



**REDISCOVERING RADIATION
MEDICINE AND EXPLORING
NEW INDICATIONS**

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WELCOME



Incidence and Impact of Incidental Findings in Breast Radiotherapy CT Simulations

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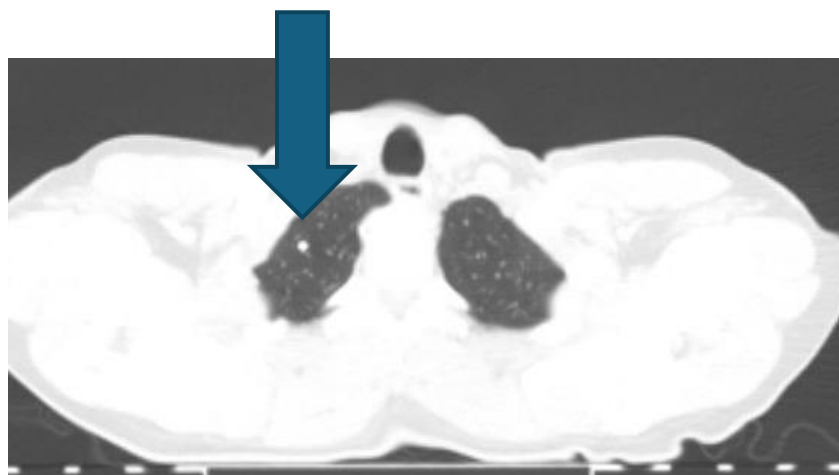
Disclosure

- Employer: Dartmouth Health
- I have no conflicts of interest to disclose.

What is an incidental finding?

A discovery made on medical testing (imaging) that is unrelated to the reason why the test was performed and for which the patient had no prior knowledge or symptoms

You are setting up great for treatment, but we need to talk about something that came up on your planning scan...



“There is a 4mm nodule in right lung apex. Reassessment on follow-up is recommended.”



In the literature, reported rates of incidental findings on breast simulation CTs: 15 – 30%

- At our institution, where all CTs receive a formal radiology read, rates of incidental findings seemed to be higher
- Objectives:
 - **To determine the incidence of incidental findings among patients receiving CT simulations for breast radiotherapy**
 - **To describe the findings, the rate and range of additional procedures, and the impact on patient care**

63.4% of breast simulation CT scans had an incidental finding

- **Study design:** Retrospective chart review for all patients who received a CT simulation for adjuvant breast radiotherapy planning at 1 academic medical center
 - Dates of simulation: January, 2016 – December, 2023
- **Methods:** Simulation imaging radiology reports reviewed to identify whether an incidental findings was described in the report
 - When incidental findings were included in the report, the following were noted:
 - Nature of the finding(s)
 - Additional evaluations or workup prompted by the finding

Images for 1267 unique patients were identified and reviewed, 803 had an incidental finding!

Factors associated with discovery of an incidental findings on CT simulation

- **Age at diagnosis** – With each decade (10 years) of age, the odds of having an incidental finding increases by 13%
 - (OR 1.13, CI: 1.11 – 1.22, $p < 0.05$)
- **Pathologic prognostic stage** – With increased stage, the odds of having an incidental finding decreases
 - (OR 0.713, CI: 0.59 – 0.86), $p < 0.05$)
- There was no significant relationship between the odds of having an incidental finding and either tumor grade (1, 2, 3) or receptor status (HR positive, HER2 positive, triple-negative)

How do these incidental findings impact patient care?

A system was created to categorize the clinical implications of incidental findings into 1 of 4 categories, based on the additional diagnostic workup prompted by the findings

Class 1: No additional evaluation: **65.9%** (529)

Class 2: Follow-up imaging or labs: **21.2%** (170)

Class 3: Referral to a specialist, biopsy, or other procedure performed: **10.7%** (86)

Class 4: Major clinical impact: **2.2%** (18)

New cancer diagnosis

Upstaging known cancer

Immediate medical evaluation warranted

Take away messages

- This is largest retrospective analysis of incidental findings identified on CT simulations for breast radiotherapy reported in the literature
 - Includes 1267 patients imaged over a 7-year period
- Incidental findings were detected in over **63%** of simulation scans
- **34.1%** required additional evaluation, including imaging, biopsy, or specialist referral
- **2.2%** had a major impact on breast cancer treatment
- Next steps will examine the cost-effectiveness of routine radiological read of breast CT simulations