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Case Report

# Fatal outcome of postpolypectomy syndrome: A case report☆,☆☆

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ABSTRACT

Postpolypectomy syndrome (PPS), also known as postpolypectomy coagulation syndrome or transmural burn syndrome, is a rare complication following colonic polypectomy characterized by abdominal pain, fever, and leukocytosis. Herein, we present a case of a patient in his 70s who developed abdominal pain and fever after a polypectomy. He was diagnosed with PPS, which rapidly progressed to septic shock necessitating left hemicolectomy. Pathological findings confirmed intestinal necrosis and severe electrocoagulation injury. Despite surgical intervention, the patient succum to multiple complications. While usually mild, approximately 0.07% of PPS cases require hospitalization due to localized peritonitis from electrocautery. Conservative management is effective, though severe complications are rare. Despite its generally favorable prognosis, our case highlights rapid progression to fatal septic shock postsurgery. Recognition of PPS is crucial, particularly in patients with abdominal pain postpolypectomy, as it can lead to life-threatening outcomes.



## Introduction

Postpolypectomy syndrome (PPS), also known as postpolypectomy coagulation syndrome or transmural burn syndrome, is an uncommon complication characterized by colonoscopic polypectomy [1,2]. Symptoms typically include localized abdominal tenderness, muscular guarding, fever, and leukocytosis, appearing 6-24 hours postprocedure.

The pathogenesis of PPS involves thermal injury from high-frequency electrical current during polypectomy, causing transmural burns and localized peritonitis [3,4]. This thermal damage extends through the colon wall layers, triggering peritoneal irritation and systemic inflammation [5].

While generally mild, severe complications occur in approximately 1% of all PPS cases [5,6], with 0.07% requiring hospitalization [7]. Zhuang reported critical cases of PPS-induced

*Abbreviations:* PPS, postpolypectomy syndrome; HR, heart rate; BP, blood pressure; RR, respiratory rate.

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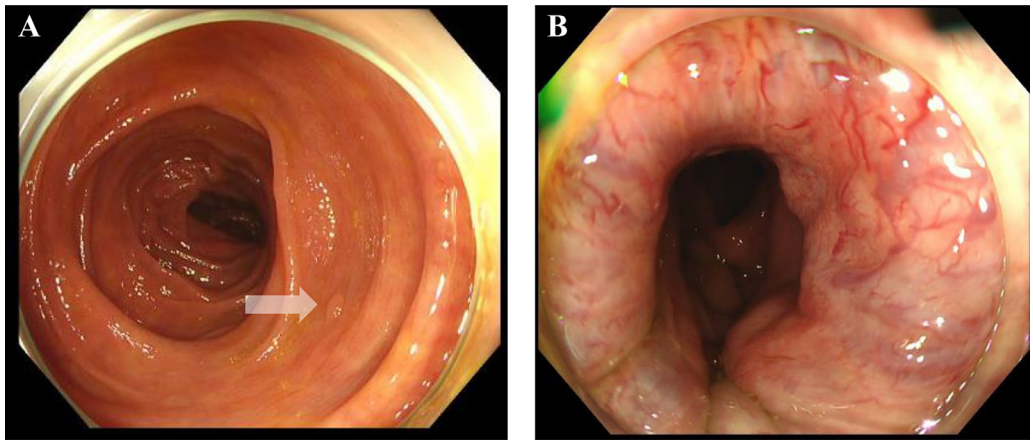


**Fig. 1 – Endoscopic view of the transverse colon. (A) The patient had an approximately 3 mm-large adenomatous polyp (arrow) in the transverse colon. This image was taken during the initial endoscopy procedure. (B) The second endoscopy, performed the morning after the onset of symptoms, showed severe edematous and mucosal congestion in the transverse colon at the polypectomy site.**

septic shock not requiring surgery [8]. Mortality rates are low, with Cha et al. [7] reporting no deaths.

Here, we present a fatal case where septic shock following polypectomy necessitated urgent left hemicolectomy in our institution, thus highlighting the rare but severe nature of PPS. This work has been reported in line with the SCARE criteria [9].

## Presentation of case

A male patient in his 70s walked into our institution with complaints of abdominal pain, fever, nausea, and vomiting postpolypectomy. His medical history included hypertension and dyslipidemia, with medication use including nifedipine, pitavastatin, calcium, and brotizolam. He denied significant family history. A 3 mm-large adenomatous polyp was detected during routine lower gastrointestinal endoscopy (Fig. 1A, initial endoscopy). Subsequent hot-snare biopsy was performed without any complications. The patient returned home and had a meal in the evening, but he developed fever, abdominal pain, nausea, and vomiting during the night. These symptoms progressively worsened. The next morning he was transported to the emergency room approximately 12 hours after the polypectomy.

On examination, his temperature was 37.6°C, heart rate (HR) was 100 beats/min, blood pressure (BP) was 102/73 mmHg, respiratory rate (RR) was 34 breaths/min, and $SpO_2$ was 97%. Physical examination revealed abdominal pain in the middle upper quadrant along with muscle guarding and rebound tenderness in the right lower quadrant. Blood tests revealed a white blood cell (WBC) count of 10,340/μl (reference range: 4,000-10,000/μl) and an elevated C-reactive protein (CRP) level of 6.02 mg/dL (reference range: <0.5 mg/dL). Liver function tests showed aspartate aminotransferase (AST) at 26 U/l (reference range: 10-40 U/l), alanine aminotransferase (ALT) at 22 U/l (reference range: 7-56 U/l), and lactate dehydrogenase (LDH) at 147 U/l (reference range: 140-280 U/l). Electrolyte levels were within normal limits, with sodium (Na) at 143 mEq/l (reference range: 135-145 mEq/l), potassium (K) at 4.3 mEq/l (reference range: 3.5-5.0 mEq/l), and chloride (Cl) at 101 mEq/l (reference range: 98-106 mEq/l). Platelet count was 269,000/μl (reference range: 150,000-450,000/μl), and hemoglobin (Hb) was 12.0 mg/dl (reference range: 13.5-17.5 g/dL). A second endoscopy revealed severe edema and mucosal congestion in the transverse colon at the polypectomy site (Fig. 1B, performed the morning after symptom onset).

Computed tomography of the abdomen showed bowel wall thickening and increased fat density around the transverse colon, consistent with the polypectomy site (Fig. 2, performed immediately after the follow-up endoscopy). Ascites was noted in the pelvis, but no free air was detected in the abdomen. Based on these findings, the patient was diagnosed with PPS. Ischemic colitis was ruled out during differential diagnosis because it typically occurs in the descending colon, which is inconsistent with our case.

As PSS is usually mild, conservative treatment was initiated. However, despite being hospitalized and monitored, the patient deteriorated rapidly over the following few hours, necessitating emergent surgery. Intraoperatively, left-sided transverse colon ischemia prompted left hemicolectomy. Pathology revealed mucosal necrosis. Postsurgery, intravenous antibiotics and intensive care using noradrenaline were unsuccessful in the intensive care unit, and the patient died 8 days postoperation.

## Discussion

PSS lacks definitive diagnostic criteria and is diagnosed by presentation postpolypectomy [7]. Symptoms typically include abdominal pain, fever, and leukocytosis.

Our case demonstrated typical symptoms and imaging findings of PSS, highlighting the importance of prompt diagnosis. The mechanism involves thermal injury and bacterial translocation, exacerbated by procedural factors like polyp

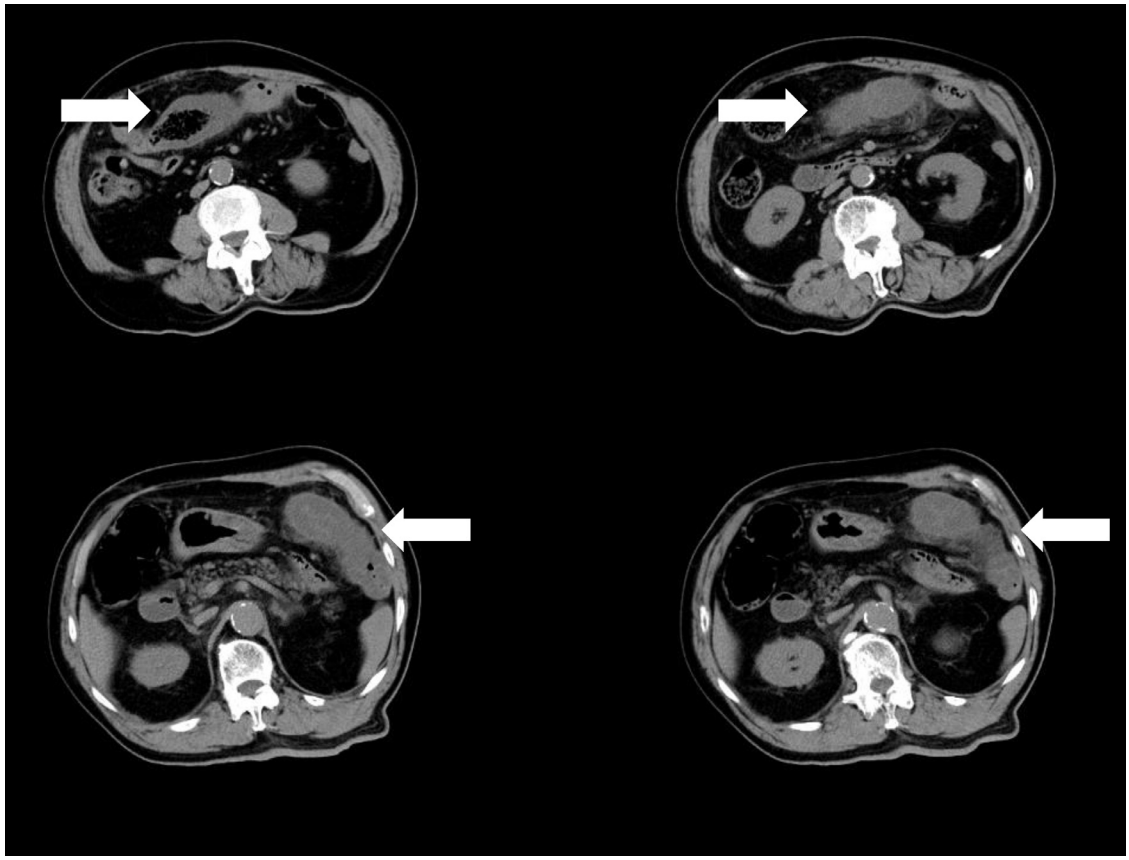

**Fig. 2 – Computed tomographic (CT) scan of the abdomen. This CT scan was performed immediately after the follow-up endoscopy, revealing bowel wall thickening of the transverse colon and increased fat tissue density surrounding it (arrow).**

size and duration [3]. To the best of our knowledge, there have been no reports regarding PPS-related mortality, indicating that PPS typically has a favorable prognosis. Due to its positive prognosis, PPS is usually treated conservatively. Nevertheless, severe complications may occur and even lead to death.

Computed tomographic imaging plays a crucial role in diagnosing PPS, revealing thickening and enhancement of the colon wall without perforation [10]. However, diagnosis remains challenging without a recent procedural history.

Cha et al. [7] reported that hypertension, large polyp size (> 2 cm), and prolonged operation time (> 90 minutes) increases PPS risk [11]. Despite advancements like cold snare polypectomy, which reduces thermal injury risk [12], PPS can still occur [13].

Our case has the limitation of the unknown exact cause of rapid deterioration. The polypectomy had no complications, making it hard to predict PPS as a rare complication with a typically good prognosis. Further studies on risk and morbidity are warranted.

## Conclusion

PPS is a rare and serious complication that should be recognized as such. Clinicians should be aware of the risk and ensure early recognition and appropriate management of PPS.

## Patient consent

Informed consent was obtained from the patient.

## Ethical approval

Ethical approval was obtained at our institution.

## Data statement

The authors confirm that the data supporting the findings of this study are available within the article.

## Author contributions

Kenji Ohira: Writing- Reviewing and Editing. Yo Kawarada: Data curation. Ryoko Iwata: Supervision. Mitsuo Satake: Supervision.

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