Presence of small sessile serrated polyps increases rate of advanced neoplasia upon surveillance compared with isolated low-risk tubular adenomas

Joshua Melson, MD,[1] Karen Ma, MD,[1] Saba Arshad, MBBS,[1] Michael Greenspan, MD,[1] Thomas Kaminsky, MD,[1] Vinesh Melvani, MD,[1] Faraz Bishehsari, MD,[1] Brett Mahon, MD,[2] Shriram Jakate, MD[2]

Chicago, Illinois, USA

Background and Aims: The U.S. Multi-Society Task Force (USMSTF) stratifies patients with sessile serrated polyps (SSPs) without cytologic dysplasia of <10 mm in size as at low risk for metachronous advanced neoplasia and recommends management similar to low-risk conventional tubular adenomas. Evidence supporting the recommended surveillance interval for these low-risk SSPs is limited. We aimed to assess rates of metachronous advanced neoplasia based on the presence of an initial low-risk SSP compared with isolated low-risk tubular adenomas.

Methods: Colonoscopy data were retrieved for 2260 patients found to have an adenoma or SSP on pathology records between 2005 and 2011 at an academic medical center. The 788 patients who met study design criteria were stratified into 4 groups based on the presence of a high- or low-risk adenoma (HRA or LRA) and of a synchronous SSP on initial colonoscopy. The rates of advanced neoplasia at surveillance colonoscopy were then compared between groups.

Results: The rate of advanced neoplasia at surveillance in the LRA inclusive of SSP group (12/66, 18.2%) was greater than in the LRA without any SSP group (29/370, 7.8%; $P = .019$). The rate of advanced neoplasia at surveillance in patients with isolated low-risk SSP (10/56, 17.9%) remained significantly greater than those with isolated low-risk tubular adenomas (29/370, 7.8%; $P = .024$). The rate of advanced neoplasia upon surveillance in the LRA inclusive of SSP group (18.2%) was comparable with the rate observed in the index HRA without any SSP group (15.9%) (40/252, $P = .709$).

Conclusions: The rate of advanced neoplasia upon surveillance in patients with initial low-risk SSPs is higher than in patients with initial isolated low-risk tubular adenomas and more similar to patients with initial high-risk tubular adenomas. These findings suggest that the rate of metachronous advanced neoplasia in patients with what are considered by USMSTF as "low-risk" SSPs is higher than in those without SSPs. Therefore, a surveillance interval that accounts for the presence of SSPs even in small lesions without cytologic dysplasia should be considered. (Gastrointest Endosc 2016;84:307-14.)

Abbreviations: ADR, adenoma detection rate; HRA, high-risk adenoma; LRA, low-risk adenoma; SDR, serrated detection rate; SSP, sessile serrated polyp; USMSTF, U.S. Multi-Society Task Force.

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Current affiliations: Department of Medicine, Division of Digestive Diseases (1), Department of Pathology (2), Rush University Medical Center, Chicago, Illinois, USA.

Reprint requests: Joshua Melson, MD, Department of Medicine, Division of Digestive Diseases, Rush University Medical Center, 1725 W. Harrison Street Suite 206, Chicago, IL 60612.

If you would like to chat with an author of this article, you may contact Dr Melson at Joshua_Melson@rush.edu.

Serrated polyps recently have been recognized as an important contributor to interval colorectal cancers.[1] The malignant pathogenesis of serrated polyps arises from a molecular pathway alternate to conventional tubular adenomas known as the serrated neoplasia pathway.[2-4] The sessile serrated pathway is associated with CpG island methylation phenotype (CIMP)-positive tumors and accounts for up to 20% of all sporadic colorectal cancers yet, notably, greater than 30% of interval cancers.[1,5] Tumors in this pathway have a high frequency of *BRAF* mutations, associated with epigenetic silencing of mismatch repair genes (*hMLH1*).[3] The consequent DNA instability in the serrated pathway is proposed to cause neoplastic changes at a rapid rate similar to what is seen in Lynch syndrome.[6]

The World Health Organization formally defined 3 major subtypes of serrated lesions including hyperplastic polyps (HP), sessile serrated polyps (SSP, with or without cytologic dysplasia), and traditional serrated adenoma (TSA, with or without conventional dysplasia).[7] The true prevalence rate of SSPs is not well documented because the reported ranges widely vary from .6% to 13.8%, largely because of variations in serrated detection rates (SDRs).[8-12] A recently published study found an overall SSP prevalence of 8.1% by a single experienced colonoscopist.[9] Subtle endoscopic features including indistinct borders, asymmetric shape, and obscuration of vascular patterns by adherent mucus often challenge the detection of serrated lesions.[13] In addition, endoscopic resection with conventional polypectomy techniques can be difficult and raises the concern for incomplete resections.[14]

Postpolypectomy guidelines recently incorporated specific recommendations on surveillance intervals for serrated polyps. Prior versions were silent in regard to the impact of serrated polyps on surveillance intervals.[15,16] The 2012 U.S. Multi-Society Task Force (USMSTF) on Colorectal Cancer guideline recommends patients with low-risk SSPs (1-2 polyps < 10 mm and without cytologic dysplasia) follow a 5-year surveillance interval similar to low-risk tubular adenomas, although the evidence for this recommendation is low.[17,18] Patients with high-risk SSPs are recommended to undergo a 3-year surveillance interval similar to high-risk tubular adenomas.

Several studies have confirmed an increased risk for synchronous and metachronous advanced neoplasia in proximal large serrated polyps.[19-21] Unlike the well-studied tubular adenomas, the quality of postpolypectomy surveillance evidence for serrated polyps remains limited. To our knowledge, there is no prior surveillance study that specifically assesses surveillance rates in low-risk adenomatous lesions based on the presence or absence of a serrated polyp.

The primary aim of this study was to compare rates of advanced neoplasia upon surveillance colonoscopy in patients with initial low-risk polyps in the presence versus the absence of SSPs. The secondary aim was to compare rates of advanced neoplasia upon surveillance colonoscopy in patients with initial low-risk SSPs versus those with initial high-risk conventional adenomas (tubular or tubulovillous).

METHODS

Study design

A natural language search of pathology records for "adenoma" and "sessile serrated" identified 2260 consecutive patients who had a colorectal adenoma or SSP detected during colonoscopy between January 2005 and December 2011 at Rush University Medical Center. The Institutional Review Board of Rush University Medical Center granted study approval. Initial colonoscopy date, name of endoscopist, indication for procedure, bowel preparation quality, endoscopic polyp size, number and colonic location of polyps, and histologic features were recorded. Patients were then stratified into 4 groups as detailed below. Endoscopy and pathology reports for the follow-up surveillance colonoscopy, defined as the next consecutive study, were then reviewed for findings of nonadvanced and advanced neoplasia. Exclusion criteria included surveillance performed at less than 1 year, current or prior colorectal cancer, polyposis syndromes such as Lynch syndrome, inflammatory bowel disease, bowel preparation of poor quality, incomplete colonoscopy without cecal intubation, and lack of surveillance colonoscopy. Any patients with ≥10 adenomatous polyps found at the time of index colonoscopy were also excluded. The presence of hyperplastic polyps did not alter patient stratification. Traditional serrated adenomas and those with associated dysplasia were considered SSPs with features of a high-risk lesion.[4] However, because they warrant more intensive surveillance,[17] traditional serrated adenomas (n = 6) were excluded during the analysis of metachronous advanced neoplasia. Only surveillance cases completed at Rush University Medical Center with reviewed pathology were included.

The adenoma detection rate (ADR) of the 14 faculty gastroenterologists ranged from 22.2% to 44.7%.[22] The mean of the top and lowest quintiles was 38.3% and 24.5%, respectively. The gastroenterologists achieved a mean sessile SDR of 2.4%. The mean SDR of the top quintile was 3.9%, whereas that of the lowest quintile was .5%.

Procedures

Colonoscopies were performed using high-definition Olympus CF-H180AL and PCF-H180AL series colonoscopes (Olympus America, Center Valley, Pa). Narrow-band