

Clinical importance of Secondary Imaging Interpretations in a Cancer hospital and its impact on patient management.

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Purpose

- The purpose of this prospective study was to evaluate the quality of outside hospital imaging and associated reports for diagnostic accuracy.
- We compared the interpretations by the outside radiologist to the interpretations performed by subspecialty-trained abdominal radiologists at our center to and assessed if this resulted in a change in patient treatment.

Materials and Methods

- This IRB approved prospective trial included 915 consecutive outside computed tomography (CT) and magnetic resonance (MR) abdominal imaging studies that had been submitted to our institution between August 1, 2020, through November 30, 2020.
- Abdominal radiologists performed a second interpretation of these outside exams
- They evaluated-
 - I. Report Quality
 - II. Accuracy
 - III. Technical image quality
 - IV. Compared the quality to that at our institution
 - V. Appropriateness of the imaging technique for staging or restaging,
 - VI. usage of oral and IV contrast, and
 - VII. CT slice thickness.

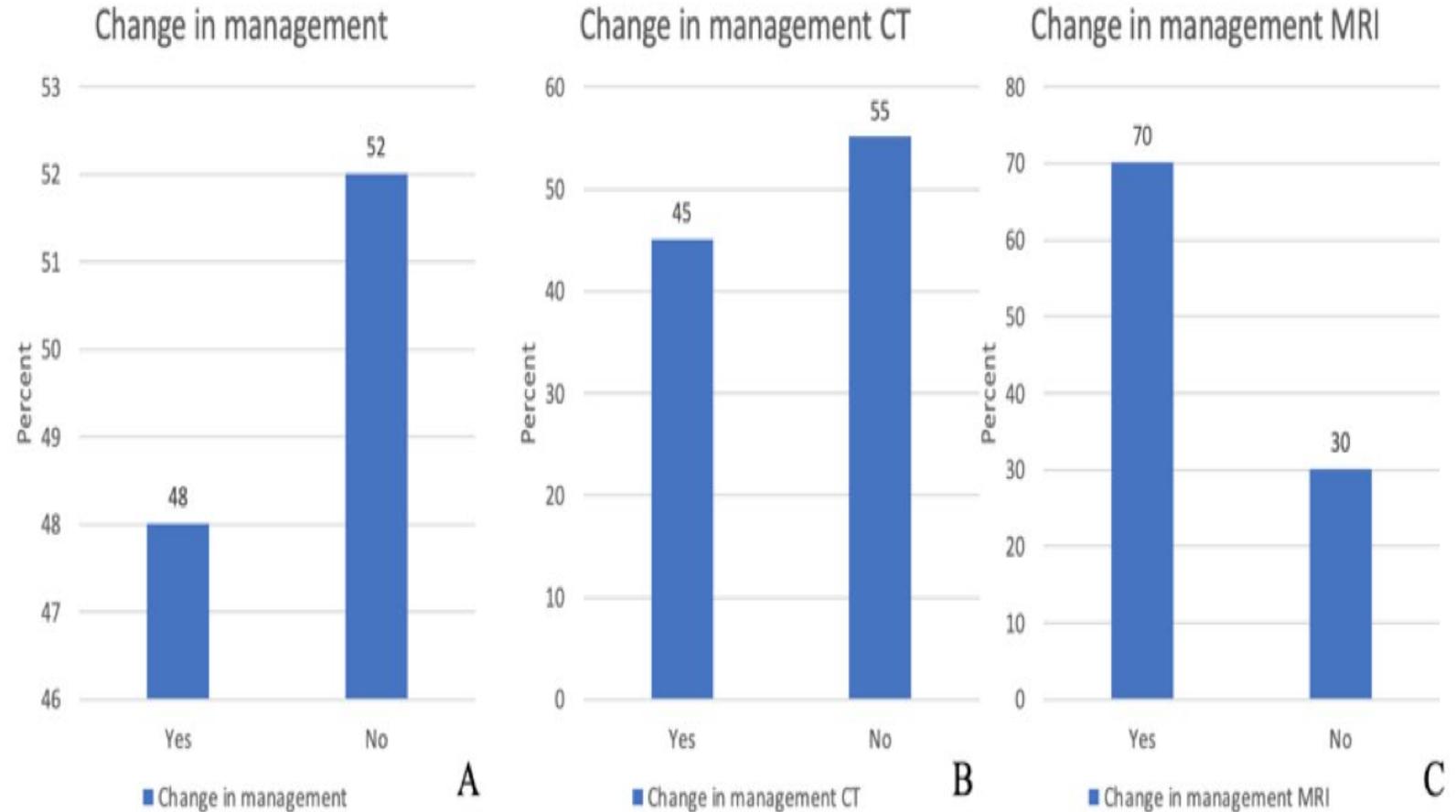
Materials and Methods

- Discrepancies between the initial and secondary interpretations were identified independently by a panel of radiologists and were reviewed for change in treatment one month after the interpretation.
- Clinical notes, pathologic findings, and subsequent imaging were used to establish an accurate diagnosis and determine the effect on clinical treatment.

Results

- Of 744 CT (81%) and 171 MR (19.0%) outside imaging studies, 65% had suboptimal quality compared to the images at our institution, and 31% were inappropriate for oncological care purposes.
- Only 21% of CT studies had optimal slice thickness of < 3 mm.
- Of the available outside reports- 34% had discrepant findings.
- Discrepancies between secondary and initial interpretations were identified in 131 studies.
- Of the 88 confirmed discrepant studies, 42 patients (48%) had a change in treatment based on the secondary interpretation.

Figure. Bar charts demonstrating the changes in treatment on the basis of the secondary interpretations of (A) outside CT and MRI studies, (B) outside CT studies only, and (C) outside MRI studies only (rounded to the nearest percent).



- **Figure. Changes in treatment after secondary imaging interpretation in four cancer patients.** (A) Axial contrast-enhanced CT image showing a missed perihepatic implant (white arrow) in a patient with ovarian carcinoma. (B) Axial contrast-enhanced image showing a missed aortocaval lymph node (white arrow) in a patient with low-grade estrogen-positive endometrial carcinoma. The patient was administered hormone therapy. (C) Axial contrast-enhanced image showing a missed rectus muscle metastasis (white arrow) in a patient with endometrial cancer. Treatment was changed from total abdominal hysterectomy and bilateral salpingo-oophorectomy to neoadjuvant chemotherapy. (D) Axial contrast-enhanced image showing missed peritoneal disease (white arrow) in a patient with resected ovarian carcinoma after debulking surgery. This patient's imaging was performed for restaging. The patient was administered chemotherapy after perihepatic implants were discovered.



Conclusions

Imaging studies from outside institutions have variable image quality and are often inadequate for oncologic imaging.

The secondary interpretations of CTs/MRIs by subspecialty-trained radiologists resulted in treatment change.

Thank
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