Are extra-colonic findings on CT colonogram clinically significant? A review of 758 consecutive cases
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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
2.5% (202/7952) rate of E4 abnormalities
11.3% (899/7952) E3 abnormalities

References:
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
## Methods

### CT colonography Reporting and Data System

#### Extra-colonic classification

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>E0</td>
<td>limited examination</td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>normal examination or normal variant</td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>clinically unimportant finding; no work-up required</td>
<td>E.g. simple liver cyst</td>
</tr>
<tr>
<td>E3</td>
<td>likely unimportant or incompletely characterised finding; consider referral or further imaging</td>
<td>E.g. minimally complex renal cyst</td>
</tr>
<tr>
<td>E4</td>
<td>potentially important findings; communicate to referring physician</td>
<td>E.g. solid renal mass abdominal aortic aneurysm</td>
</tr>
</tbody>
</table>
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
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
GEJ thickening 24 (3%)
Gastric thickening 16 (2%)
Lung nodule 6
Esophageal thickening 5

62 (8%) clinically unimportant findings
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

Normal variant
Horseshoe kidney 1
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.