

## BOWEL IMAGING

### UPDATE ON CT COLONOGRAPHY

An **audit study of 2,153 CT Colonography examinations performed at Auckland Radiology Group** has been recently completed. These studies were assessed against the National Cancer Registry for cancer diagnoses within two years of the CTC examination. The ARG series had a 95% sensitivity for cancer, which compares well with similar national and international studies. The following NZ studies are given for reference: 95% sensitivity for CTC (1), 94% for colonoscopy (2) and 92% for barium enema (3).

More studies are confirming that CT Colonography is an **excellent diagnostic test for people with bowel symptoms**. Two large randomised trials of patients with colorectal type symptoms in the UK found that CTC was equivalent to conventional colonoscopy for cancer detection, with less clinical uncertainty than with initial conventional colonoscopy (4).

CTC is also well established as a **screening tool for colorectal cancer in average risk asymptomatic people**. CTC has been accepted as an appropriate screening tool by the National Institute of Clinical Excellence (UK), the American Gastroenterological Association and the American Cancer Association.

Recent data has shown that the availability of **CTC can increase screening adherence rates**. For example, a study from the Walter Reed Army Medical Center in the USA found that the most common reasons for undergoing CTC included convenience (34%) and perceived safety (11%). Had CTC not been an available option, 91 of the 250 patients (36%) would have forgone CRC screening (5).

A study of 2,277 patients found an 11% rate of **significant extracolonic findings** on CTC, which significantly increased the yield of the examination. Of these, 69% underwent curative resection. CTC increased the odds of identifying high risk lesions by 78% (6).

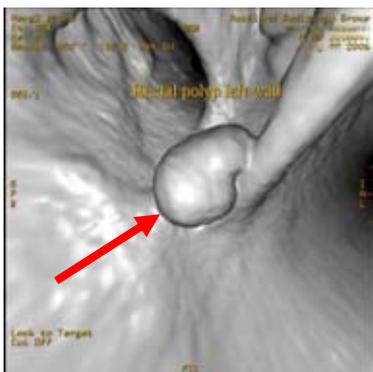


Fig 1(a)

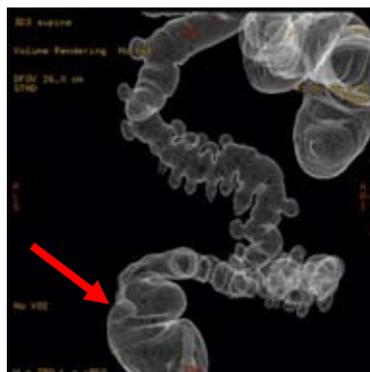


Fig 1(b)



Fig 2

Fig 1. Rectal polyp (arrows), shown on virtual colonoscopy mode (a) and 3D mode (b). Note diverticular disease on 3D image.

Fig 2. Carcinoma of ascending colon shown on virtual dissection mode (arrow).

### SMALL BOWEL IMAGING...CT ENTEROGRAPHY & MR ENTEROGRAPHY

**CT and MR Enterography (CTE & MRE) have largely replaced small bowel barium studies**, which were traditionally performed to assess for Crohn's disease and for polyps and tumours of the small bowel.

The gold standard for small bowel imaging is **small bowel enteroclysis**, which involves passing a nasojejunal tube and introducing barium through the tube into the small bowel. Images are taken with fluoroscopic screening Xrays.

**CTE and MRE do not usually require jejunal intubation**; the patient simply drinks oral contrast over the hour before imaging. The use of a nasojejunal tube to deliver the enteric contrast is usually reserved for occasional diagnostically challenging situations. Intravenous contrast is also given, to enhance the bowel wall.

The advantage of these tests is that they **safely and noninvasively examine the small bowel**, with an accuracy equivalent to small bowel enteroclysis for comprehensive assessment of small bowel Crohn's disease (7). CTE and MRE also allow assessment of **extra-enteric complications**, including fistulas, sinus tracts and abscesses. Because bowel distension is often less than with a tube study, however, a limitation is that early mucosal ulcers may be less visible.

CTE and MRE are generally diagnostically equivalent. MRE has the advantage over CTE that no radiation is involved, an important consideration when assessing younger patients or when many follow-up studies may be required.



Fig 3. CTE. Normal small bowel

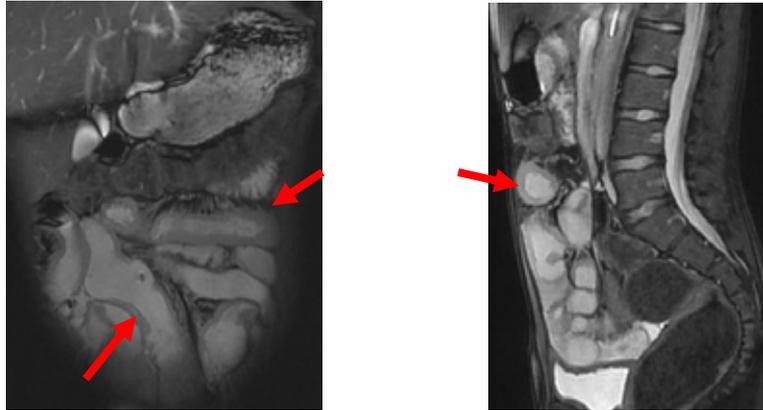


Fig 4 (a b) MRE in Crohn's disease. Coronal and sagittal sections show thickening of the wall of several loops of small bowel (arrows)

#### References

1. Br J Surg. 2010 Aug; 97(8):1291-4
2. Endoscopy 2004; 36: 499-503
3. ANZJ Surg 2001; 71: 631-633
4. SIGGAR Trial: 2010 International Symposium on Virtual Colonoscopy, Halligan, S (UCH)
5. AJR 2010; 195: 1118-1123
6. AJR 2010; 195: 677-686
7. Radiology 2009; 251: 751-761

**Helen Moore**

## Barnaby Clark and Brigid Connor now ARG partners



**Barnaby Clark** graduated from the Auckland University School of Medicine in 1999 and trained in radiology in Auckland. He was a fellow in MRI at Middlemore Hospital in 2006 and worked with the Auckland University Bone Research Group, with published research papers. He was the ARG musculoskeletal fellow in 2007, then spent two years furthering his experience in musculoskeletal imaging, MRI and imaging guided procedures in Brisbane. He has a consultant position at North Shore Hospital.



**Brigid Connor** is an Otago graduate (1996). She trained in radiology in Auckland and subsequently spent a year as a consultant at Middlemore Hospital. She gained overseas experience in the UK before returning to Auckland, where she has completed a fellowship in interventional radiology at Auckland City Hospital. Brigid has wide general interests and considerable experience in a number of subspecialty areas. She has a consultant position at Auckland City Hospital.