



## The “valley sign” in small and diminutive adenomas: prevalence, interobserver agreement, and validation as an adenoma marker

Douglas K. Rex, MD, Prasanna Ponugoti, MD, Charles Kahi, MD

Indianapolis, Indiana, USA

**Background and Aims:** Classification schemes for differentiation of conventional colorectal adenomas from serrated lesions rely on patterns of blood vessels and pits. Morphologic features have not been validated as predictors of histology. The aim of this study was to describe the prevalence of the “valley sign” and validate it as a marker of conventional adenomas.

**Methods:** Three experts judged the prevalence of the valley sign in 301 consecutive small adenomas. Medical students were taught to recognize the valley and were tested on their recognition of the valley sign. Consecutive diminutive polyps were video-recorded and used to validate the association of the valley sign with conventional adenomas.

**Results:** The prevalence of the valley sign in 301 consecutive adenomas <10 mm in size, determined by 3 experts, ranged from 35% to 50%. Kappa values for agreement among the 3 experts were 0.557, 0.679, and 0.642. Ten medical students were taught to interpret the valley sign and recognized it with accuracy of 96% or higher in 50 selected photographs of diminutive polyps. Four medical students evaluated video-recordings of 170 consecutive diminutive polyps for the presence of the valley sign. Kappa values for the interpretation of the valley sign ranged from 0.52 to 0.68 among the students. The sensitivity of the valley sign for adenoma ranged from 40.2% to 54.9%, and specificity ranged from 90.2% to 91.7%. The valley sign was strongly associated with adenomas ( $P < .0001$ ).

**Conclusions:** The valley sign is insensitive but highly specific for conventional adenoma in diminutive polyps. It may enhance classification schemes for differentiation of adenomas from serrated lesions based on vessels and pits. (Gastrointest Endosc 2017;85:614-21.)

There are 2 major histologic classes of precancerous colorectal lesions: the conventional adenomas and the serrated class lesions. Pathologists in both academic and community centers are reasonably accurate and consistent

*Abbreviations:* NBI, narrow-band imaging; NICE, NBI International Colorectal Endoscopic Classification.

*DISCLOSURE:* Dr Rex has acted as consultant and received research support from Olympus. All other authors disclosed no financial relationships relevant to this publication.

Copyright © 2017 by the American Society for Gastrointestinal Endoscopy  
0016-5107/\$36.00

<http://dx.doi.org/10.1016/j.gie.2016.10.011>

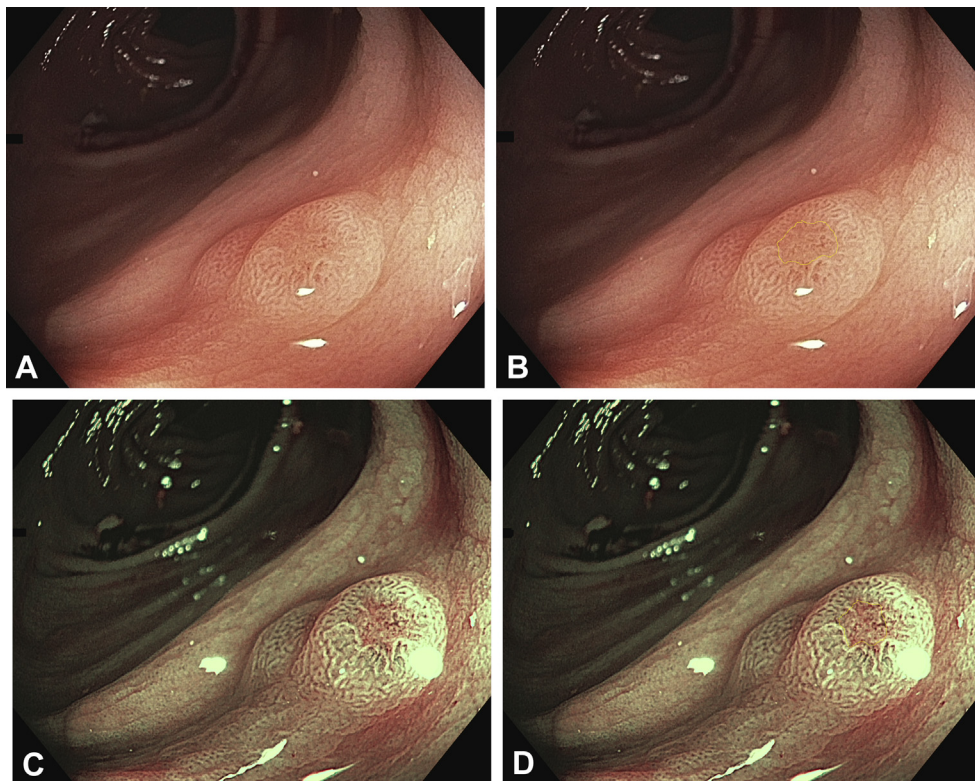
Received July 28, 2016. Accepted October 2, 2016.

Current affiliation: Division of Gastroenterology and Hepatology, Indiana University School of Medicine, Indianapolis, Indiana, USA.

Reprint requests: Douglas Rex, MD, Indiana University Hospital, 4100 550 North University Boulevard, Indianapolis, IN 46202.

at placement of colorectal lesions into these 2 categories.<sup>1</sup> Subcategories of histology, including tubular versus villous and high-grade versus low-grade dysplasia within the conventional adenomas,<sup>2</sup> and hyperplastic polyp versus sessile serrated polyp within the serrated class,<sup>3</sup> are subject to considerable interobserver variation in pathologist interpretation.

Endoscopic criteria<sup>4</sup> can also be used to reliably identify most precancerous colorectal lesions as belonging to the conventional adenoma versus serrated class.<sup>5</sup> Commonly used endoscopic criteria for differentiation of conventional adenomas from serrated class lesions use surface features such as the microvascular pattern and the shape of pits.<sup>4</sup> A feature that has been associated with conventional adenomas is a valley in the surface topography that appears red in white light and brown in narrow-band imaging (NBI) relative to the rest of the polyp surface (Fig. 1).<sup>6</sup> This valley is sometimes interpreted as a



**Figure 1.** In Figures 1-5 (A) is a white-light photograph and (C) is a narrow-band imaging photograph of a diminutive adenoma showing the valley sign. In Figures 1-5 (B) and (D) are the same photographs shown in (A) and (C), respectively, but with the margin of the valley delineated by a yellow line.

depression, but it differs from a depression in that the edges of the valley are sloping, whereas the edges of a true depression usually fall very sharply. Unlike a true depression, the valley depth does not extend to or below the level of the normal mucosa, and the vascular pattern in the valley is consistently maintained without disruption. The valley sign is also distinct from pseudodepression, which is seen in some non-granular lateral-spreading tumors, and which by definition are at least 10 mm in diameter.<sup>7</sup> The relatively red color in white light and the brown color in NBI appears related to a concentration of blood vessels in the valley. Again unlike a true depression, we refer to this feature as the “valley sign” (Fig. 2).

This endoscopic sign (the valley sign) has not been used as a criterion for the diagnosis of adenomas in classification schemes for differentiation of conventional adenomas from serrated class lesions.<sup>4</sup> In this report, we describe the prevalence of the valley sign in conventional adenomas, describe interobserver variation between experts and novices in identification of the valley sign, and validate the valley sign as a marker of adenomatous histology in diminutive colorectal polyps.

## METHODS

All aspects of the study were conducted using de-identified photographs and videos. Because all the

photographs and videos existed before initiation of the study, this study was granted exempt status by the Indiana University Human Research Committee on October 9, 2015.

The first goal was to establish the prevalence of the valley sign in conventional adenomas as determined by experienced endoscopists and to determine their interobserver agreement in identifying the sign.

The prevalence of the valley sign in small adenomas was previously estimated at 15%.<sup>6</sup> However, improvements in technology may have led to enhanced recognition of this feature. We estimate the prevalence of the valley sign to be up to 25% of small adenomas and set the precision of the estimated of prevalence at 5%. These parameters require a sample size of 289 adenomas <1 cm in size.

We used a library of consecutively photographed colorectal adenomas polyps <1 cm in size previously developed by D.K.R. to retrieve a sample of 301 consecutive pathologically verified adenomas <1 cm in size. Three individuals experienced in NBI and polyp differentiation independently evaluated the photographs and determined whether each individual polyp demonstrated the valley sign. Agreement among the 3 independent observers was determined using kappa statistics.

In the second part of the study, we tested whether endoscopy-naïve individuals could be trained to identify the valley sign in selected samples. The study participants were 10 first- and second-year medical students at Indiana

Download English Version:

<https://daneshyari.com/en/article/5659475>

Download Persian Version:

<https://daneshyari.com/article/5659475>

[Daneshyari.com](https://daneshyari.com)