

DISTRIBUTION OF MATURE AND PROLIFERATING CELLS IN SERRATED COLON LESIONS DUE TO CK20 AND KI67 EXPRESSION

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Objective

According to the modern classification of premalignant colon lesions, hyperplastic polyps (HP) and sessile serrated adenomas/polyps (SSA/P) are considered to be possible colorectal cancer precursors. However, the natural history of these lesions is not still determined. Studying distribution of mature and immature colonocytes might provide important information about natural development of HP and SSA/P and their biology.

Methods

We assessed immunohistochemical expression of CK20 (as a marker of mature colonocytes) and Ki67 (as a marker of immature proliferating cells) in 28 colon and rectum HPs, 30 SSA/Ps and 88 specimens of intact mucosa (IM) as comparing group. We evaluated distribution and intensity of CK20-positive cells, distribution and index of Ki67-positive cells in each case.

Results

CK20-positive cells were distributed in upper 2/3 crypts in all HPs and SSA/Ps. IM specimens showed more variable results.

Distribution of CK20-positive cells

Compartment:	IM	HP	SSA/P
Superficial	26,1% (n=23)	0%	0%
Upper 1/3 of crypts	59,1% (n=52)	0%	0%
Upper 2/3 of crypts	14,8% (n=13)	100% (n=28)	100% (n=30)
Total:	100% (n=88)	100% (n=28)	100% (n=30)

The intensity of CK20-reaction was scored 1 to 5 in each case. In precursor lesions there was more diffuse and less intensive reaction with CK20 in comparison with IM ($p < 0,01$).

Intensity of CK20-reaction

Score:	IM	HP	SSA/P
1	0%	0%	0%
2	1,1% (n=1)	10,7% (n=3)	0%
3	14,8% (n=13)	42,9% (n=12)	63,3% (n=19)
4	65,9% (n=58)	46,4% (n=13)	36,7% (n=11)
5	18,2% (n=16)	0%	0%
Total:	100% (n=88)	100% (n=28)	100% (n=30)

Ki67-positive cells were distributed in lower half of the crypts in all cases of HPs, SSA/Ps and IM. The expression of Ki67 in the lower half of the dilated SSA/P crypts is significantly lower than in the lower half of the non-dilated SSA/P crypts and the lower half of HP crypts ($p < 0,01$). No significant difference was revealed by the level of Ki67 between lower half of the non-dilated SSA/P crypts and the lower half of HP ($p > 0,05$).

Ki67-index in lower half of crypts

Ki67-index:	IM	HP	SSA/P
Non-dilated crypts	33,1%	63,0%	66,2%
Dilated crypts	–	–	35,8%

There was no significant difference revealed either by the nature of cell distribution or by the intensity of CK20 and Ki67 staining between HP and SSA/P.

Images

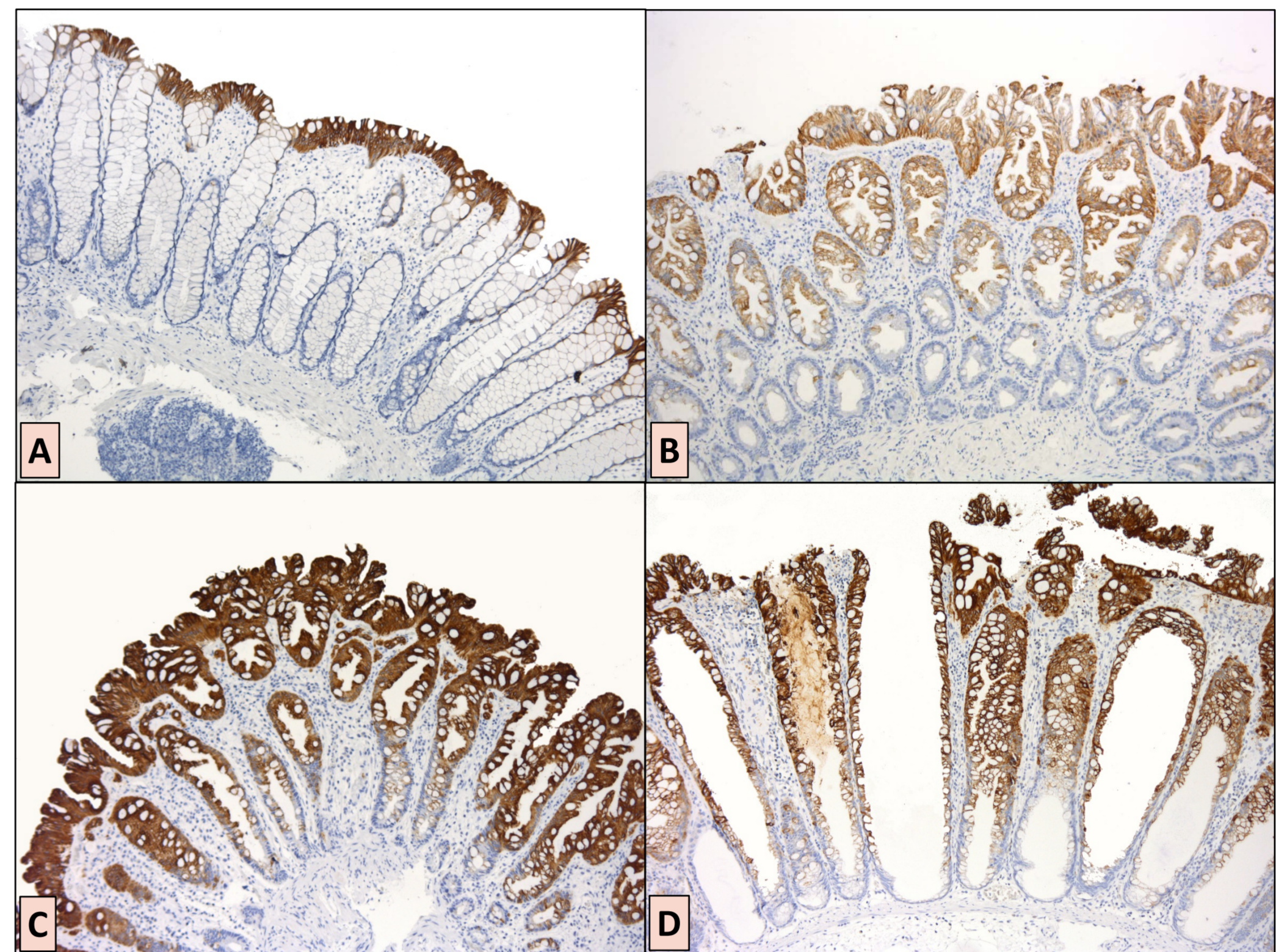


Fig. 1. Expression of CK20.

A – IM: superficial distribution, intensity – 3 (x100);

B – HP: distribution in upper 2/3 of crypts, intensity – 2 (x100);

C – HP: distribution in upper 2/3 of crypts, intensity – 4 (x100);

D – SSA/P: distribution in upper 2/3 of crypts, intensity – 3 (x100).

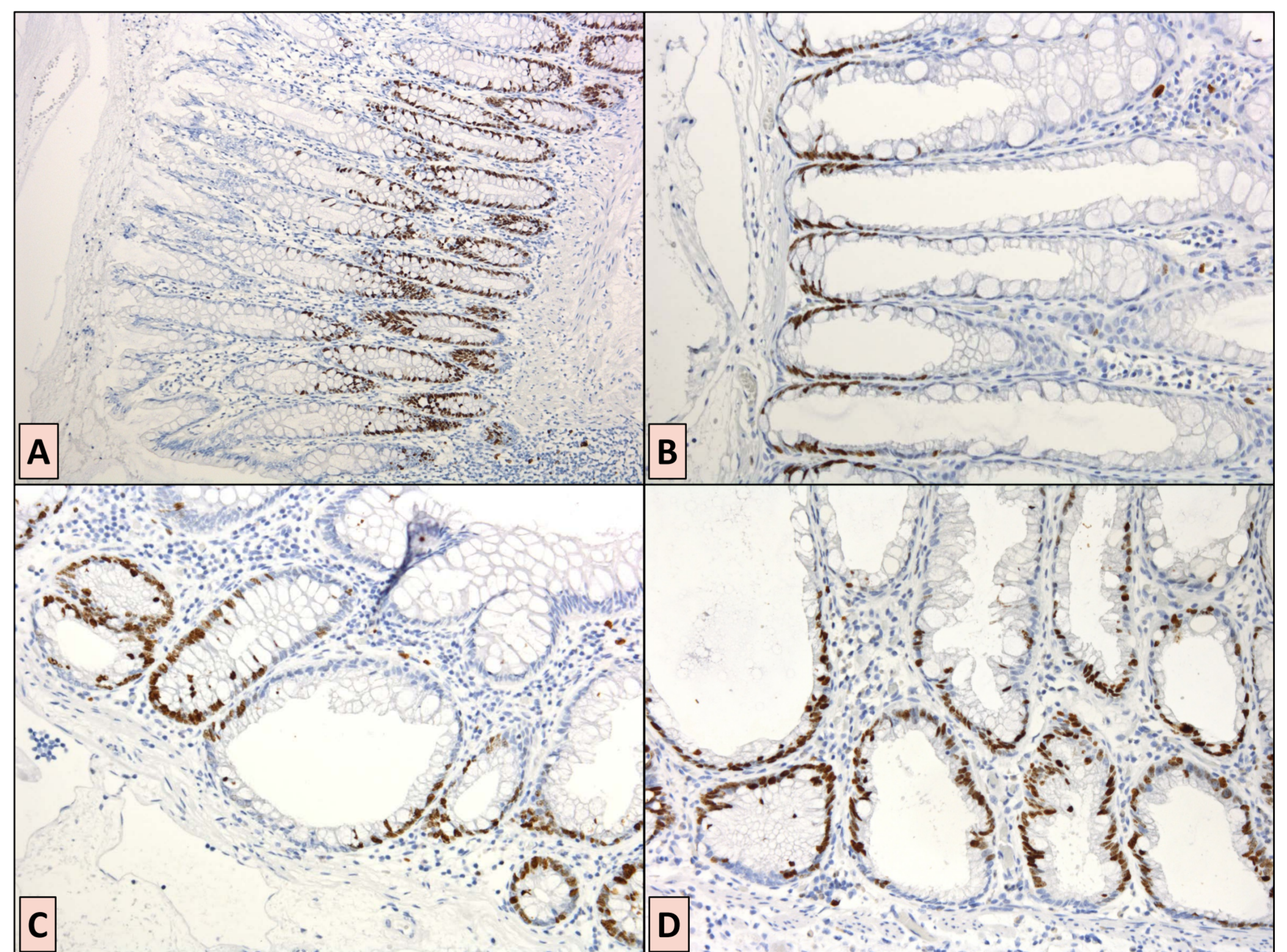


Fig.2. Expression of Ki67.

A – IM: distribution in lower half of crypts, non-dilated crypts (x100);

B – HP: distribution in lower half of crypts, non-dilated crypts (x200);

C – SSA/P: distribution in lower half of crypts, non-dilated and dilated crypts (x200);

D – SSA/P: distribution in lower half of crypts, dilated crypts (x200).

Conclusion

The absence of significant differences in the distribution pattern and intensity of CK20, the similar localization of Ki67 between HP and SSA/P suggest the biological similarity of HP and SSA/P. In principle the distribution of proliferating and mature cells in HP and SSA/P indicates the preservation of the cellular compartmentalization of crypts, which casts doubt on the tumor nature of HP and SSA/P.

Conflict of interests

We declare no conflict of interests.

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