Preliminary experience comparing two thinner prototype Olympus endoscopes with a standard 60cm flexible sigmoidoscope

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Introduction

We previously used magnetic endoscope imaging to determine the anatomical location of the instrument tip and depth of insertion at non-sedated, screening flexible sigmoidoscopy (FS) using a 60cm Olympus flexible sigmoidoscope (Painter et al., 1999).

Examination of the entire sigmoid was not achieved in approximately one-quarter of subjects, mainly due to discomfort. We postulated that instruments with different shaft characteristics (floppy, narrow calibre and over 100cm in length) might be necessary to ensure deeper routine intubation in non-sedated patients (Bell et al., 1996).

Methods

We used two prototype Olympus thin (10mm) diameter endoscopes (models XCFSEV and MS230I) measuring 100cm and 130cm respectively in 50 non-sedated symptomatic patients undergoing diagnostic FS (see Figures 1a and 1b).

We used the magnetic imaging system (Bladen et al., 1993) in combination with our improved RMR 3D graphics system (Rowland and Bell 1998, Rowland et al., 1999) (see Figure 2) to assess both the total depth of insertion in cms and the location of the instrument tip when the endoscope had been either fully inserted or the patient experienced significant discomfort.

Figure 1a – The Olympus MS230I thin 10mm 130cm scope and the Olympus XCF-SV(EU) 100cm scope

We compared the results with those we had previously obtained with the standard 12.5mm diameter 60cm Olympus flexible sigmoidoscope using the same magnetic imaging system (Painter et al., 1999) in 117 subjects attending for screening flexible sigmoidoscopy as part of the MRC trial (Painter et al., 1999).

Figure 1b – The Olympus MS230I thin 10mm 130cm scope and the Olympus XCF-SV(EU) 100cm scope compared to a standard 12.5mm scope

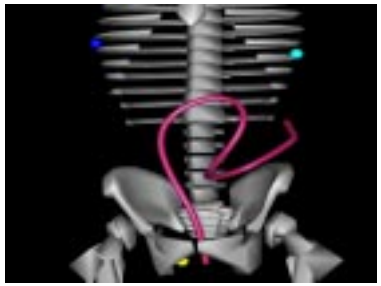

Figure 2 – The RMR graphics system

Results

In the 50 patients examined with either the XCFSEV or MS23OI 10mm thin instruments, the mean insertion depth was 88.6cm (range 48.5 - 130cm) with the tip reaching the transverse colon in 58% of cases (see Table 1 and Figures 3-5).

In 117 consecutive, average-risk subjects examined with a standard, thicker 12.5mm 60cm Olympus CF200S flexible sigmoidoscope, the mean insertion distance was 52cm (range 20 – 58cm) (see Table 1 and Figure 3).

Examination of the entire sigmoid was not achieved in approximately one-quarter of subjects, mainly due to discomfort. The entire descending colon (or beyond) was intubated in only 9 cases (8%) even after the full 60cm had been inserted (see Figure 5).

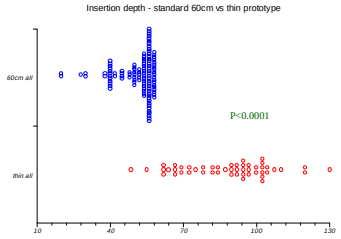

Figure 3 - Comparison between thin and normal thickness flexible sigmoidoscopy

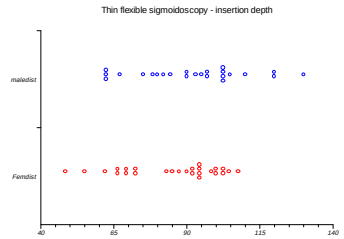

Figure 4 - Mean male distance 92.3cm compared with 85.1cm for females - NS

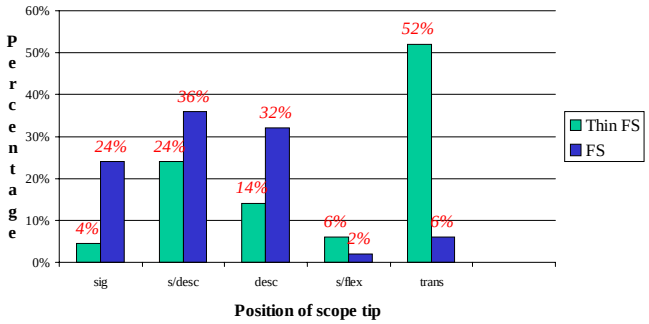

Figure 5 - Comparison between thin and normal thickness flexible sigmoidoscopy - position of scope tip

Discussion

The most painful part of a flexible sigmoidoscopy (which is normally carried out without any sedation) is often the passage of the instrument past the sigmoid/descending colon junction and up the descending colon itself.

We have shown dramatic differences in the success rates in terms of reaching up to and beyond the splenic flexure depending on whether one uses a standard, relatively stiff 12.5mm 60cm flexible sigmoidoscope or a prototype, thinner, longer, "floppier" 100-130cm instrument (see Figures 3 and 5).

Comparison between thin and normal thickness flexible sigmoidoscopy

Thin flexible sigmoidoscopes of 100 or 130cm length	*Conventional diameter flexible sigmoidoscopes of 60cm length*
50 unsedated patients	*117 unsedated patients*
Mean (SD) insertion depth 88.6 (17.8) cm	*Mean insertion depth 52cm*
Range of insertion 48.5 - 130cm	*Range of insertion 20 - 58cm*

Table 1 - Comparison between thin and normal FS

Many Endoscopy Units in the UK do not possess a 60cm flexible sigmoidoscope and instead use an adult 160 - 180cm colonoscope when performing flexible sigmoidoscopy. We doubt, however, that the average UK endoscopist using an adult colonoscope in an unsedated subject undergoing screening flexible sigmoidoscopy is likely to get to the transverse colon in the over 50% of cases we have achieved with the thinner instruments in the present study.

We now plan a formal prospective comparison in unsedatated subjects undergoing screening flexible sigmoidoscopy using either an adult Olympus CF230L colonoscope or the newly released floppier and thinner Olympus 9mm paediatric 160cm, compared with the 60cm CF200S endoscope.

References

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Abstract T86 presented at the British Society of Gastroenterology Annual Meeting 1999, 23-25th March, Glasgow