Large serrated polyp with KRAS mutation in inflammatory bowel disease: a “nondysplastic dysplasia-associated lesion or mass (DALM)”?

Patients with longstanding inflammatory bowel disease (IBD) have an increased risk of colorectal cancer. A causal link between chronic inflammation and cancer is well recognized. Precursor lesions include flat dysplasia (intraepithelial neoplasia) and elevated dysplasia, also known as dysplasia-associated lesion or mass (DALM) [1].

A 52-year-old woman with 20-year history of ulcerative colitis underwent surveillance colonoscopy, which disclosed a large irregular polyp in the sigmoid colon (Fig. 1). Biopsies showed a nondysplastic polyp with marked crypt dilatation within the sigmoid colon (hematoxylin and eosin, original × 100). This polyp was completely removed and a second lesion clearly showing dysplastic glands was discovered at the rectosigmoid junction, and was diagnosed as high grade DALM (Fig. 2c, d).

Molecular analysis of the serrated polyp revealed KRAS mutation in exon 13 (Fig. 3); tests for BRAF mutation and microsatellite instability were negative.

In 2008, Srivastava et al. [2] reported a series of three patients with longstanding IBD who developed numerous “hyperplastic/serrated” colonic polyps similar to those described in the “hyperplastic/serrated” polyposis syndrome. Two patients had synchronous colorectal cancer. KRAS mutation was detected in five of the 11 polyps. These findings suggested the possibility of a serrated pathway of carcinogenesis in IBD. In the sporadic setting, sessile serrated adenomas/polyps (SSA/P) are known precursors of mainly right-sided microsatellite unstable cancers. They may also be regarded as indicator lesions, as these polyps have been associated with increased risk of synchronous and/or metachronous cancer growth, particularly of the proximal colon [3, 4].

We believe our case to be the first description of a solitary serrated polyp with KRAS mutation, similar to the lesions occurring as polyposis in longstanding IBD described by Srivastava et al. [2]. These nondysplastic lesions may indicate increased risk of synchronous and/or metachronous advanced neoplasia and may be the equivalent of conventional DALMs with respect to cancer prediction (“nondysplastic DALM”).

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Competing interests: None

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Fig. 3  Molecular analysis (pyrosequencing of the KRAS gene) of the serrated polyp showing a somatic missense mutation in codon 13: wildtype control (upper panel) and serrated polyp (lower panel).

References

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