Clinical Case Study

Speedboat™ Submucosal Dissection (SSD) of a Large G-Type LST of Lower Rectum Involving the Anal Canal

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Speedboat™ Inject

Patient History

A 63-year-old female patient with history of hypothyroidism referred for rectal bleeding, weight loss and a positive FIT test (65 µg/g). In colonoscopy (fig. 1 & 2), an 80 mm G-type LST with 2 dominant nodules was found in lower rectum and partly involving the dentate line/anal canal.

Polyp characteristics:

- Morphology (Paris classification/G/NG): G-type LST
- SMSA score: 14
- Pit Pattern/Vascular Pattern (NICE-Sano)/JNET: mostly Kudo IIIL but possibly Kudo V on nodules. NBI NICE type 2, Sano IIA, JNET 2B

Reasons that affected decision for method of endoscopic polypectomy:

- Large polyp extending to anal canal, with possibly Kudo V features, ideal for Endoscopic Submucosal Dissection (ESD).
- Biopsies showed low grade dysplasia only.
- A CT Thorax abdomen pelvis with contrast showed no suspicious mass, lymphadenopathy or evidence of malignancy.

The case was discussed at the local Complex Polyp MDT and an ESD with the Speedboat Inject device and the CROMA Advanced Energy platform system was offered.

Figure 1

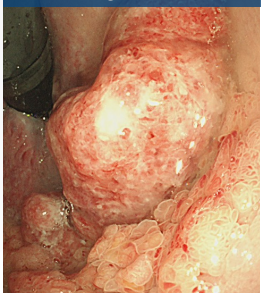
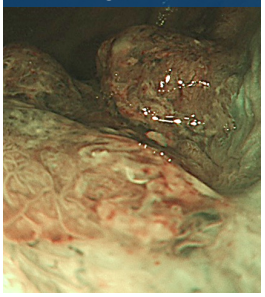


Figure 2



Procedure

- The procedure was performed under general anaesthesia using the Speedboat Inject device and the CROMA Advanced Energy generator (advanced bipolar RF, 5.8 GHz microwave).
- The polyp was located in lower rectum, up to 3 cm from the AV, on the inferior anterior wall in left lateral position, involving the dentate line with its distal margin protruding from the anal canal.
- Prior to resecting, a repeat assessment with chromoendoscopy with indigo carmine solution was performed to better delineate the margins of the lesion, measuring approximately 80 mm.
- The proximal/oral margin of the lesion was lifted first, with a generous amount of ORISE Gel and a standard EMR mix solution consisting of gelofusine, adrenaline and indigo carmine.
- An almost semi-circumferential incision was then performed approximately 5 mm above the proximal margin of the lesion with exposure of the submucosal layer. Gentle trimming of the exposed layer followed with creation of an oral gate.
- The distal/anal margin of the lesion was then injected with generous amount of lifting solutions with the addition of lidocaine 1%. A semi-circumferential incision was then performed 5 mm below the distal margin of the lesion with exposure of the thin submucosal layer of the anal canal. Trimming of the exposed submucosa followed with creation of the distal/anal gate.
- A tunnelling dissection (*fig. 3*) was then started through the distal/anal gate using the ST hood to provide anterograde traction and clear visibility of the submucosal/muscular planes.
  The Speedboat Inject device provided excellent bleeding control with isolation and microwave pre-coagulation of large vessels prior to resecting.
- Small vessels could easily be dealt with using the bipolar cutting alone (*fig. 4*). Resection was precise and delicate with continuous alignment of the blade to the submucosal/muscular plane.
- Once the tunnel was completed and the proximal and distal gates were joined, the lateral margins of the lesion were lifted and their proximal and distal incisions connected.

Figure 3

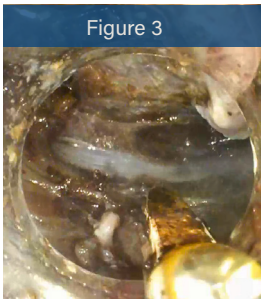


Figure 4

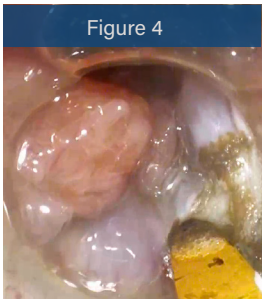
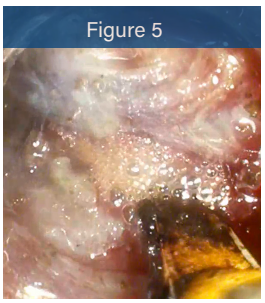


Figure 5



- The "inside-out" dissection technique was then performed to join the inner parts of the tunnel to the lateral incisions dissecting the remaining submucosal fibres from both ends of the tunnel until the lesion was completely excised. Position changes from left lateral to supine and right lateral were required at this stage to maximise views and allow gravity to help with traction and drainage of fluids.
- Deeper dissection areas of the residual large defect were clipped and all visible vessels cauterised with microwave energy (*fig. 5*) including those at the dentate line/anal canal level. PuraStat was then coated over the defect to prevent delayed bleeding and expedite the healing process.

Outcome

Given the large size of the polyp and length of the procedure, the patient was admitted overnight for observation, antibiotics and pain control. The postoperative course was uneventful and the patient was discharged the following day.

The histological (*fig. 6*) assessment revealed a tubulovillous adenoma with low grade dysplasia completely excised from peripheral and deep margins.

Macroscopy:

- Rectal polyp measuring about 80 x 40 mm

Microscopy:

- This is a tubulovillous adenoma with low grade dysplasia. There is no evidence of high grade dysplasia or invasive malignancy. It is completely excised from peripheral and deep margins.

Diagnosis:

- Rectal polyp: Tubulovillous adenoma with low grade dysplasia, fully excised.

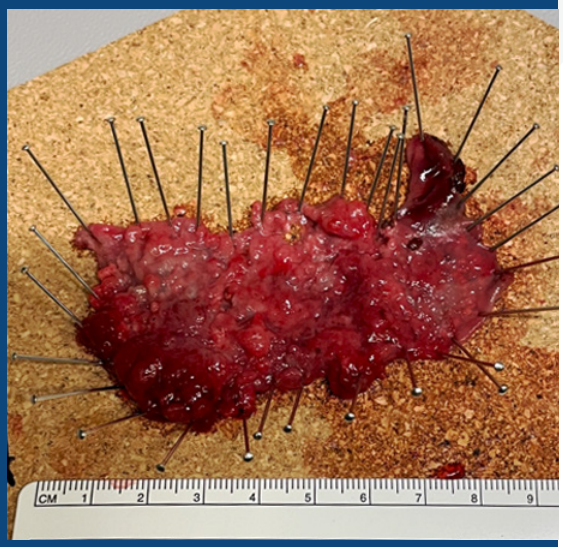


Fig. 6

Conclusions

- This case highlights the safety and efficacy of the Speedboat Inject device and the CROMA Advanced Energy platform in removing endoscopically and in en bloc fashion a large polyp located in a challenging position such as the lower rectum and the anal canal.
- Pre-coagulation with microwave energy of large vessels located at this highly vascularised level proved effective in maintaining clear views at all times and ensuring minimal thermal damage of the underlying muscular tissue (*fig. 7*).
- Submucosal dissection with the Speedboat Inject device was gentle and predictable making the whole procedure safe, reasonably fast and satisfying.
- The only valid alternative to this procedure would be a surgical transanal excision but with high risk of anal sphincter injury and difficult access to the entirety of the lesion with resulting incomplete/ suboptimal en bloc resection. An endoscopic mucosal resection (EMR), typically in a piecemeal fashion for large polyps, could also lead to an incomplete resection with higher rates of recurrence, less chances to achieve an R0 (radical) excision, and suboptimal histopathological assessment due to the fragmentation of the lesion.
- The lateral margins clearance in both a horizontal and vertical axis are clear and reassuring making the risk of recurrence unlikely. The absence of carbonisation/ charring of the cutting margins also renders the histological assessment more accurate and reliable.
- The impact on the patient and hospital has been minimal compared to an equivalent surgical alternative. The patient was treated as a day case and required no admission or other investigations and treatment. This offers a substantial advantage over alternative methods, including a financial element. If an ESD service and relevant skills were not available, the case would have been treated with suboptimal modalities or referred to another referral centre/hospital with potentially serious impact on logistics, waiting times, patient experience, continuity of care and clinical risk management.

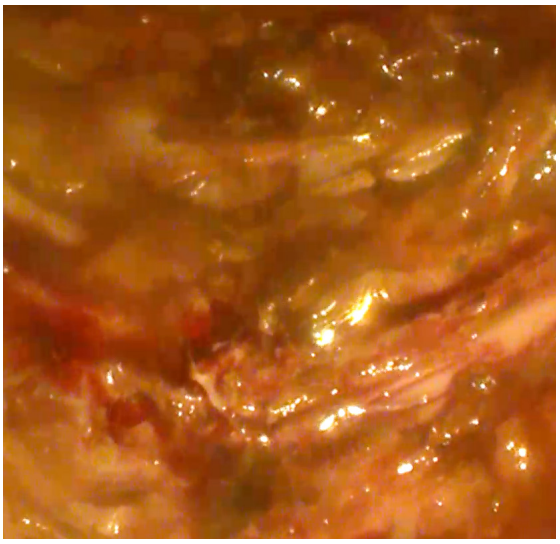


Fig. 7

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