RadPath: Improving Radiology-Pathology Correlation Follow-Up for Radiologists via an Automated System

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Background/Problem Being Solved

Radiology-pathology correlation is a critical part of the diagnostic process and patient care, enabling radiologists to validate imaging interpretation with biopsy-confirmed pathology. However, this process places a significant burden on individual radiologists and is often fragmented and time-intensive. These challenges are amplified within a large integrated healthcare network consisting of radiologists reading studies across more than 20+ facilities with over 2.5 million imaging studies annually. Additional complexities due to disparate clinical information systems, including multiple radiology information systems (RIS) and laboratory information systems (LIS), further complicate this process.

Intervention(s)

We developed a fully automated system that notifies radiologists (attendings and residents) of relevant pathology correlations to their recently dictated studies. This system aggregates new pathology reports across the network, identifies relevant prior imaging, and provides a weekly notification email to the radiologist. The cases can be accessed via a web interface that displays final radiology and pathology reports side-by-side. The interface enables radiologists to provide immediate feedback on concordance or discordance, flag cases as interesting, and directly launch PACS for further analysis. This feedback is utilized to refine the system's matching algorithm and to build a comprehensive database of path-proven and interesting cases, serving as a resource for research and education.

Barriers/Challenges

Creating a system across a large healthcare network presented significant challenges, including the integration of different LIS platforms while accommodating the workflow of radiologists operating across multiple facilities. Additionally, creating an algorithm to accurately identify “relevant” imaging cases required nuanced analysis of pathology and radiology reports. Lastly, scalability and managing the sheer volume of data required unique solutions.

Outcome

We created a fully automated system for rad-path correlation and labeled a repository of pathology-proven radiology cases. Until Mar 2025, 17,518 cases have been reviewed with 162 distinct users. Additionally, users have marked 2,112 interesting cases and 214 discordant cases.

Conclusion/Statement of Impact/Lessons Learned

The implementation of Rad-Path Results has successfully streamlined the rad-path correlation process across a large healthcare network, enhancing diagnostic accuracy and facilitating radiologist workflow. With over 6,400 cases reviewed and a growing repository of pathologically proven cases, this system has demonstrated its value as a tool for improving patient care, research, and education. A similar system can also be implemented to facilitate pertinent imaging follow-up for flagged studies requiring further investigation.

Figure(s)

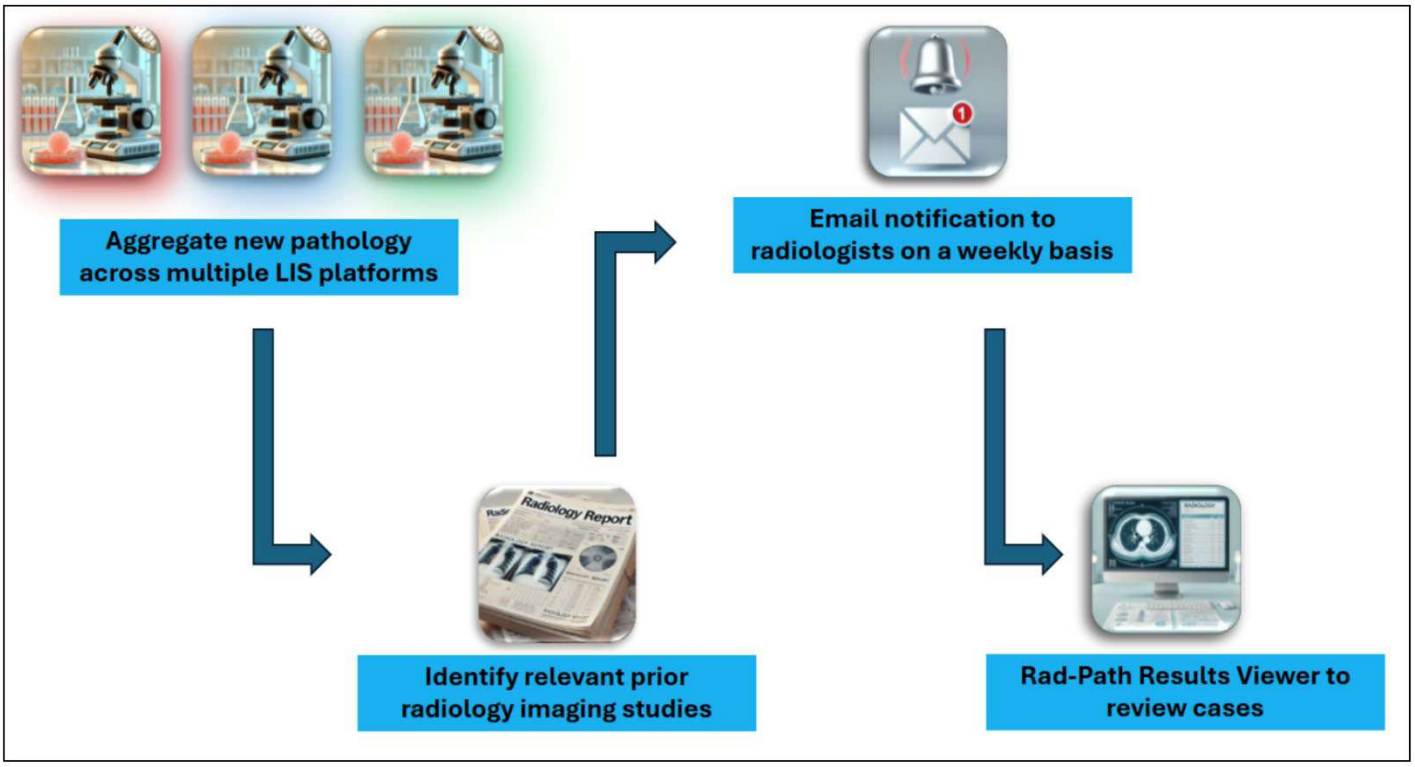

Figure 1. Workflow Diagram

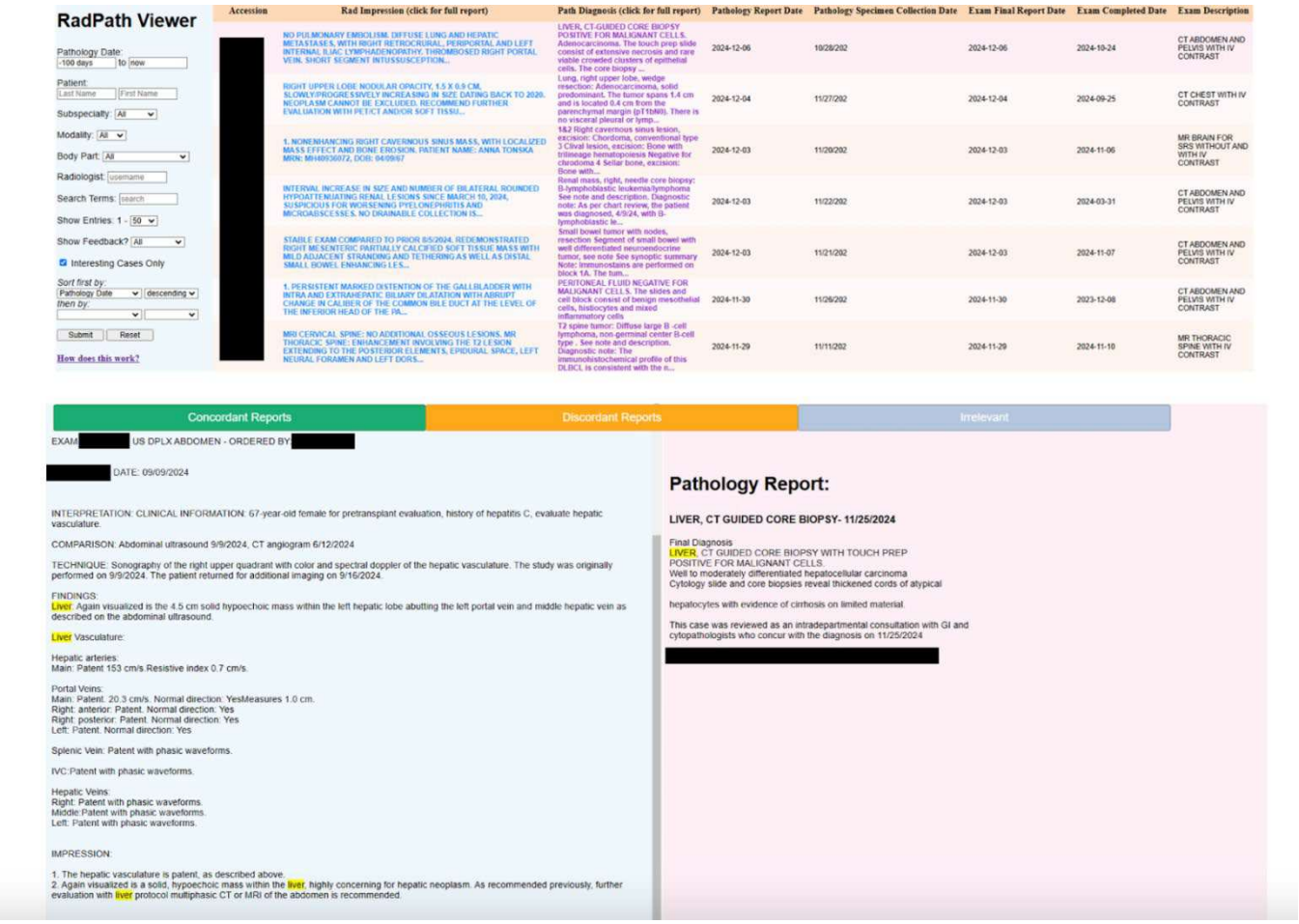

Figure 2. RadPath Results Viewer. Web interface that displays list of rad-path correlate cases with final radiology and pathology reports side-by-side. The interface enables radiologists to provide immediate feedback on concordance or discordance, flag cases as int

Keywords

Clinical Workflow & Productivity; Educational Systems; Quality Improvement & Quality Assurance