

Response to Reviewer 03262874

Only 6 of the mucosal defects in the first phase of the study were clipped.

No target signs were seen in any of the polypectomies. The sizes of the 4 polyps with perforations were: 2 cm, 1.5 cm, 2 cm and 2.5 cm.

We had been performing this technique on large polyps in an ambulatory endoscopy center without clipping for approximately 10 years, and had not noticed a significant perforation or bleeding rate. We started our study in 2010. Our hypothesis was that clipping was not necessary to prevent perforations.

We chose the polyp size of 1.2 cm for several reasons. First, we wanted to determine the prevalence of flat polyps in the community setting. At the time that the study was initiated, many gastroenterologists were ignoring these lesions, because they thought that they were not important. We did not want to include any diminutive polyps. Flat polyps of this size and larger, are also difficult to remove and have a higher complication rate. When we reviewed our complications, one of the polyps was only 1.5 cm in size. Therefore, we felt it necessary to include all the polyps, and not just those over 2 cm.

I think that the cost benefit ratio still favors clipping, even if all flat, right sided polyps > than 1.2 cm in size removed by EMR are clipped. About 5% of our patients fell into this category. The cost of our clips is about \$150. We used about 2 clips per polyp. That adds about \$300 to the case. If we prevent 1 perforation for every 20 patients, then the cost is \$6000 to prevent a perforation. The cost of hospitalization to repair that perforation is much higher. We presented our data to Blue Shield of California, and they agreed. They increased our endoscopy center reimbursement to cover the cost of the clips. Perhaps the most important issue is how can we close these defects with just 2 clips. The zipper technique is the most commonly used technique to close large mucosal defects. This involves placing a clip at one end of the defect, and then closing the rest of the defect in a zipper-like fashion. With the use of a double channel

colonoscope, we can grasp the distal margin of the mucosal defect with a biopsy forceps, and pull the distal edge into approximation with the proximal edge. With the two edges in approximation, we deploy a clip through the other channel. This process allows closure with at least 1 less clip than needed with the zipper technique.

Response to reviewer 03245122

The definition of post-polypectomy hemorrhage and perforation, as follows:

Post polypectomy hemorrhage was defined as: Bleeding that occurred after a patient left the endoscopy center, and required evaluation at a medical office or hospital, and required blood transfusion, hospitalization or repeat colonoscopy to evaluate the polypectomy site, or control the bleeding.

Perforation was defined as: presence of free air on either abdominal radiographs or CT scan of the abdomen and pelvis, in conjunction with abdominal pain.

I am not sure why our post-polypectomy hemorrhage rate was so low. I can only hypothesize that it relates to the technique that the double channel colonoscope allows us to use. Delayed post-polypectomy bleeding usually occurs when cautery induced scab falls off the mucosal defect. The saline cushion minimizes burn and subsequent scabbing. However, both the grasp and snare technique and the standard technique employ a saline cushion. The difference is how the edges of the polyp are treated. When large polyps are removed in the standard fashion, it is common practice to cauterize the edges of the defect with APC, to minimize the possibility of residual polypoid tissue being left behind. With the grasp and snare technique, cauterization of the edges is not necessary. If there is any question about the adequacy of the margins, that area is simply grasped with the biopsy forceps, and removed with a snare. There is minimal post-polypectomy burn, and therefore, minimal scabbing. The other

possibility was that it was a statistical rarity. I have continued to use this technique after the completion of the study, including clipping the defects, and have still not had any bleeds or perforations.

In Table 2, N is the number of polyps with a certain histology. The number in parenthesis is the percentage of polyps with that histology. The total number of polyps that we examined the histology on in phase 1 was 65. When the number of polyps is added together, the sum is 66 polyps. 1 of the polyps had mixed histology. In the second phase, 151 polyps were examined. Adding the percentages add up to 100.3%, which is a rounding error.

Response to reviewer 03646567

The size of the polyps that perforated were 2 cm, 1.5 cm, 2 cm and 2.5 cm

The mean size of the polyps are located in table 1.

The mean size of the polyps in phase 1 was: 2 cm with a standard deviation of 0.69

The range was 1.2 to 4 cm

The mean size of the polyps in phase 2 was: 1.81 cm with a standard deviation of 0.54.

The range was 1.2 to 4 cm