CASE REPORT

Endoscopic resection of lateral spreading tumours in the distal descending segment of duodenum: A rare case report

Qi Yao, Xingming Ji, Ye Wang

Abstract

This case reports a patient whose chief complaint was black stool for one month. The white light endoscopic image showed a lesion in the distal proximal horizontal part of the descending duodenum, identified as laterally spreading tumours, non-granular type, flat-elevated type (LST-NG-F). The pathological diagnosis was tubular villous adenoma with high-grade intraepithelial neoplasia. Endoscopic narrow-band imaging revealed disordered mucosal glandular duct openings, disrupted mucosal microvascular arrangement, and a clear boundary between the pathological tissue and the surrounding tissue. After obtaining informed consent, the surgical resection was performed using a treatment strategy involving rubber band ligature and electrotomy. A resection specimen measuring 1.4x2cm was obtained, with negative postoperative resection margins.

Keywords: Duodenal tumour, adenoma, intraepithelial neoplasia, digestive system endoscopic surgery.

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Introduction

In recent years, advancements in endoscopic technology have significantly enhanced the visualization of gastrointestinal tumours. The diagnosis of such tumours has been significantly improved through the use pathological specimens and other technical methods. Studies have shown that duodenal polyps are found in 0.6-5% of patients undergoing gastroscopy, among which duodenal adenomas account for 0.03-0.1%[1-3] and most (75-81%) duodenal adenomas are stem less or flat[4,5] located in the descending part of the duodenum. Sporadic non-ampullary duodenal adenomas (SNADA) are rare, with only 5% of patients being accidentally found in routine endoscopy.[6,7] In most cases, patients usually have no obvious clinical symptoms, and the clinical manifestations were lack of specificity. Some patients experienced epigastric pain, abdominal distension, nausea, vomiting, anaemia and other symptoms in the late stage. In this case, Non-ampullary duodenal laterally spreading tumours (NAD-LSTs) were reported, as they share similarities with colorectal adenomatous-cancer sequences and also have a tendency to become malignant.[8,9] It has been reported[10,11] that 30-85% of duodenal adenomas will become malignant, necessitating appropriate treatment. Studies have shown[12-14] that the endoscopic resection of NAD-LSTs is a difficult procedure with a high surgical risk, and is associated with complications such as positive incisal margin, intraoperative and postoperative bleeding, perforation, and subsequent recurrence. Therefore, it is necessary to find a safe, stable and effective surgical method for treating duodenal adenoma, particularly distal adenoma. In view of the above problems, this study provides a new surgical method for the resection of the distal descending duodenal mass.

Tianjin First Central Hospital, Tianjin, China.
Correspondence: Ye Wang. e-mail: 18649203687@163.com
ORCID ID: 0009-0001-7150-6976

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Case Report

The case of a 67-year-old woman who underwent a gastroscopy on November 29, 2023, at the outpatient department of Tianjin First Central Hospital China is presented. The examination showed that the stomach body was scattered with several flat polyps about 0.2-0.3cm in size with smooth surfaces (Figure-1-a.). In the descending segment of the duodenum, below the papilla, the distal proximal horizontal part of the descending segment showed a laterally developed grayish-white flat adenoma with a size of 1.4-2cm (Figure-1-b-c.). Helicobacter pylori testing was negative. The patient has signed an informed consent form to publish the case.

Instrument and equipment: Olympus Q260J gastroscope, oesophageal varices lashers produced by Wilson-Cook Company, disposable entrappers, Erbe ICC200/APC300 electroknives, Erbe VIO300D+APC2 workstation (China) were selected.

Surgical method: The oesophageal vein ligation device was installed at the end of the endoscope, and the endoscope was inserted into the lesion, the transparent cap was aimed at the lesion, and negative pressure was applied to attract the lesion, so that the lesion was fully sucked into the transparent cap of the ligation device, and then gas was injected to expand the intestinal tube, so that the lesion was removed from the transparent cap. Under endoscopic

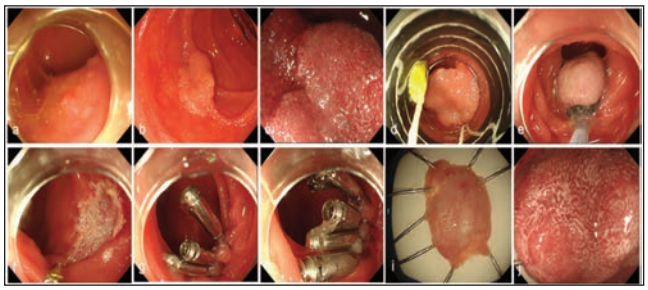

Figure-1: White-light endoscopy showed (a) scattered flat polyps in the body of the stomach about 0.2*0.3cm in size; (b) Nongranular flat elevated lateral tumour in descending segment of duodenum, about 1.4*2cm; (c) Endoscopic narrowband imaging was used to clearly display duodenal lesions; (d) Sufficient inhalation of the lesion into the transparent cap of the lasso; (e) A prosthetic pedicle formed by the use of a snare over the base of the rubber band; (f) Complete resection of the lesion; (g-h) Titanium clamp closed the wound; (i) gross view after resection of the tumor; (j) Endoscopic narrow-band imaging showed that mucosal glandular duct opening was disordered, mucosal microvascular arrangement was disordered, and the boundary between the pathological tissue and surrounding tissue was obvious.

guidance, the lesion appeared flat, gray and white, with a rough and granular surface. The base was changed like a false pedicle and the prosthetic pedicle formed by the base of the rubber band was covered with a snare. To prevent possible inhalation of muscle tissue during attraction, the snare was gently lifted, suspended and shaken several times (Figure-1-d-e.). The lesion was then completely excised by high-frequency electrotomy, mixed current, or END-CUT mode (Figure-1-f.). After the lesion was resected, it was carefully examined. If suspicious submucosal vessels or wound edges were found, Argon plasma coagulation (APC) cautery was applied to minimize the risk of delayed bleeding. In this case, no bleeding perforation was found after resection. The residual blood vessels on the wound were treated with coagulation forceps. The wound was then sprayed with a solution of 5 units of saline + batritine, and was closed with titanium clamp. (Figure-1-g-h.) Curex was sprayed on the closed area, and the wound was observed for 5-10 minutes. The specimens were removed and sent for pathological examination (Figure-1-i.). Postoperative pathological findings confirmed tubular villous adenoma with high-grade intraepithelial neoplasia (Figure-2), with negative incisal margin and basal area. The patients were fasted for 1~2 days and treated with proton pump inhibitors and mucosal protectants.

Discussion

Endoscopic resection methods, including Endoscopic Mucosal Resection (EMR), endoscopic piecemeal mucosal resection (EPMR) and Endoscopic submucosal dissection (ESD), were commonly used for SNADA.[15,16] EMR has the advantages of being a simple operation with a short operation time and low incidence of surgery-related complications. However, for LSTs with a diameter greater

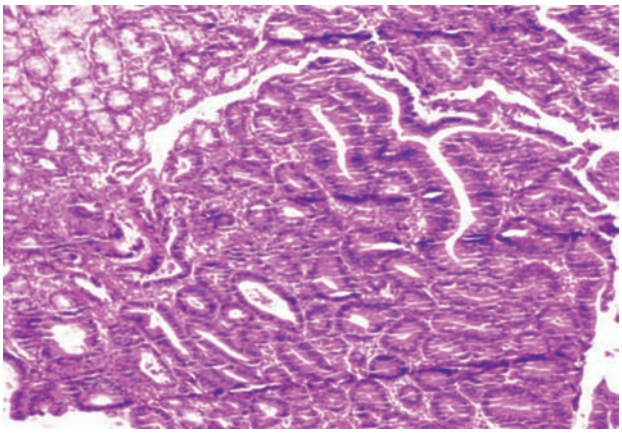

Figure-2: Histopathological examination showed a distal tubular villous adenoma of descending duodenum with high-grade intraepithelial neoplasia.

than 20mm, EPMR was adopted because it was impossible to achieve full resection.[17] Despite its advantages, EPMR has limitations. Accurate pathological assessment of the resected lesion is difficult to conduct postoperatively, making it unclear whether complete removal has been achieved. Additionally, EPMR is associated with a higher risk of residual and recurrent local lesions, and the cost is relatively high.[18,19] Dong Hyun Kim et al.[20] proposed an alternative approach for SNADA lesions larger than 20-mm in diameter. A step-by-step endoscopic treatment with underwater endoscopic mucosal resection (UEMR) following loop-and-let-go technique has been suggested as an effective strategy. ESD enables full resection of large lesions through gradual submucosal dissection, so that accurate postoperative pathological evaluation can be performed, and the residual and recurrence of lesions can be effectively prevented. However, unlike colorectal ESD, duodenal ESD is extremely difficult to operate, requires a longer operation time, and has a higher incidence of surgery-related complications.[21]

In this study, ligation combined with EMR was implemented as a therapeutic strategy. Ligation and negative pressure aspiration are common procedures used for the treatment of oesophageal and gastric varices. After full aspiration, the lesions can be completely attracted into the ligation snare under the direct vision of the endoscope. The procedure is similar to oesophageal variceal ligation. In this way, flat lesions are transformed into "long pedicle lesions". The advantage of this method is that there is no need for submucosal injection, and only negative pressure is needed to attract the lesion and release the rubber band, so that the rubber band can be looped to the base of the lesion to form an artificial pedicle, which is conducive to electrocution. If EMR method is used, submucosal injection is required first. Sometimes, the submucosal eminence after injection is not obvious, and the snare application is difficult or it is incomplete, resulting in residual lesions or

even no excision. The treatment method ensured that the lesion was completely removed at one time, the incisional margin was clean, and the lesion was not residual. In addition, the surgical method in this case also achieved good results in the control of postoperative perforation, bleeding and other complications.

Conclusion

This study reports a case of LST in the proximal horizontal segment of the distal descending duodenum treated with rubber band ligation plus electrotomy. The advantages of this method are complete resection of the lesion, easier operation, shorter treatment time, fewer complications and improved safety.

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Conflict of Interest: None.

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Author Contribution:

QY: Concept, design and agreement to be accountable for all aspects of the work.
XJ: Drafting, revision and agreement to be accountable for all aspects of the work.
YW: Final approval and agreement to be accountable for all aspects of the work.