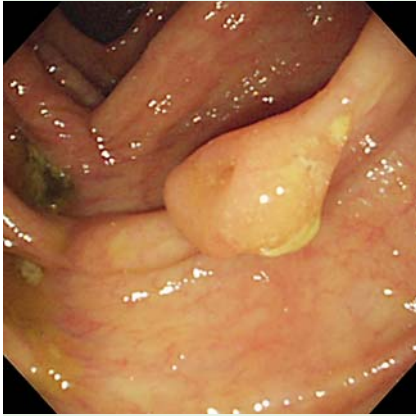


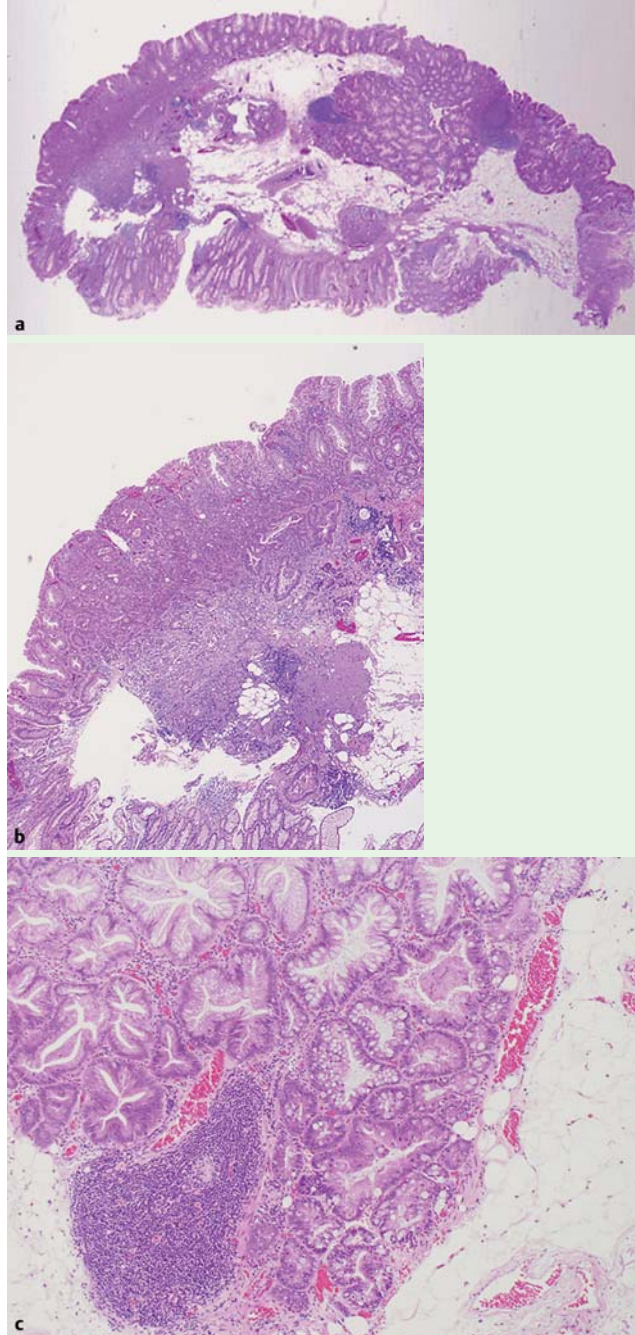
## Invasive cancer arising in a colonic inverted hyperplastic polyp



**Fig. 1** Colonoscopy showed a whitish, flat, elevated polyp, 10 mm in diameter, with a dimple on the top in the ascending colon.

A 64-year-old man underwent colonoscopy for the investigation of lower abdominal pain. Colonoscopy showed a whitish, flat, elevated polyp, 10 mm in diameter, in the ascending colon (● **Fig. 1**). Endoscopic mucosal resection (EMR) was carried out, and the resected specimen histologically revealed both invasive cancer and serrated adenomatous glands coexisting in an inverted hyperplastic polyp (IHP) (● **Fig. 2a–c**). A follow-up colonoscopy 6 months later revealed an irregularly elevated normal mucosa with fold convergence adjacent to the EMR scar (● **Fig. 3**). Although endoscopic features suggested a recurrent cancer, endoscopic biopsies unfortunately failed to identify recurrent cancer histologically. Surprisingly, a second follow-up colonoscopy only 3 months later showed an advanced colon cancer (● **Fig. 4**). Endoscopic biopsies showed poorly differentiated adenocarcinoma, and therefore surgical resection was carried out. Histologically, the recurrent cancer was a subserosally invasive, poorly differentiated adenocarcinoma with vascular invasion and nodal involvement, and it was classified as stage III (T3N2M0).

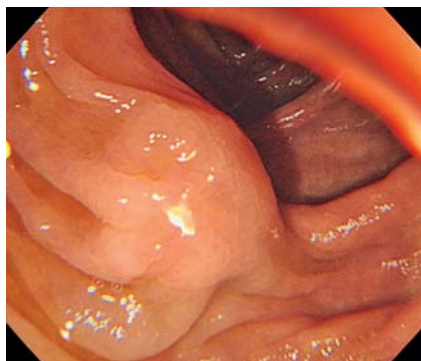
This IHP was 10 mm in diameter, which is a so-called large hyperplastic polyp, and interestingly it demonstrated a characteristic endoscopic and histologic feature of IHP [1]. IHP is a variant form of hyperplastic polyp with a characteristic histologic



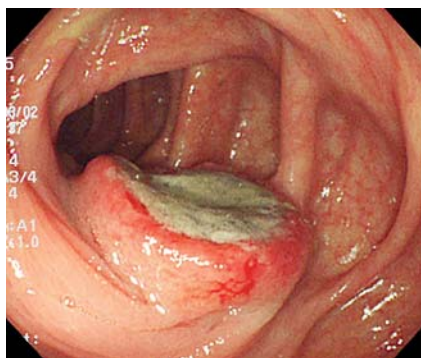
**Fig. 2** **a** Histologically, the resected polyp was diagnosed as an inverted hyperplastic polyp associated with a submucosal invasive cancer and serrated adenoma. **b** Serrated adenomatous glands were detected in the inversion part of this hyperplastic polyp. **c** The submucosal invasive cancer mainly consisted of moderately differentiated adenocarcinoma and partly of poorly differentiated adenocarcinoma.

feature of epithelial misplacement or inversion of the epithelium into the submucosa [2]. Our case was unique and the histology detected the presence of not only an invasive, poorly differentiated carcinoma but also serrated adenomatous glands surrounded by hyperplastic glands. To date, three cases of IHP associated with

adenoma have been reported [3]; however this is the first case report of both of invasive cancer and serrated adenoma arising in an IHP. Recently, serrated polyps have been histologically defined as polyps that demonstrate a serrated or “saw-toothed” appearance, and include hyperplastic polyps, serrated adenoma, and



**Fig. 3** At the first follow-up colonoscopy, an irregularly elevated normal mucosa with fold convergence mimicking a submucosal tumor was detected at the resection site. Endoscopic features suggested a submucosal mass probably created by a recurrent cancer.



**Fig. 4** An ulcerative lesion, suggesting an advanced colon cancer, was detected at the site of the resection scar.

polyps with combined histology [4]. Carcinoma associated with serrated adenoma has been reported to be a distinct type of colorectal neoplasm, accounting for 5.8% to 7.5% of all colorectal carcinoma cases and up to 17.5% of proximal colon cancers [5]. Based on the concept of the “serrated polyp neoplasia pathway”, the serrated adenoma in this IHP could be considered to originate from the hyperplastic glands, as it was surrounded by hyperplastic glands especially in the inverted part, and it would subsequently replace the surrounding hyperplastic glands and then develop into invasive carcinoma with undifferentiated histology.

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## References

- 1 Fu KI, Matsuda T, Saito Y et al. An inverted hyperplastic polyp with a characteristic colonoscopic appearance. *Endoscopy* 2006; 38 Suppl 2: E55
- 2 Sobin LH. Inverted hyperplastic polyps of the colon. *Am J Surg Pathol* 1985; 9: 265–272
- 3 Kuribayashi K, Ishii T, Ishidate T et al. Two cases of inverted hyperplastic polyps of the colon and association with adenoma. *Eur J Gastroenterol Hepatol* 2004; 16: 107–112
- 4 Hawkins NJ, Bariol C, Ward RL. The serrated neoplasia pathway. *Pathology* 2002; 34: 548–555
- 5 Mäkinen MJ. Colorectal serrated adenocarcinoma. *Histopathology* 2007; 50: 131–150

## Bibliography

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