

Terminal differentiation and Braf mutation are associated with unique serrated configuration of serrated adenoma in the colorectum

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Objective: Serrated glands of serrated adenoma (SA) consist of two kinds of cells: the tall columnar cells of the intraluminal projecting portion and the short columnar cells of the concave portion. The two cells alternate to give the appearance of a unique, serrated epithelial architecture. The aim of this study was to clarify relationship between the serrated architecture and proliferation/differentiation process and Braf mutation in SAs.

Methods: The expressions of both terminally differentiated markers such as cytokeratin (CK) 20 and carbonic anhydrase I (CAI), and progenitor/proliferative markers such as β -catenin, CD44 and Ki-67 were immunohistochemically examined in 43 SAs. Moreover, the Braf mutation status of tall and short columnar cells were detected in 30 SAs using microdissection combine with semi-nest polymerase chain reaction (PCR)-sequencing method.

Results: CK20 and CAI expressions were confined to the tall cells, while nuclear β -catenin and CD44 expressed in the short cells in SAs. The Ki-67 labeling indices were significantly lower in the tall cells than in short ones. The Braf mutation rates were significantly higher in the tall cells than in short ones.

Conclusions: SAs undergo a proliferation versus terminal differentiation process, and unique serrated configuration might be associated with terminal differentiation caused by Braf mutation.

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