SMALL BOWEL INJURY FOLLOWING DEBRIDEMENT OF INFECTIOUS LUMBAR DISCITIS: A CASE REPORT

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ABSTRACT

Introduction: Lumbar discectomy is a widely accepted treatment for lumbar disc herniation and infectious spondylodiscitis unresponsive to conservative therapy. While generally safe, bowel injury is an extremely rare but potentially fatal complication, with fewer than 30 cases reported worldwide. To our knowledge, no previous reports have described small bowel perforation during microdiscectomy for infectious discitis. **Case Presentation:** We report the case of a 52-year-old woman who developed infectious spondylodiscitis at the L5–S1 level following lumbar discectomy. Despite two revision surgeries, her symptoms persisted, and she underwent a third procedure involving anterior debridement through a posterior approach. Intraoperatively, sudden loss of resistance and leakage of irrigation fluid suggested a visceral injury. Postoperatively, she developed peritonitis, and abdominal CT revealed jejunal perforation. Emergency laparotomy confirmed a complete jejunal transection, which was repaired with side-to-end anastomosis. The patient recovered fully and remained asymptomatic at 5-year follow-up. **Discussion:** Small bowel injury during lumbar microdiscectomy is exceedingly rare. In this case, infectious spondylodiscitis had weakened the anterior annulus fibrosus and anterior longitudinal ligament, predisposing to perforation during debridement. Early recognition of intra-abdominal signs and prompt surgical intervention were essential to achieve a favorable outcome. **Conclusion:** This case highlights a novel mechanism of bowel injury during revision discectomy in the setting of infectious discitis. Surgeons should be aware of this rare but serious complication and maintain high suspicion when operating in infected or structurally compromised disc spaces.

Keywords: *Intervertebral discitis; Postoperative complications; Small bowel injuries; Surgical debridement; Case report.*

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I. INTRODUCTION

Lumbar discectomy remains the standard surgical approach for managing lumbar disc herniation and infectious spondylodiscitis that fails conservative treatment. Although generally safe, several intra-abdominal complications have been reported, including vascular injury, retroperitoneal hematoma, and, more rarely, bowel perforation (1,2). The occurrence of bowel injury following lumbar microdiscectomy is an exceedingly rare event, with an estimated incidence of 0.0015% according to a large-scale study by the German Society of Neurological Surgery (3).

To date, fewer than 20 cases of bowel injury following lumbar discectomy or microdiscectomy have been published in the literature (4,5). Most of these cases involve anterior perforation of the small bowel at the L4-L5 or L5-S1 levels, where the anterior annulus fibrosus and anterior longitudinal ligament may be thinner or disrupted due to chronic degeneration (6). Moreover, the prone position during surgery, especially in obese or short patients, may increase intra-abdominal pressure, displacing bowel loops toward the anterior disc space and increasing the risk of visceral injury (7).

However, bowel injury as a complication of microdiscectomy in the setting of *infectious spondylodiscitis*-where inflammatory damage may further weaken the anterior vertebral structures-has not been previously reported to our knowledge. We report a rare case of small bowel perforation following L5-S1 discectomy in a patient with infectious spondylodiscitis, highlighting the diagnostic challenges and the importance of early surgical intervention.

II. CASE PRESENTATION

A 52-year-old Vietnamese woman with no significant comorbidities initially presented in July 2019 with right-sided L5–S1 lumbar disc herniation. She underwent open lumbar

discectomy via a right paramedian posterior approach. The immediate postoperative course was uneventful, with complete resolution of radicular pain. She was discharged on postoperative day 5.

Two weeks later, the patient returned with severe low back pain radiating to the right leg (VAS 8). Laboratory investigations showed leukocytosis (14.5 × 10^9/L), elevated erythrocyte sedimentation rate (87 mm/h), and C-reactive protein (54 mg/L). Lumbar magnetic resonance imaging revealed hyperintense fluid in the L5–S1 disc space communicating with the prior surgical tract, consistent with postoperative discitis. She was treated with intravenous vancomycin and amikacin, combined with corticosteroids. Due to persistent pain, revision surgery via the posterior approach was performed. Intraoperatively, gelatinous inflammatory tissue was debrided. Cultures were negative. Symptoms improved, and she was discharged with oral antibiotics.

Ten days later, she presented again with worsening low back pain (VAS 7) and new-onset left S1-type radicular pain (VAS 6). Laboratory findings showed leukocytosis (12 × 10^9/L), elevated erythrocyte sedimentation rate (53 mm/h), and C-reactive protein (24 mg/L). Repeat magnetic resonance imaging confirmed persistent discitis with communication to posterior soft tissues. A third operation was planned for anterior debridement through the same posterior incision. Intraoperatively, the anterior longitudinal ligament and annulus fibrosus were friable. During debridement with a pituitary rongeur, sudden loss of resistance and free irrigation leakage were observed, raising suspicion of visceral injury. A drain was placed, and the procedure was terminated.

Postoperatively, the patient developed abdominal distension and peritonitis. Urgent abdominal computed tomography revealed suspected small bowel injury. Emergency laparotomy confirmed complete jejunal transection with surrounding contusion (Figure 1). A side-to-end anastomosis was performed. She received broad-spectrum intravenous antibiotics (vancomycin, amikacin, and metronidazole) for 4 weeks. Both spinal and abdominal wounds healed without complication.

Figure 1: Intraoperative photograph showing complete transaction of the jejunum identified during emergency laparotomy

At 5-year follow-up, the patient remained pain-free, neurologically intact, and fully functional, with no recurrence of spinal infection or gastrointestinal sequelae.

III. DISCUSSION

Small bowel injury during lumbar discectomy is a rare but serious complication, with fewer than 30 cases documented in the literature to date (2,5). These injuries are typically associated with anterior annular perforation during discectomy at the L4–L5 or L5–S1 levels, where the anterior longitudinal ligament and peritoneal contents are most vulnerable due to their close anatomical proximity (1).

Several factors have been proposed to predispose patients to such injuries, including excessive advancement of surgical instruments (>3 cm), thin or degenerated anterior annulus, increased intra-abdominal pressure in the prone position, and variations in patient anatomy (4,6). However, to our knowledge, bowel perforation in the setting of discitis has not been previously reported.

In our case, the disc space had been chronically inflamed and structurally compromised due to infectious spondylodiscitis, likely weakening the protective barriers such as the annulus fibrosus and anterior longitudinal ligament. During the third surgery, while attempting to thoroughly debride the infected disc using a pituitary rongeur, the instrument likely penetrated the friable anterior structures and violated the peritoneal cavity, leading to jejunal transection. The absence of immediate intraoperative visualization of the injury further delayed diagnosis until postoperative signs of peritonitis became evident.

This mechanism is distinct from previously reported cases, where bowel injuries occurred during primary surgery in the context of disc herniation or degenerative disease. In contrast, our patient had an infected and inflamed disc space, which rendered the anterior support structures more fragile and susceptible to iatrogenic damage, even without excessive force.

The diagnosis of bowel injury after lumbar discectomy is often delayed, as initial symptoms may be nonspecific. As in prior reports, our patient developed progressive abdominal distension and peritonism within hours of surgery (4). Computed tomography is the imaging modality of choice for early detection, allowing visualization of pneumoperitoneum, free fluid, or direct bowel wall disruption (8). Prompt surgical intervention is critical. In our case, emergency laparotomy and side-to-end anastomosis were performed without delay, resulting in full recovery. This case highlights the importance of high clinical suspicion and careful technique when operating in infected spinal fields.

To our knowledge, this is the first report of small bowel perforation during surgical treatment of infectious discitis. It underscores a novel mechanism of injury and adds to the limited but growing body of literature on abdominal complications following spinal surgery.

A major limitation of this case report is the absence of key diagnostic imaging, including serial magnetic resonance imaging scans and preoperative abdominal computed tomography, which could have provided objective confirmation of the progression of disc infection and intestinal perforation. This gap in documentation resulted from poor data storage and retrieval, which may weaken the evidence base of this report. Additionally, although clinical reasoning suggests that disc infection-induced weakening of the anterior annulus fibrosus and anterior longitudinal ligament contributed to the bowel injury during discectomy, this causal mechanism remains hypothetical. No intraoperative photographs or histopathological evidence were available to confirm the structural degradation. Despite these limitations, the report highlights an extremely rare and serious complication, offering a valuable caution for spine surgeons operating in cases of suspected postoperative discitis.

IV. CONCLUSIONS

Small bowel perforation is an extremely rare but life-threatening complication of lumbar discectomy. This case is the first to describe such an injury occurring during revision microdiscectomy in the context of infectious spondylodiscitis. The inflammatory weakening of anterior disc structures likely contributed to visceral breach during debridement. High clinical vigilance, timely diagnosis, and prompt surgical management were essential for a favorable outcome. Spine surgeons should be aware of this rare complication, especially when operating in infected or structurally compromised disc spaces.

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