

Configurations of colonic segments in undisturbed cadaveric abdomens and the implications for difficulties encountered in colonoscopy

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During passage of the endoscope in examination of the large intestine, the more mobile segments of the colon that are suspended on mesenteries have a tendency to form loops which hinder scope progression through the colon. Loop formation is also a source of discomfort and pain for the patient. In this study, the configurations of the sigmoid and transverse segments in the colons of 34 undisturbed cadaveric abdomens were inspected *in situ* and recorded with photographs and/or drawings. The presence of a peritoneal band tethering the splenic flexure to the abdominal wall was also noted, as this structure fulfils the function of a "hook" around which the colonoscope can be fixed during loop-resolving withdrawal manoeuvres. Analysis of the observed dispositions of the sigmoid and transverse colons resulted in a novel classification into three grades of mobility (low, intermediate and high) for each segment. Fisher's exact test was also used to determine the presence of significant gender differences in the frequency distributions of the above categories. Results show that for the sigmoid colon, no statistically significant differences were found in the incidence of each mobility category between genders. Interestingly, for sigmoid segments with an intermediate mobility score, there were over twice as many female (7) as male (3) subjects. For the transverse colon, males were more likely to fall into the least mobile category ($p=0.0002$) whereas females were more likely to be in the most mobile category ($p=0.0027$). There was no significant gender difference in the occurrence of transverse colons of intermediate mobility. Mobility in the sigmoid colon was strongly positively correlated with that of the transverse colon across the data set ($\rho=0.992$). The presence of the peritoneal band at the splenic flexure did not differ significantly with gender. In summary, this study has identified statistically significant gender differences in transverse colon mobility in undisturbed cadaveric subjects. This finding corresponds with observations of transverse looping patterns during colonoscopy in patients, and could explain why females have longer caecal intubation times compared to males as their more mobile transverse colons present a greater challenge to endoscopic progression by forming deeper loops.

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