hemodynamics was noted before surgery. She was intubated and transferred to intensive care unit (ICU) under the impression of uroseptic shock.

In the ICU, uroseptic shock was effectively managed with antibiotics and supportive care, which was confirmed by blood and urine cultures. The patient’s consciousness recovered 3 days later. Follow-up sonography showed improved right hydronephrosis. PCN pigtail for obstructive uropathy was withheld due to adequate urine output. Levodopa was also administered after resuming nasogastric tube feeding. However, progressive abdominal distention developed on the 5th hospital day, with absence of stool passage. The abdomen was distended and absent of bowel sounds. No peritoneal sign was noted. A KUB film showed colonic and gastric distention (Fig. 1). Serum electrolyte examinations revealed hypokalemia and hypomagnesemia, which were appropriately supplemented. Glycerine enema was administered to release ileus but in vain. Further hypaque study showed accumulation of urograffin over the ascending and transverse colon junction (Fig. 2). Under the suspicion of mechanical bowel obstruction, abdominal CT was arranged, but it didn’t reveal any obstructive lesion. Prokinetic drug and laxative were prescribed to alleviate...
the side effect of constipation of levodopa. Nasogastric tube and anal tube were also used to decompress the intestine.

Although under aggressive conservative management, severe abdominal distension increased airway pressure and respiratory work, which made it difficult for the patient to be weaned off ventilator. Colonoscopy was arranged, and it didn’t revealed any obvious obstructive lesion. Acute colonic pseudo-obstruction was suspected after exclusion of mechanical obstruction. Neostigmine (1 mg) was injected, resulting in massive watery stool passage. The abdomen was soft after neostigmine treatment. However, the effect of neostigmine lasted only for several hours and the abdomen progressively distended again. For weaning from the ventilator, nines courses of neostigmine injection plus aggressive prokinetic and laxative drugs were used to treat the patient’s refractory adynamic ileus status as necessary. The endotracheal tube was successfully extubated on the 30th hospital day. Follow-up hypaque study after extubation showed full enhancement of colon by urografin (Fig. 3). The patient was then discharged to general ward.

DISCUSSION

In this case report, we report a patient with refractory acute colonic pseudo-obstruction. The ACPO ensued from the influences of her acute illness such as uroseptic shock, acute renal failure, and imbalance of electrolytes. Also, the refractory course of ACPO even after repeated neostigmine treatment might have been complicated with her drug for anti-Parkinsonism. Two studies had discussed the factors predictive of the recurrent and refractory symptoms of ACPO with neostigmine. Mehta et al. proposed that electrolyte imbalance and usage of anti-motility agents were factors associated with a poor response to neostigmine. Loftus et al. showed that neostigmine was under-used in patients with ACPO due to fear of adverse effects of the drug. These factors might be compatible with the conditions of our patient. In a double-blinded, placebo-controlled trial, Ponec et al., demonstrated 2 mg i.v. neostigmine rapidly decompressed the colon in patients with ACPO, with 91% response rate and 18% recurrence. In our case, we used slow injection of intravenous neostigmine 1 mg to relieve the symptoms of ACPO, to avoid the adverse effect of bradyarrhythmia. It’s not determined whether the low dosage of neostigmine is associated with low response rate. However, the prolonged and refractory course of ACPO did delay this patient in weaning from the ventilator and being discharged from the ICU.

Neostigmine indirectly stimulates muscarinic parasympathetic receptors, therefore enhancing colonic motor activity, inducing colonic propulsion and accelerated transit. Neostigmine has the properties of rapid onset of action (1-20 min), short duration (1-2 h), and elimination half-life (80 min). That could explain why ACPO in some patients responded well initially to neostigmine, but easily recurred after the effect of neostigmine disappeared. The long-term therapeutic usage and safety of neostigmine for ACPO has not been determined. Cherta and his colleague reported one paraplegic patient with ACPO who was treated with 2 mg intravenous neostig-
Low dose of neostigmine, 1 mg, was also effective for short term symptom relief for ACPO; but the symptom might be recurrent and refractory if the underlying risk factors were not improved. Therefore, aggressively correcting the underlying reversible risk factors is important for refractory ACPO, including systemic infection control, correction of electrolyte imbalance, discontinuation of antimotility agents, rotation of the patient’s body, and use of prokinetic drugs to alleviate the side effects of anti-Parkinsonism medications. We suggest that adequate management of ACPO will shorten the duration of mechanical ventilation and ICU stay.

REFERENCES

帕金森氏病患者罹患泌尿道败血症後併發頑固急性大腸假性阻塞

胡朝凱¹, 劉志中², 洪明輝²
陳穎心³, 葉育彰²

摘要

急性大腸假性阻塞，或稱為奧格維氏症候群 (Ogilvie's syndrome)，在臨床的表現上常易與腸道機械性阻塞混淆，但經過詳細的影像學甚至是大腸鏡的檢查，可確認無機械性阻塞的病兆存在。急性大腸假性阻塞好發於重症病人，主要因素為支配控制腸道蠕動的自主神經失調，然而包括抗腸道蠕動藥物、重大手術術後、嚴重的內科疾病、電解質或代謝產物的不平衡及敗血症等，均可能加重假性阻塞的嚴重度。若大腸膨脹程度尚不嚴重，保守性的支持療法或給予新斯狄格明（neostigmine），常有不錯的療效。我們報告一位患有帕金森氏症的病患，因泌尿道感染引發敗血性休克住進加護病房，感染控制後出現腹脹，糞便減少及腸道擴張的現象，經過影像學診斷排除機械性阻塞之可能，診斷為急性大腸假性阻塞。經過保守性治療包括積極感染控制、電解質補充及總共九次的新斯狄格明 (neostigmine) 治療，經過四個星期才逐漸改善假性阻塞症狀並順利脫離呼吸器拔管。

關鍵詞：急性大腸假性阻塞，奧格維氏症候群 (Ogilvie's syndrome)，新斯狄格明 (neostigmine)

聯絡人：葉育彰醫師
100 台北市中山南路 7 號 台灣大學醫學院附設醫院 麻醉部
電話: 02-2312-3456 ext. 2158；傳真: 02-2341-5736；E-mail: tonyyeh@ntuh.gov.tw
台大醫院 外科部¹, 麻醉部², 亞東紀念醫院麻醉科³