

A linear sigmoid colon passage method in colonoscopy

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ABSTRACT

A previous study revealed loop formation of the colonoscope in the sigmoid colon in 79% of patients. Colonoscope looping in the sigmoid colon is considered to cause abdominal pain and intestinal perforation. We discovered a phenomenon whereby the rectosigmoid junction becomes linear when the patient is moved from a left lateral to left semiprone position and the colonoscope tip can be readily inserted into the sigmoid colon. Therefore, this phenomenon was applied to our conventional insertion method to determine whether the colonoscope looping rate in the sigmoid colon can be reduced. Thus our new insertion method could reduce the colonoscope looping rate in the sigmoid colon. Our new insertion method may allow safer colonoscope insertion than our conventional insertion method.

INTRODUCTION

A previous study revealed loop formation of the colonoscope in the sigmoid colon in 79% of patients (Shah et al., 2000). Colonoscope looping in the sigmoid colon is considered to cause abdominal pain and intestinal perforation (Lüning et al., 2007).

We previously reported that the colonoscope can be readily inserted through the sigmoid-descending colon junction in a left semiprone position (Awazu, Araki & Awazu, 2012). Therefore, we considered that the colonoscope can be readily inserted through the rectosigmoid junction in a left semiprone position.

In fact, we discovered a phenomenon (Fig. 1) whereby the rectosigmoid junction becomes linear when the patient is moved from a left lateral to left semiprone position and the colonoscope tip can be readily inserted into the sigmoid colon by pushing. Therefore, this phenomenon was applied to our conventional insertion method to determine whether the colonoscope looping rate in the sigmoid colon can be reduced.

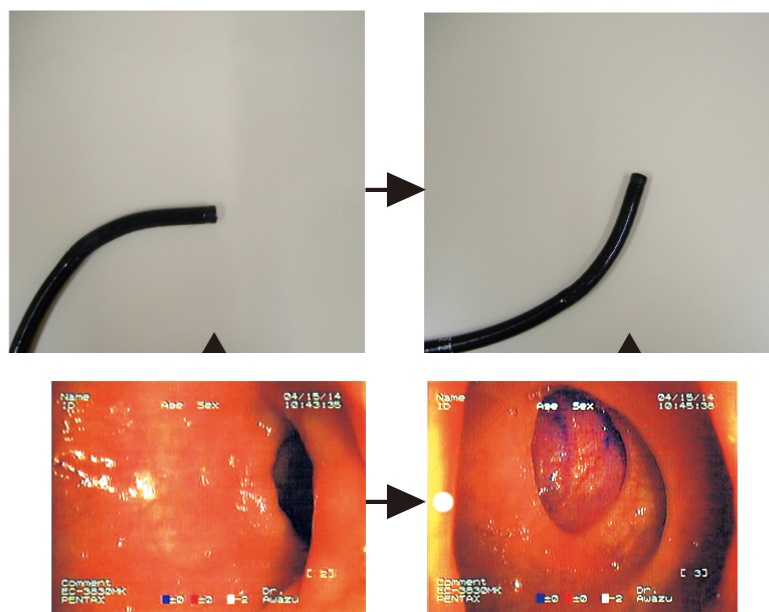


Figure 1. The phenomenon we discovered. The colonoscope tip reached the rectosigmoid junction. When the endoscopist moved the patient from a left lateral to left semiprone position with the colonoscope slightly pushed with twisting to the left, the visual field broadened, both the rectosigmoid junction and colonoscope simultaneously became linear, and the colonoscope tip was readily inserted into the sigmoid colon. Rectosigmoid junction (▲).

MATERIALS & METHODS

The Pentax EC-3830MK (HOYA, Akishima, Tokyo) was used, and the neutral position of the colonoscope was determined as shown in Fig. 2. Our new insertion method is shown in Fig. 3, and our conventional insertion method is shown in Fig. 4.



Figure 2. The neutral position of the colonoscope in our new insertion method. The patient is placed in a left semiprone position, and the colonoscope is unbent with its tip directed toward the sigmoid-descending colon junction.

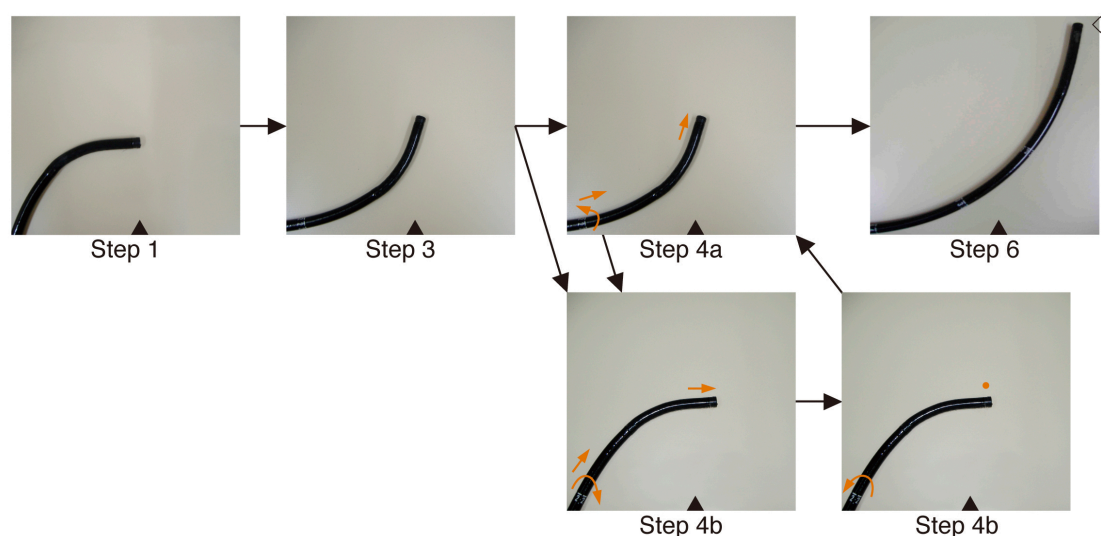


Figure 3. Our new insertion method. The shape of the colonoscope and movements of its tip are observed using fluoroscopy. Step 1. The patient is placed in a left lateral position, the colonoscope tip reaches the rectosigmoid junction, and the colonoscope is slightly pushed with twisting to the left. Step 2. The assistant moves the patient from a left lateral to left semiprone position. Step 3. In some cases, the visual field broadens, and the colonoscope tip is readily inserted into the sigmoid colon by pushing. If this does not occur (colon bending is considered to be present), in the same body position, the colonoscope is pushed with twisting to the left, beyond 1-2 fold, which results in advancement of the colonoscope tip into the sigmoid colon. The colonoscope is unbent with its tip directed toward the sigmoid-descending colon junction. Step 4. When the lumen of the sigmoid colon is observed in the left or front direction, the colonoscope is pushed with twisting to the left (Step 4a). When the lumen of the sigmoid colon is observed in the right direction, the colonoscope is pushed with twisting to the right (Step 4b, left), which causes colonoscope bending. To correct bending, the colonoscope is returned to the neutral position by twisting to the left (Step 4b, right). Excessively advancing the colonoscope with twisting to the right should be avoided. However, when such advancement is unavoidable, the colonoscope is pulled while being returned to the neutral position by twisting to the left with caution not to displace the colonoscope tip. Step 5. Step 4 is repeated. Step 6. The colonoscope tip is inserted into the descending colon. Rectosigmoid junction (▲), splenic flexure (◇), colonoscope manipulation and movements of colonoscope tip (brown arrows and point).

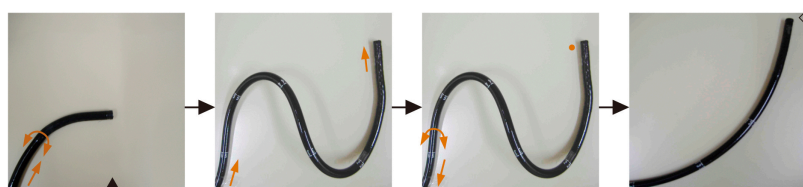


Figure 4. Our conventional insertion method. The shape of the colonoscope and movements of its tip were observed using fluoroscopy. The patient was placed in a left lateral position, and the colonoscope tip reached the rectosigmoid junction. The colonoscope was pushed with twisting to the right or left, which results in colonoscope looping in the sigmoid colon. After arrival of the colonoscope tip at the descending colon, the colonoscope loop was resolved, and the sigmoid colon and colonoscope were straightened together. Rectosigmoid junction (▲), splenic flexure (◇), colonoscope manipulation and movements of colonoscope tip (brown arrows and point).

RESULTS

The colonoscope looping rate in the sigmoid colon was 59% (267 of the 452 patients) using our conventional insertion method but 14% (34 of the 238 patients) using our new insertion method. Thus, our new insertion method could reduce the colonoscope looping rate in the sigmoid colon. And no major complications were associated with our new insertion method.

Our new insertion method may allow safer colonoscope insertion than our conventional insertion method.

DISCUSSION

We consider that all physicians who read this manuscript can confirm the reproducibility of this phenomenon irrespective of their skill level. We have confirmed this phenomenon by using fluoroscopy. However, for confirmation of its reproducibility, the use of magnetic endoscope imaging (Shah et al., 2002) is recommended to avoid x-ray exposure.

We also consider that this phenomenon is applicable to all insertion methods (Anderson et al., 2007; Leung et al., 2009; Morgan et al., 2011). With the use of any insertion method, it is rational to insert the colonoscope with the patient in a position that brings the colonoscope tip to the highest position when it passes the rectosigmoid junction.

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