



Endoscopic Full Thickness Resection (EFTR) of a Recurrent Colonic Polyp

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Abstract

Colorectal cancer (CRC) is the third most common cancer in the United States, and it is the second leading cause of cancer related mortality. Screening and removal of precancerous polyps have reduced the incidence of CRC and death. The screening age has been reduced to age forty-five in average risk individuals. Fibrosis is a common complication of prior endoscopic interventions, making recurrent, fibrotic, non-lifting colorectal adenomas difficult to resect using traditional resection methods. An en-bloc full thickness resection (EFTR) allows for a safe and relatively complication free resection of these lesions by resecting all colonic wall layers with concomitant defect closure. We report a case of full thickness resection of a recurrent colon polyp following endoscopic mucosal resection. An 81-year-old male with a history of prior EMR of a 5 cm ascending colon tubulovillous adenoma presented 9 years later for a surveillance colonoscopy. Another polyp was found at the prior EMR site and due to dense fibrosis, submucosal injection was unable to acquire adequate lift. The biopsies of the polyp demonstrated tubular adenoma and FTRD (full-thickness resection device) was used to successfully remove it. Histopathological reports further confirmed the diagnosis of tubular adenoma, and the margins were negative for dysplasia. Furthermore, there were no complications post procedure with the patient being discharged the same day and remaining asymptomatic on follow-up visits.

Key words: Recurrent polyp; endoscopic full thickness resection (EFTR); endoscopic mucosal resection (EMR); colorectal cancer (CRC); colorectal adenoma.

Case

The patient is an 81-year-old male with personal history of adenomatous polyps of colon and family history of colon cancer and polyps. The patient underwent endoscopic mucosal resection (EMR) for a 5 cm polyp in ascending colon in an outside hospital. Histopathology showed tubulovillous adenoma without dysplasia or adenocarcinoma. He has been undergoing periodic surveillance by another physician and small recurrences were managed by endoscopic removal at that site. Nine years following his EMR, during his recent surveillance colonoscopy examination, a 2 cm recurrent polyp was identified adjacent to the prior tattooed EMR site in the right colon. Due to the prior EMR and biopsies, the lesion would not lift with submucosal injection due to dense submucosal fibrosis, so a decision was made to remove this lesion by full thickness resection (FTR). Biopsies prior to FTR revealed tubular adenoma.

Histopathological examination of the full thickness resected lesion showed tubular adenoma with negative margins for dysplasia.

Colonoscopy was done using pediatric colonoscope (Olympus America) under moderate sedation using intravenous propofol sedation. The lesion margin was marked using marking probe provided in the kit, (Ovesco endoscopy, Germany). Colonic Full thickness resection device (Ovesco endoscopy, Tubingen Germany) was mounted at the end of the pediatric colonoscope and advanced to the target lesion in the ascending colon (Fig 1 & 2). The lesion was pulled into the transparent hood using a grasper forceps and the clip was deployed followed by snare resection using pure cutting 200 W current. The lesion was retrieved with the scope and mounted on a board and sent to pathology. Colonoscopy was repeated and full thickness resection site was examined for completeness and for any adverse events. The resection was complete and there was no bleeding or perforation noted (Fig 3). The patient was discharged home same day without any adverse event. The pathology of the resected lesion depicted in Figures 4, 5 & 6 showed tubular adenoma with low grade dysplasia without any evidence of adenocarcinoma. He was seen for follow up and he was feeling fine without any pain or any other symptom and we have planned to repeat his colonoscopy surveillance in six months.



Figure 1: Recurrent polyp noted at the prior EMR site.



Figure 2: Marking of the lesion and the colonic full thickness resection device at the end of the colonoscope.

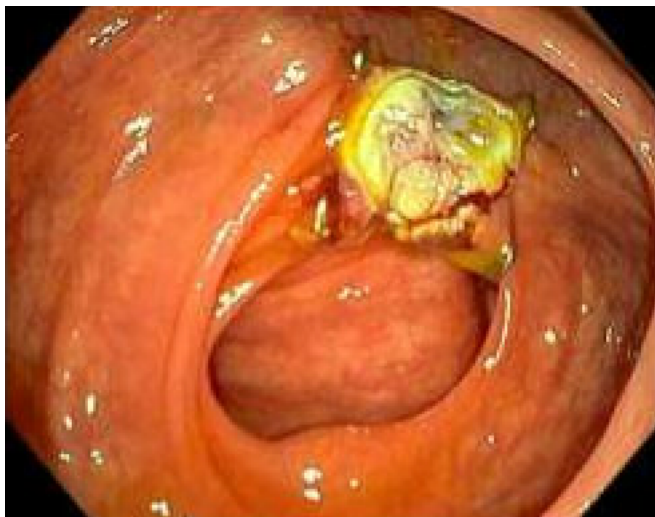


Figure 3: Successful full thickness resection with the clip in place.

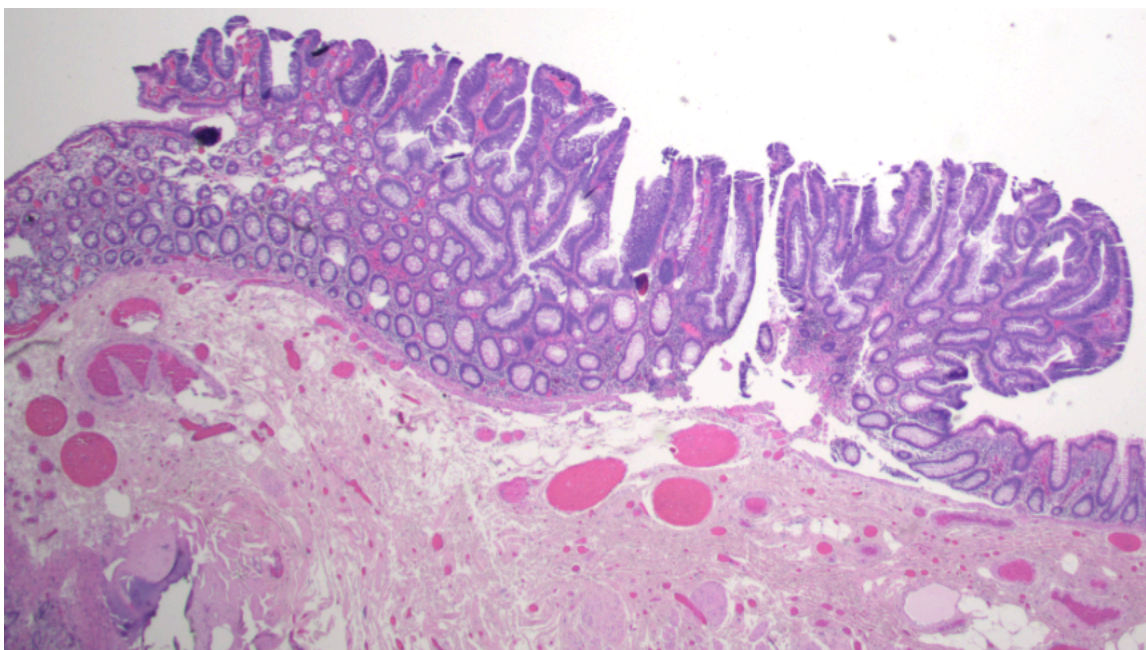


Figure 4: Low power view of tubular adenoma with benign colonic mucosa at the periphery (40x magnification).

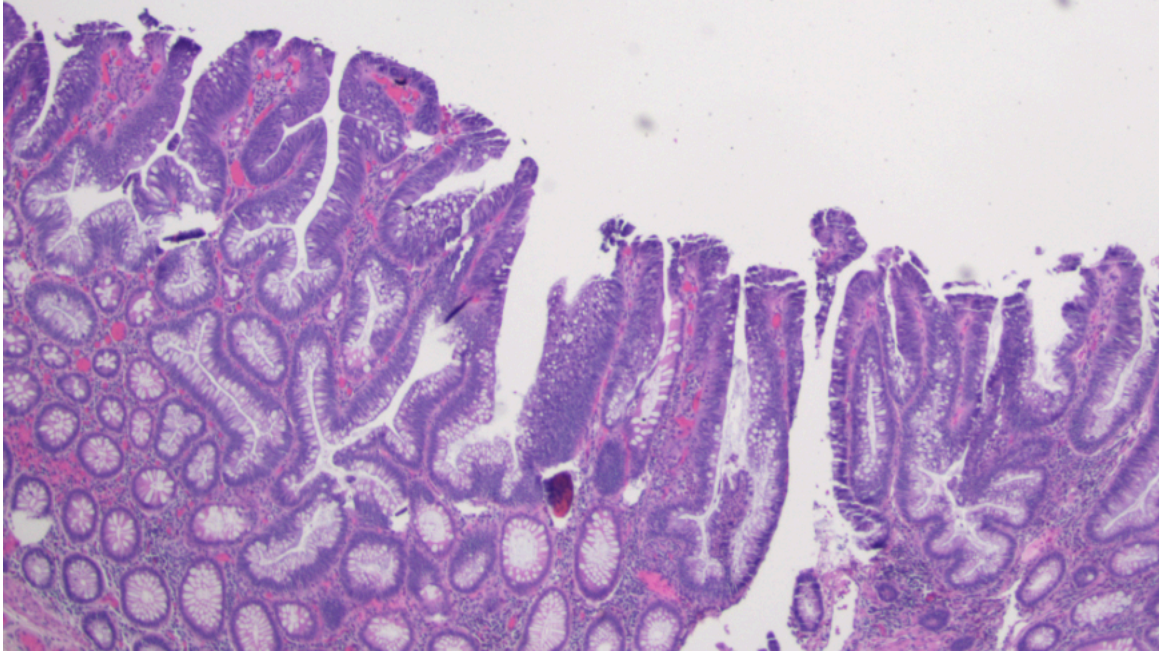


Figure 5: Higher power view demonstrates low grade dysplasia characterizing the tubular adenoma. There is no evidence of high-grade dysplasia (**100x magnification**).

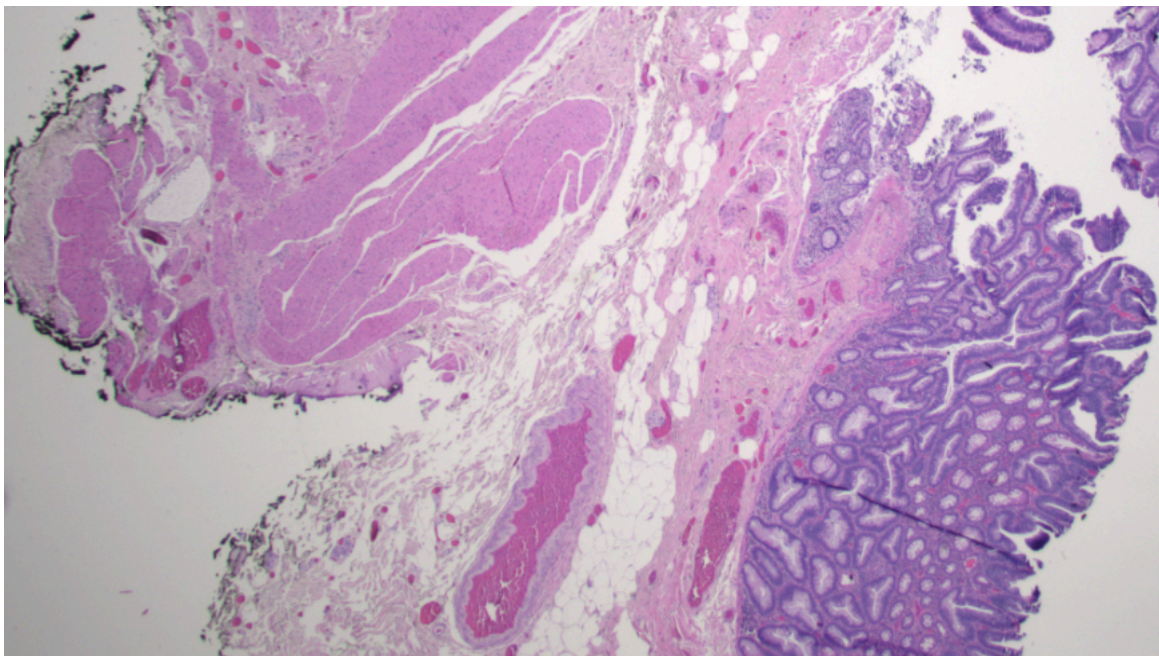


Figure 6: Low power view demonstrating the full thickness resection with tubular adenoma on the right with underlying submucosa and muscularis propria on the left (**40x magnification**).

Discussion:

Colorectal cancer (CRC) is the third most common cancer in the United States, and it is the second leading cause of cancer related mortality. Screening and removal of precancerous polyps have reduced the incidence of CRC and death. The screening age has been reduced to age forty-five in average risk individuals.

Colorectal adenomas are the primary precursor lesions to CRC, accounting for about 85-90% of cases.¹ Management includes complete endoscopic removal and personalized surveillance to reduce CRC incidence.¹ For small polyps (< 9 mm), cold snare polypectomy (CSP) is the standard of care, and for intermediate polyps (10-19 mm), hot snare polypectomy (HSP) is recommended for nonpedunculated adenomas.² For large nonpedunculated colorectal polyps (LNPCPs) (>20 mm), endoscopic mucosal resection (EMR) is the preferred treatment, but endoscopic submucosal dissection (ESD) may be considered for lesions with submucosal invasion to achieve an en bloc resection.² Lastly, for difficult, "non-lifting" adenomas, or lesions that do not separate from muscularis propria due to fibrosis from previous biopsies or resections, endoscopic full-thickness resection (EFTR) can be used.³

The most significant challenge of recurrent adenomas is fibrosis from previous procedures.³ This prevents the mucosal layer from separating from the muscularis propria during fluid injection, which is known as the "non-lifting" sign.³ Performing EMR or ESD on these non-lifting, fibrotic lesions significantly increases the risk of perforation, as the snare or knife is more likely to engage the muscularis propria.³ Additionally, these lesions are often anchored deep within or below the submucosal layer, which is beyond the reach of conventional snare-based techniques.⁴ Studies have shown that recurrent adenomatous tissue can be observed in 11.4% to 19.4% of cases during follow-up, even after a successful rescue procedure.⁵ Patients should undergo intensive long-term surveillance, as recurrences can appear even after an initial negative 3-month follow-up.⁶

Endoscopic full-thickness resection (EFTR) is utilized to provide a minimally invasive mechanism for resection of difficult colorectal lesions that are not amenable to conventional techniques like EMR or ESD.³ Endoscopists utilize an over-the-scope full-thickness resection device (FTRD) to achieve en bloc removal of all wall layers, including the muscularis propria, and close the defect with a metal clip.⁶ EFTR is utilized for lesions that would have required surgery due to technical or anatomical complexity. This is particularly beneficial for patients who are poor surgical candidates.³ Additionally, EFTR is a less invasive outpatient procedure with lower complication rates.² EFTR is generally less expensive than surgery, avoids general anesthesia in many cases, and allows for a faster recovery and shorter hospital stay.² Studies report success

rates of EFTR ranging from 81% to 89%, with complete resection margins achieved in 79% to 86% of cases.⁷ Efficacy of EFTR is significantly higher for lesions <20 mm compared to those >20 mm.² EFTR is considered generally safe, but the most serious common complication, which occurs in 2% to 8% of cases, is perforation. Ongoing surveillance is required because recurrence is not eliminated, as studies report residual or recurrent adenoma in 8% to 19.4% of cases.⁶

This case highlights the utility of EFTR in providing a minimally invasive alternative to surgery in patients with recurrent adenomas. An en bloc excision with negative margins was able to be performed in a patient with a recurrent adenoma at a prior EMR site, while avoiding the morbidity of colectomy and general anesthesia. This case reinforces the role of EFTR as an effective strategy for fibrotic, previously targeted lesions, and emphasizes the importance of long-term surveillance.

References

1. Zhang, J., Deng, Y., Tang, H., Liu, J., Si, W., Sun, B., & Zhuang, K. (2025). New predictors of recurrence in post-polypectomy surveillance – A retrospective analysis of risk stratification for advanced adenomas and polyps. *Revista Española de Enfermedades Digestivas*, 117(4), 188–197. <https://doi.org/10.17235/reed.2024.10832/2024>
2. Ferlitsch, M., Hassan, C., Bisschops, R., Bhandari, P., Dinis-Ribeiro, M., Risio, M., Paspatis, G. A., Moss, A., Libânio, D., Lorenzo-Zúñiga, V., Voiosu, A. M., Rutter, M. D., Pellisé, M., Moons, L. M. G., Probst, A., Awadie, H., Amato, A., Takeuchi, Y., Repici, A., Rahmi, G., ... Bourke, M. J. (2024). Colorectal polypectomy and endoscopic mucosal resection: European Society of Gastrointestinal Endoscopy (ESGE) Guideline - Update 2024. *Endoscopy*, 56(7), 516-545. <https://doi.org/10.1055/a-2304-3219>
3. Ichkhanian, Y., Vosoughi, K., Diehl, D. L., Grimm, I. S., James, T. W., Templeton, A. W., Hajifathalian, K., Tokar, J. L., Samarasena, J. B., Chehade, N. E. H., Lee, J., Chang, K., Mizrahi, M., Barawi, M., Irani, S., Friedland, S., Korc, P., Aadam, A. A., Al-Haddad, M. A., ... Khashab, M. A. (2021). A large multicenter cohort on the use of full-thickness resection device for difficult colonic lesions. *Surgical Endoscopy*, 35(3), 1296–1306. <https://doi.org/10.1007/s00464-020-07504-9>
4. Bulut, M., Buch, N., Knuhtsen, S., Gogenur, I., & Bremholm, L. (2022). Endoscopic full-thickness resection of benign and malignant colon lesions with one-year follow up in a Danish cohort. *Scandinavian Journal of Gastroenterology*, 57(3), 377–383. <https://doi.org/10.1080/00365521.2021.2013526>

5. Meier, B., Elsayed, I., Seitz, N., Wannhoff, A., & Caca, K. (2023). Efficacy and safety of combined EMR and endoscopic full-thickness resection (hybrid EFTR) for large nonlifting colorectal adenomas. *Gastrointestinal Endoscopy*, 98(3), 405–411. <https://doi.org/10.1016/j.gie.2023.03.020>
6. Cavalcoli, F., Magarotto, A., Kelly, M. E., Cantù, P., Mancini, A., Rausa, E., & Masci, E. (2023). Outcomes of endoscopic full thickness resection in the colon rectum at an Italian tertiary center. *Techniques in Coloproctology*, 27, 1289–1296. <https://doi.org/10.1007/s10151-023-02823-0>
7. Dolan, R. D., Bazarbashi, A. N., McCarty, T. R., Thompson, C. C., & Aihara, H. (2022). Endoscopic full-thickness resection of colorectal lesions: A systematic review and meta-analysis. *Gastrointestinal Endoscopy*, 95(2), 216–224.e18. <https://doi.org/10.1016/j.gie.2021.09.039>



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