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Perspective

# Technique of Colonoscopy for Dolichosigmoid

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In diagnosis and treatment of colon lesions colonoscopy is of utmost importance. The greater part of colonoscopies is performed in an outpatient settings that makes accomplishment of the procedure in painless manner crucial.

H Kashida suggested functional, painless and time-efficient technique of colonoscopy by experienced endoscopist [1]. Cecum is achieved by 7 - 8 minutes on average at 70 - 80 cm length.

Keynotes for the adherence of the principles of the suggested technique are:

1. Don't push the endoscope extremely especially when feeling resistance or the lumen is not visible.
2. Frequently pull the endoscope.

   Even when the lumen is well visualized this enables ruffling the bowel, prevents formation of the loops and soothes movements of the endoscope.
3. Avoid excessive air insufflation into the bowel, aspirate the air more often.

Herein, we present modification of the H. Kashida technique in patients with dolichosigmoid. Our modification is based on fixation of the distal sigmoid on the endoscope due to clockwise rotation and pulling-up of the least and clockwise rotational moving forward the endoscope maintaining the lumen with screws in intraperitoneal sigmoid and transverse colon.

Normal length of the sigmoid colon is 25 - 50 cm on average. Less than 25 cm sigmoid is defined as brachisigmoid while sigmoid colon longer than 50 cm as dolichosigmoid. Dolichosigmoid is characterized by high mobility, pathologic formation and passage of stool. Prevalence of dolichosigmoid is 25% in the population, obscure clinical performance makes the diagnosis difficult. Dolichosigmoid is divided into congenital and acquired. Acquired condition is developed as a result of digestive disorders related to prolonged fermentation and bacterial decay in the bowel. Commonly, people of 45 - 50 years and older with sedentary lifestyle, excessive intake of meat and carbohydrates, frequently experiencing stress are vulnerable to this condition. With that some authors consider dolichosigmoid to be acquired anomaly and digestive disorders to manifest clinical signs in terms of anatomic preconditions present.

Dolichosigmoid is thought to be lengthened double-loop or multi-loop sigmoid with pathologic mobility, floating in the abdomen and preserving accessory loops after defecation too.

Postoperative adhesions in the sigmoid colon area hamper extremely performing painless colonoscopy.

Gaining patient's confidence before the procedure and constant communication with the patient during the procedure is of no small importance if aiming to perform successful colonoscopy.

The key moment of the colonoscopy is passing through rectosigmoid and sigmoid colon.

At the beginning of colonoscopy rectosigmoid is on the left part of the screen. Endoscopists pass through this angle rotating the endoscope counterclockwise that seems to be reasonable. However after such a slight rotation next bowel loop is on the left screen too necessitating the endoscopist to rotate counterclockwise again that leads to sigmoid elongation and extension and thus to pain.

We propose our technique of getting through the rectosigmoid and all distal sigmoid angles (possibly a lot of in dolichosigmoid) by clockwise rotation of the endoscope (to the right). By another name even when passing through the colon angle clockwise rotation of the device may need more number of rotations than if rotating counterclockwise we nevertheless recommend proceeding using clockwise right-sided rotation in distal colon angles. Even if sometimes in sharp angles distal tip of the endoscope may be turned to the left with the small screw we anyway continue passing through such angle on a clockwise rotation.

In this case passing through and gathering bowel loops will be painless.

Multi-loop dolichosigmoid carries a lot of sharp angles and turnings that should be passed avoiding hyperextension in a painless fashion.

In order to get through such sharp angles we recommend applying the following technique: we come to and bump into the bowel angle with the tip of the endoscope until the red spot is seen, nextly we gradually rotate the endoscope in a clockwise direction in place to fixate the sigmoid covered until pulling up the device would not facilitate gathering the bowel. If the rotation is insufficient then pulling up the endoscope will cause sliping off the angle whereas adequate rotation and fixation of the bowel will straighten the angle. Further we should hook the endoscope tip towards supposed bowel passage (on account of intestinal folds) and begin to gradually and promptly pull up the endoscope without air insufflation to avoid sliping until visualizing the lumen. Thus, fixating the bowel and smoothening the angles we achieve effect of the endoscope tip along intestinal folds. If during pulling up the tip of the endoscope is sliping off all manoeuvres should be repeated. Such fixation due to rotation and pulling promotes passing through not only sharp sigmoid angles but also splenic and hepatic flexures, transverse colon angles, straightening alpha-loop (sigmoid loop doing an about-turn). Certain significant alpha-loops (defined as evident external sigmoid compression by previously passed loop), also created by the specialist while passing through, may be straightened contrary to the abovementioned rotating the endoscope counterclockwise and pulling up until straightening is feeled by the endoscopist.

Some screw-shaped angles may be passed using the technique of rotation at place towards supposed lumen without air insufflation to avoid straightening the turning resulting in corkscrew effect. If this manipulation is inadequate the manoeuvre of pulling may be added in which the risk of sliping increases. After several clockwise rotations screw-shaped left turn is easily overcome by counterclockwise rotation.

If the bowel angle is not very sharp and the lumen is slightly visualized (oblique angle) such loop is passed onward movement and rotation towards the lumen. Rarely combination of forward motion and rotation away from the lumen is necessary in such cases.

Holding of breath after full inspiration aids to passing through not only splenic and hepatic flexures (owing to diaphragm lowering) but also multiple dolichosigmoid loops. Holding of breath assists in endoscopes motion in bowel hypertonicity (spastic dyskinesia).

In case of absence of contraindications the procedure is begun on the left lateral position at the patient table to the right of the endoscopy tower and the specialist. As may be required from time to time the patient may be positioned on the right lateral position, on the back for painless passing through some angles.

Intraperitoneally located sigmoid and transverse colon are easily extended during colonoscopy that makes frequent pulling up of the endoscope extremely important for gathering of the listed above portions specified by H. Kashida. If this does not help and the advancement of the distal tip of the endoscope is limited we should move the device forward rotating it clockwise and maintaining the lumen with the screws. In other words we perform the manipulation consisted of three simultaneous actions: motion forward, clockwise rotation and maintaining the lumen with the screws. These actions are not always technically feasible synchronously but effective in complicated dolichosigmoid.

Advancement of the endoscope with clockwise rotation and maintaining of the lumen with the screws may be required for passing through transverse colon when additional rigidity of the endoscope working part is necessary to prevent sigmoid and transverse colon extension.

Two other maneouvres may help in passing through intraperitoneal colonic portions: screw like motion (commonly clockwise) and sinusoidal motion in plane by the working part of the colonoscope. Also these motions enable distributing gathering the loops on the minor surface of the endoscope working part that may limit its advancement and cause pain during the procedure in dolichosigmoid patient.

Air aspiration and compression of the abdomen by the nurse towards epigastric region console passing through transverse and ascending colon. If during air aspiration mucosa is attached to the canal of the endoscope and pulling up is not advisable quick turn of the screw aids in tearing off the device.

Rarely removal of the endoscope may be painful and cause sliping off the device (as a result of gathering of multi-loop sigmoid). After shaking the endoscope a little removal may be continued.

If correctly and fully gathered mucosal surface of intraperitoneally located sigmoid and transverse colon while removing the endoscope looks like accordion.

## Conclusion

1. We recommend passing through the rectosigmoid and distal sigmoid angles rotating the endoscope clockwise (to the right).
2. All sharp angles and turnings are passed through by pulling out of the fixated bowel due to rotation in minimum air induction.
3. Advancement of the device forward, clockwise rotation and maintaining the lumen by screws is an efficient tool for precluding sigmoid and transverse colon extension.
4. Spiral and sinusoidal movements of the endoscope's working part may be used for bowel gathering.

## Bibliography

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