Interobserver Agreement in the Diagnosis of Serrated Polyps and Identification of Prolapsed Hyperplastic Polyps as Histological Mimics of Sessile Serrated Adenomas

RK Pai1, J Hart1, and A Noffsinger1
1University of Chicago Medical Center, Chicago IL

Background
Sessile serrated adenomas (SSAs) can be extremely difficult to distinguish from hyperplastic polyps (HPs), particularly the microvesicular HP. In one recent study the interobserver agreement in the diagnosis of sessile lesions was moderate with a kappa score of 0.58. In that study only sessile serrated adenomas larger than 5 mm and those that were well-oriented were included. In this study we set out to determine the interobserver agreement in sessile lesions independent of polyp size and orientation. Moreover, our aim was to identify histological characteristics of those polyps that presented the most difficulty in the histologic diagnosis.

Design
241 serrated polyps (SSAs, SSAs with dysplasia, HPs, and traditional serrated adenomas [TSAs]) were identified from our surgical pathology database. Two GI pathologists independently reviewed these polyps blinded to location. After this independent review, a consensus conference was convened to resolve any differences between the two pathologists or with the sign-out diagnoses.

Results
The interobserver agreement as measured by the Cohen's kappa score was 0.63 (substantial). At the consensus conference, 15 polyps originally diagnosed as SSAs were designated as hyperplastic polyps. Of these, 9 were located in the left colon and had features of mucosal prolapse. 36 left sided SSAs were subsequently reviewed for evidence of prolapse. 18/36 (50%) had features of prolapse in addition to features diagnostic of an SSA.

Conclusions
The diagnosis of sessile lesions is quite difficult as there is considerable overlap between hyperplastic polyps and SSAs. In this study, we show that the interobserver agreement in the diagnosis of sessile serrated lesions is moderate with a Cohen's kappa score of 0.63 (substantial). We also identify prolapsed hyperplastic polyps as histologic mimics of SSAs. Mucosal prolapse has been known to cause architectural abnormalities such as crypt branching and dilation. However, 50% of SSAs in the left colon can also show features of prolapse. Thus when diagnosing a SSA in the left colon, one must be sure to exclude the possibility of a hyperplastic polyp with superimposed features of mucosal prolapse.

Design
A total of 241 polyps originally diagnosed as SSAs (136), SSAs with dysplasia (13), HPs (89), and TSAs (3) were identified from our pathology database.

Two GI pathologists independently reviewed each polyp blinded to the polyp location and the original diagnosis.

After review a consensus conference was convened in order to resolve differences in the diagnoses of the two pathologists or sign-out diagnoses.

Results
• Cohen’s $\kappa = 0.63$ (substantial)
• After consensus conference, 15 SSAs were changed to HPs, 9 (60%) were left-sided and had superimposed features of mucosal prolapse.
• 18 (50%) of unequivocal left-sided SSAs also had features of mucosal prolapse.

Conclusions
• Serrated polyps can be diagnosed with substantial interobserver agreement, $\kappa = 0.63$.
• Prolapsed HPs tend to cause the most confusion with SSAs. Prolapsed HPs are larger and have architectural features that mimic SSAs.
• Unequivocal SSAs can also have features of mucosal prolapse.
• When a left-sided serrated polyp that resembles an SSA is seen, care must be taken to exclude a prolapsed HP.

Background
• Sessile serrated adenomas (SSAs) can be extremely difficult to distinguish from hyperplastic polyps (HPs), particularly the microvesicular HP.
• SSAs can be difficult to distinguish from hyperplastic polyps, particularly microvesicular HPs.
• Features of SSAs:
  • Architectural: (1) Larger than HPs. (2) Exaggerated serrations that extend to the crypt bases. (3) Dilated crypt bases. (4) Horizontally oriented crypts.
  • Cytologic: (1) Increased epithelial mucin. (2) Mild nuclear atypia. (3) Increased mitotic figures.

Aim
To determine the interobserver agreement in the diagnosis of a large number of serrated colonic polyps and to identify polyps that present the most diagnostic difficulty.