Double-headed capsule endoscopy: real-world experience from a multicentre British study

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Introduction

Capsule endoscopy (CE) is a well-established mode of investigation for small bowel (SB) pathology. This study examines the potential benefits of using double-headed capsules compared to conventional singleheaded ones in a real-world cohort of patients. We present initial results from the first multicentre British study.

Methods



The MiroCam[®] MC2000 capsule used in this study.

Over a 9-month period, patients referred for routine SBCE at 4 tertiary referral centres in the UK underwent doubleheaded CE in lieu of conventional single-headed CE, using MiroCam[®] MC2000 capsules.

The study process is detailed below:

CE carried out as per local protocol at each centre i.e. routine indications, referral process and procedure

Clinical data anonymised and indication assigned to one of 4 general groups:

- SB bleeding
- ?IBD/ IBD reassessment
- **?SB** neoplasia
- 4. Others

Expert reviewer 1: reads one head (L/R) Head is chosen at random and presented in random order.

Expert reviewer 2: reads capsule using both heads

For each CE, numbers and types of findings and overall conclusion/diagnosis compared between single and double-headed examinations.

OR: if the centre has only 1 expert reviewer able to participate in the study



Expert reviewer 1: re-reads capsules using both heads. Capsules are presented without identifying data and in random order.

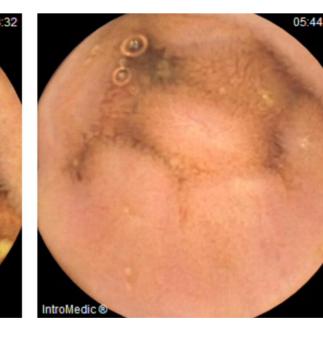
CE read and reported for clinical purposes by uninvolved reader

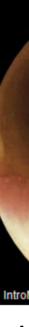
4 week interval

Results

Indication	SB bleeding (n=94)	<pre>?IBD/ IBD reassessment (n=84)</pre>	<pre>?SB neoplasia including suspicious radiological imaging (n=15)</pre>	Others e.g. ?coeliac disease (n=11)
No. of CEs where findings differed between heads	27 (28.7%)	30 (35.7%)	2 (13.3%)	1 (9.1%)
Mean numerical difference in findings between heads (range)	3.4 (0-16)	4.3 (0-39)	4 (3-5)	3
No. of CEs where differences were clinically significant	17 (18.1%) In 1 CE, no. of findings was same but type was significantly different	11 (13.1%) In 1 CE, no. of findings was same but type was significantly different	2 (13.3%)	0 (0%)
Details	 Findings missed by single-headed CE: 16 Angioectasias (5) SB inflammation (7) Oesophagitis (2) SB masses (2) Difference in findings changed assessment of extent/severity: 1 (angioectasias)	 Missed findings: 5 In all, signs of active inflammation missed by single-headed CE Difference in findings changed assessment of extent/severity: 6 	Missed findings: 1 polypoid mass, 1 SB diverticulum	







(1) SB bleeding: Angioectasias seen on left head but not on the right.

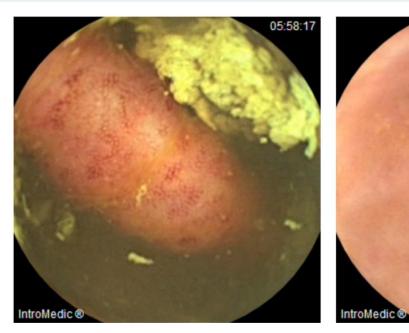
(2) SB bleeding: Inflammatory changes were seen on both heads, however an area of stenosis was seen only on the left.

Conclusion

The use of double-headed CE provides more information which has the potential to change clinical diagnosis and therefore management. Therefore, the routine adoption of double-headed CE in SB assessment should be considered.

211 CE examinations were performed. 7 failed to reach the SB; 204 cases were analysed. Overall, the use of two CE heads impacted diagnosis in 30/204 (14.7%) of cases in our cohort.

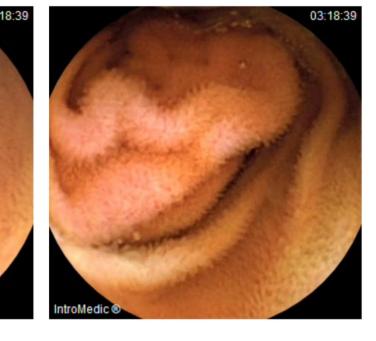




(3) Suspected IBD: Caecal inflammation seen on the left but not on the right.







(4) ?neoplasia: Reported as grossly normal on single-headed reading; on double-headed reading there was the suggestion of intusussception (see right frame) which prompted further evaluation and detection of a potential subtle polypoid mass.