

Ischemic Polypectomy Through Detachable Snare and Rubber Band Ligation in Peutz–Jeghers Syndrome

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ABSTRACT

Endoscopic polypectomy is essential for the prevention of Peutz–Jeghers syndrome–associated complications, including intussusception, intestinal obstruction, and malignant transformation. Conventional polypectomy is the preferred approach, but it can be challenging to achieve in patients with Peutz–Jeghers syndrome because of the high polyp burden and polyps located in areas with difficult endoscopic access. This case report highlights 2 different techniques of ischemic polypectomy and its advantage compared with conventional polypectomy in this subset of patients.

KEYWORDS: ischemic polypectomy; Peutz–Jeghers syndrome; detachable snare; rubber band ligation

INTRODUCTION

Peutz–Jeghers syndrome (PJS) is a rare autosomal dominant inherited disorder caused by a germline mutation in the *STK11/LKB1* gene, which is located on chromosome 19p13.3. Mutations in this gene can lead to the development of hamartomatous polyps in the gastrointestinal (GI) tract, as well as mucocutaneous pigmentation.^{1,2} Patients with PJS are also at an increased risk of developing certain cancers, such as GI cancer, pancreatic cancer, and breast cancer.³ The most common clinical feature is the presence of hamartomatous polyps throughout the GI tract. These polyps are most commonly found in the small intestine and can cause



Figure 1. Mucocutaneous lesions of Peutz–Jeghers syndrome.

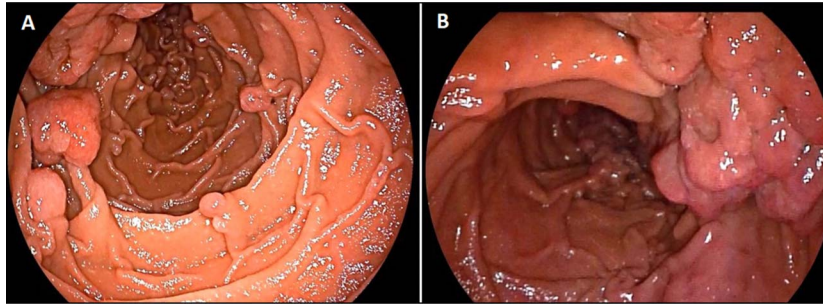


Figure 2. (A) Multiple pedunculated polyps at the duodenum. (B) Largest polyp seen near the ampulla.

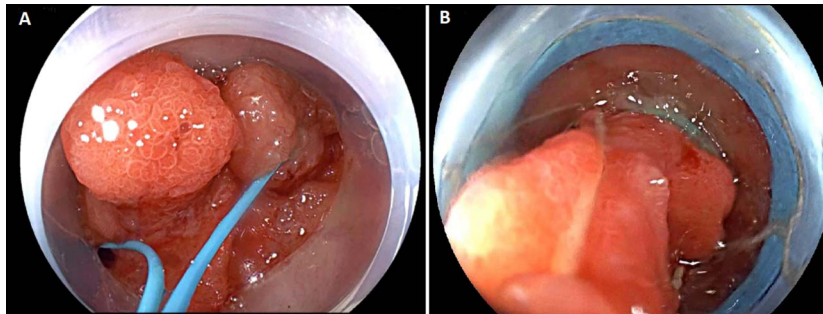


Figure 3. (A) Ischemic polypectomy through detachable snare. (B) Ischemic polypectomy through rubber band ligation.

abdominal pain, bleeding, or intussusception.^{1,2} Polyps larger than 10 mm have the potential to become malignant; hence, endoscopic resection is recommended.⁴

CASE REPORT

A 35-year-old woman was referred to our institution because of 6-month history of epigastric pain, bloating, and decreased appetite. Her symptoms were not responsive to proton pump inhibitors; hence, she was advised to undergo an upper GI endoscopy. The patient had a history of PJS (Figure 1), which was diagnosed 20 years

ago. She underwent segmental jejunioileal resection for ileojejunointussusception as a complication of PJS and has been on surveillance colonoscopy every 2 years. On upper GI endoscopy, the second part of the duodenum showed multiple varisized pedunculated and subpedunculated polyps that measured 5–15 mm (Figure 2). A duodenoscope was used to further inspect the ampulla, where the largest pedunculated polyp was found adjacent to it. The head of the largest polyp measured 30 mm, whereas the stalk of the polyp was 10 mm in diameter (Figure 2). Given the high polyp burden and the risk of bleeding, our team elected to perform ischemic polypectomy with detachable snares and rubber band ligation (RBL) in lieu of conventional polypectomy.

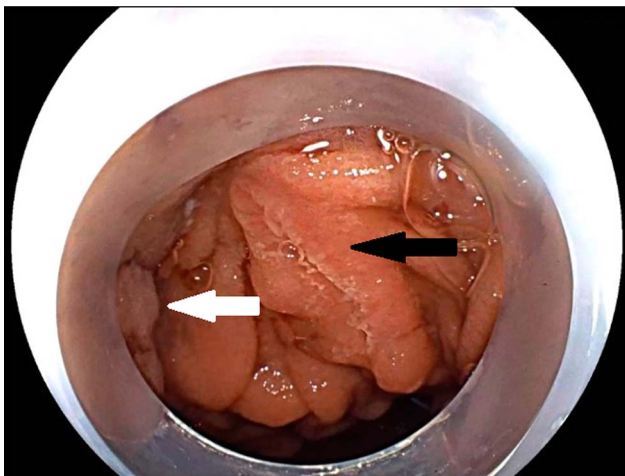


Figure 4. Ampulla pointed by the black arrow; polyp pointed by the white arrow.

In this case, our endoscopy unit did not have sufficient hemoclips to prevent bleeding during conventional polypectomy; hence, ischemic polypectomy was used instead. Detachable snares (Endo-Loop, MAJ-340; Olympus, Tokyo, Japan) were deployed on the largest pedunculated polyp (30-mm head and 10-mm stalk) (Figure 3) and to another pedunculated polyp (20-mm head and 10-mm stalk). RBL (Speedband Superview Super 7; Boston Scientific, Marlborough, MA) was used on 6 other polyps with heads that measured 5–10 mm and stalks that measured 3–5 mm in diameter (Figure 3). On retracting the polyps using a distal cap, the ampulla was visualized to be normal (Figure 4). All polyps exhibited immediate congestion and subsequent cyanotic changes after strangulation by the detachable snares and rubber bands (Figure 5). At one-year follow-up endoscopy, all polyps had detached except for one (Figure 6). This result was consistent with the study by Khurelbaatar et al,⁶ which reported that 80%–90% of treated polyps became necrotic after ischemic polypectomy.

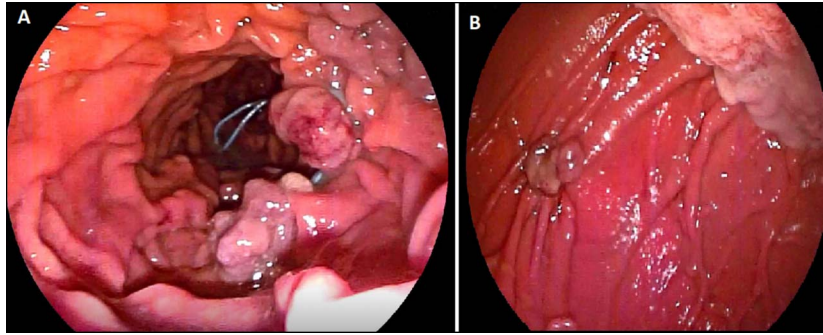


Figure 5. (A, B) Ischemic color changes after treatment.

DISCUSSION

Conventional polypectomy using electrocautery may lead to the following adverse events such as delayed bleeding, perforation, and postpolypectomy syndrome. These complications are believed to be caused by the degeneration of tissue that occurs during the electrocautery procedure.⁵ Ischemic polypectomy is an alternative endoscopic technique for the control of small-bowel polyps in patients with PJS. It is defined as the strangulation of a polyp using a detachable snare or endoclips, without the need for conventional polypectomy methods.⁶ Ischemic polypectomy blocks the blood supply to the polyp, causing it to necrose and fall off. Multiple studies have demonstrated the efficacy of ischemic polypectomy in PJS, particularly in polyps that were located in areas with limited access and range of motion. The shorter procedure time associated with ischemic polypectomy may also contribute to the reduced risk of adverse events.^{6–8}

The latest European Society of Gastrointestinal Endoscopy Guideline recommended that elective polypectomy should be performed in patients with PJS with small-bowel polyps >15–20 mm to prevent intussusception. Although in a symptomatic patient, smaller polyps causing obstructive symptoms should also be removed.⁹

In this case, the patient's upper GI symptoms failed to improve with oral medications and dietary modifications. Endoscopic therapy was performed through ischemic polypectomy. Polypectomy of the two large polyps (>15 mm) was performed based on their size exceeding established thresholds. Multiple smaller polyps, each measuring less than 15 mm, were identified in close proximity, exhibiting a tendency to aggregate and

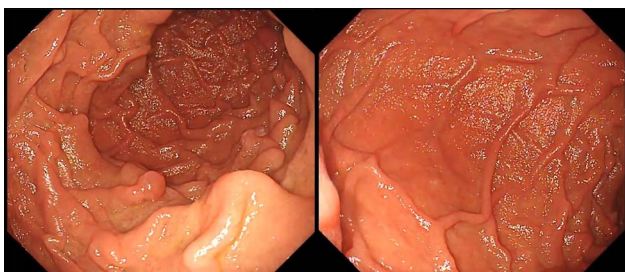


Figure 6. Repeat endoscopy 1 year after treatment.

potentially obstruct the digestive pathway during peristalsis. Therefore, polypectomy was deemed necessary by the team.

Endoscopic ischemic polypectomy is a minimally invasive procedure that can be used to remove polyps from the small intestine in patients with PJS. It is a valuable alternative to conventional polypectomy, especially in patients with high risk of bleeding, difficult-to-reach polyps, or limited resources. Our team had success in clearing most of the polyps using the combination of detachable snares and RBL.

Our team elected to use RBL for the polyps with smaller stalks (<10 mm) because detachable snares have a tendency to dislodge on small stalks. RBL has been used in previous studies, achieving successful outcomes in the performance of ischemic polypectomy on gastric and colonic polyps.¹⁰

Ischemic polypectomy does have some limitations, such as the inability to obtain a histopathological diagnosis and the uncertainty of the final outcome. This is because the polyps cannot be examined after the procedure, and some polyps may not fall off on their own after a single treatment.^{6,8,11}

DISCLOSURES

Author contributions: JRL Tan: wrote the manuscript and is the article guarantor. JT Co: edited the manuscript and senior gastroenterology adviser for the case.

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Informed consent was obtained for this case report.

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