

**Are extra-colonic findings on CT
colonogram clinically significant?
A review of 758 consecutive cases**

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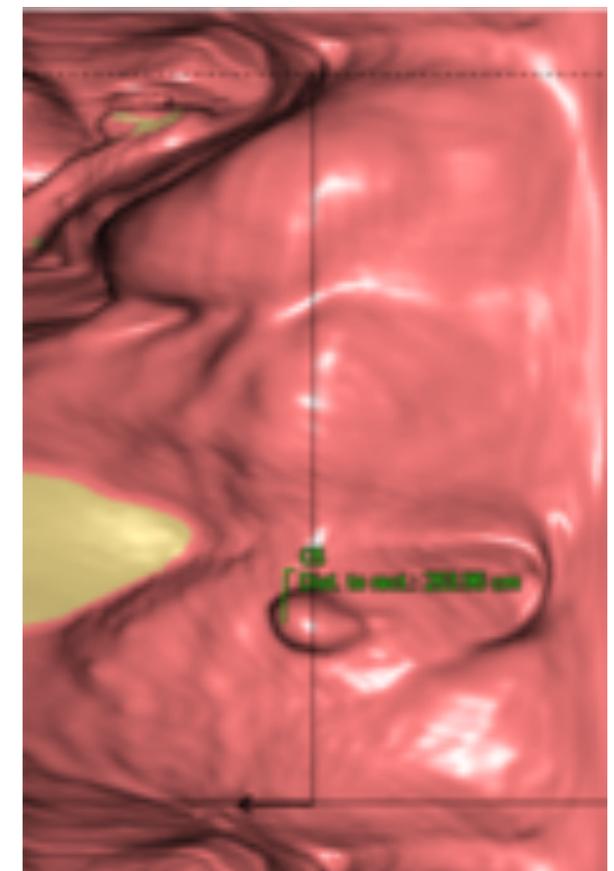
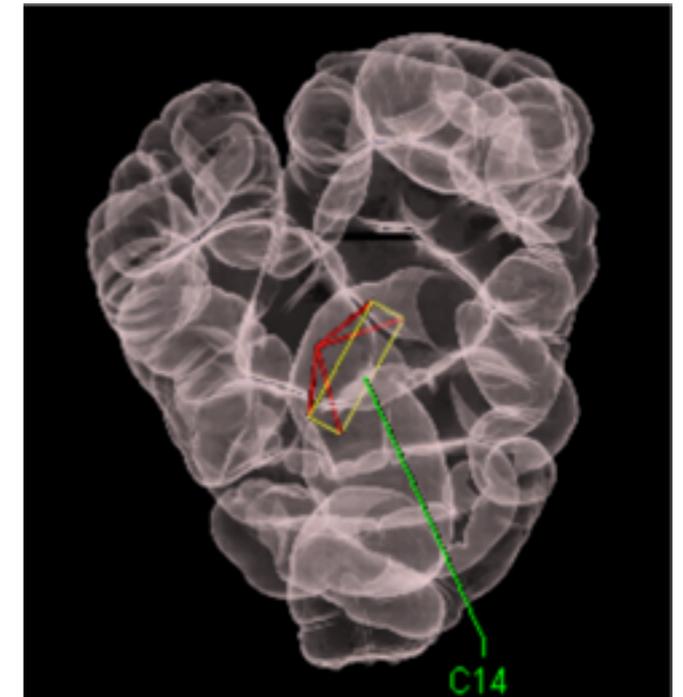
Disclosures: Nil

Introduction

- **Colonoscopy is the gold-standard** investigation for direct luminal visualisation of the large bowel.
- **As efficacious as CT colonography in both cancer and polyp detection.**

CT colonography (CTC):

- Vining et al first introduced as 'virtual colonoscopy' in 1994.
- Combination of oral contrast and rectal air insufflation.
- **Less invasive and safe investigation.**
- May require subsequent colonoscopy for diagnostic or therapeutic reasons.
- **An accepted alternative investigation to endoscopy:**
 - frailty
 - previous failed attempts at colonoscopy
 - failure to intubate the caecum, inadequate bowel preparation, redundant colon, spasm, mechanical obstruction, unable to tolerate procedure



Background



CT Colonography Reporting and Data System (C-RADS): Benchmark Values From a Clinical Screening Program

- 2.5% (202/7952) rate of E4 abnormalities
- 11.3% (899/7952) E3 abnormalities

Acta Radiologica

Extracolonic findings (ECF) on CT colonography (CTC) in patients presenting with colorectal symptoms

- 7% (100/1423) rate of E4 abnormalities
- 23% (328/1423) E3 abnormalities

References:

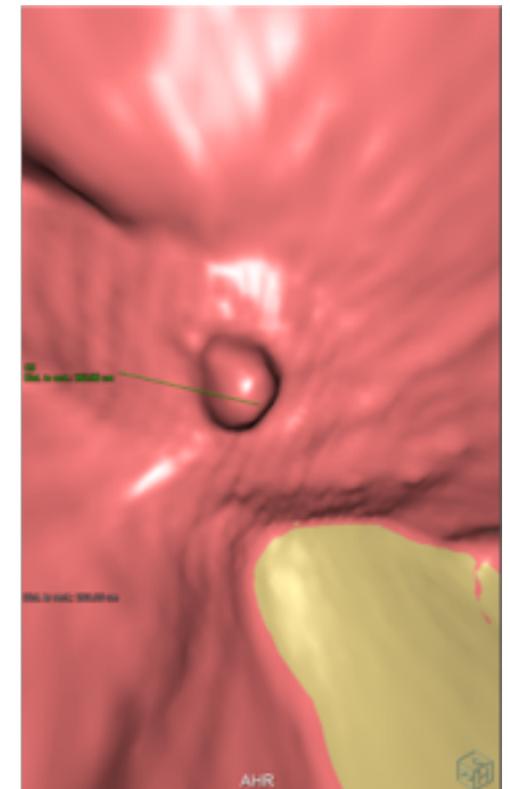
- Am J Roentgenol. 2014; 1232-7.
- Acta Radiol. 2013; 851-62.

Aim

To evaluate the significance of incidental extra-colonic findings on CT colonography

Methods

- **Retrospective review** of all patients having a CTC (standardised protocol with 100ml Omnipaque on the day prior to the procedure)
- **23 month period** (January 2013 to November 2014)
- Reported by two Consultant Radiologists with subspecialist interest in gastrointestinal imaging
- Data collected independently by three researchers and cross-checked
- Recorded
 - Demographics
 - Indication for investigation
 - **CT findings** - colonic and extra-colonic, recommendation for endoscopy, suspicion of cancer
 - **Optical colonoscopy, flexisigmoidoscopy** or esophagogastroduodenoscopy (EGD) findings
 - **Histology** findings
- **Findings were categorised into minimal, moderate and major clinical importance using the CT colonography Reporting and Data system**



CT colonography Reporting and Data System

Extra-colonic classification

E0	limited examination	
E1	normal examination or normal variant	
E2	clinically unimportant finding; no work-up required	E.g. simple liver cyst
E3	likely unimportant or incompletely characterised finding; consider referral or further imaging	E.g. minimally complex renal cyst
E4	potentially important findings; communicate to referring physician	E.g. solid renal mass abdominal aortic aneurysm

Results

758 consecutive colonograms at a district general hospital

Demographics:
317 (42%) male vs. 441 (58%) female
Median age 73 years (21-96)

499 (66%) had extra-colonic findings reported on CT
using C-RADS classification

**59 (8%) significant findings
E4**

Lymphadenopathy 16 (2%)
Abdominal aortic aneurysm 15 (2%)
Pancreatic lesion 8 (1%)
Hydronephrosis 7 (1%)
Myeloma 3 (0.4%)

**63 (8%) findings required work-up
E3**

GEJ thickening 24 (3%)
Gastric thickening 16 (2%)
Lung nodule 6
Esophageal thickening 5

**Normal variant
E1**

Horseshoe
kidney 1

**62 (8%) clinically unimportant findings
E2**

Hiatus hernia 119 (16%)
Gallstones 79 (10%)
Renal cysts 78 (10%)
Hepatic cysts 30 (4%)
Degenerative changes 23
Adrenal adenoma 21
Pleural effusion 19
Chronic lung disease 18
Atrophic pancreas 18
Hepatic steatosis 18
Abdominal wall hernia 16

Discussion

- Extra-colonic findings can be of clinical significance when found incidentally on CT colonography.
- Overall, there were **16% clinically important findings** that may have required further investigation after clinical correlation.
- **5% were suspicious requiring definitive investigation.**
- **5 gastric carcinomas were diagnosed.**
- The majority of findings were of low clinical significance, or insignificant anatomical variants.

Conclusion

- **CT colonography is a good screening tool for abdominal symptoms within the limitations of not using intravenous contrast.**
- **Our rates of E3 and E4 extra-colonic abnormalities are in line with the published literature.**