RadPath
Automated Radiology-Pathology Notification System and Breast Procedure Addendum Turnaround Time

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Radiology has long been interested in correlating imaging findings and reports with pathology reports.

Historically, correlation of radiology and pathology findings has been a time-consuming process.

Recent methods have automated the process of matching pathology reports to radiology reports, streamlining and improving this important feedback loop.
Histopathological results are particularly scrutinized in breast imaging for radiologic-pathologic concordance, which is addended to the final reports.

Expeditious notification and documentation of these results is important for patients and referring clinicians as well as for quality assurance purposes.

We have a user-friendly, automated, semi-intelligent radiology-pathology correlation system (RadPath) for all radiology reports and procedures in our enterprise and have recently initiated automated email notifications of results.

These emails link the user directly to the RadPath system, present the radiology and pathology reports, and allow direct launch of images aiding assessment of radiology-pathology concordance.

Our hypothesis is that these notifications result in improved turnaround time (TAT) for documentation of pathology results on breast imaging procedures, resulting in more timely radiologic-pathologic concordance.
Biopsy to Addendum
Pre “RadPath”

Flow chart illustrates the steps that occur between biopsy and addendum.

**Biopsy**
- Specimen sent to Pathology
- Radiologist dictates report in PACS

**Pathology Analyzes**

**Pathology Report Generated**
- Resident Report Signed off by Attending Pathologist
- Available in EMR

**EMAIL NOTIFICATION**

**Radiology Manually Checks EMR for results**

**Notification of Results to Patient/Referring Clinician**

**Addendum**
- Radiologist Dictates Pathology Addendum to Biopsy Report in PACS

MedStar Georgetown University Hospital
RadPath Notification

EMAIL NOTIFICATION

Pathbot Update

pathbot@radserver.io
Pathbot Update
Thu 5/9

You have 1 new radpath matches last week - you may want to login at https://guhrad001.medstar.net/radpath to check them out

REPORT MATCHING

Radpath: STEREOTACTIC CORE BX, RT,BX US IMG 1ST LES W DEVICE RT,POST BIOPSY MAMMO RIGHT

Patient: 
Accession: 
Addendum Report
Addendum
Immunohistochemical ER/PR, Assay
CAP Posting December 2016
Specimen: Right breast (AI)
Estrogen Receptor (ER): POSITIVE
Percentage of cells with nuclear positivity: Approximately 100%
Average Intensity of Staining: Strong
Progesterone Receptor (PgR): POSITIVE
Percentage of cells with nuclear positivity: 60% - 70%
Average Intensity of Staining: Moderate to strong
All controls show appropriate immunoreactivity.
ADDENDUM:
Pathology from stereotactic biopsy 4/2/2019:

A: Right breast, specimen with calcifications, stereotactic-guided 7-gauge core biopsy: - Ductal carcinoma in situ, solid type associated with central necrosis and microcalcifications, intermediate nuclear grade. - There is no evidence of invasive carcinoma.

B: Right breast, specimen without calcifications, stereotactic-guided 7-gauge core biopsy: - Fibrocystic change characterized by stromal fibrosis and cysts. - There is no evidence of carcinoma.

C Breast, 12 o’clock, ultrasound-guided 14-gauge core biopsy: - Benign breast tissue showing stromal fibrosis only. - There is no evidence of carcinoma.

Radiology and pathology findings are concordant.

RECOMMENDATIONS:
Surgical/oncologic consultation.
Methods

- IRB exemption was obtained.
- We searched our RadPath system for pathology matches corresponding to image-guided breast interventions at our flagship academic site during a 3 month period before and after the initiation of our notification system.
- To test our hypothesis, we analyzed turnaround time (TAT) from finalized report to finalized addendum based on automatically generated report timestamps for these breast procedures.
  - We excluded reports addended < 2 days after the final reports as our pathology results are not returned that quickly; this was felt to be reasonable exclusion of addenda not related to pathology concordance documentation.
Results

- 44 image-guided breast biopsies were performed in the 3 month period prior to the initiation of RadPath notifications with a mean turnaround time of 10.1 days from finalized report to finalized addendum.

- 38 image-guided breast biopsies were performed in the 3 month period after initiation of RadPath notifications with a decreased mean turnaround time of 7.2 days.

- Two-sample unequal variance t-test showed this to be a statistically significant decrease with a p-value of 0.045.
Results

**Mean TAT Pre and Post RadPath**

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<tr>
<th>Days</th>
<th>Pre</th>
<th>Post</th>
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<tr>
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**Statistical Analysis**

- Total Biopsies: 44 Pre, 38 Post
- Mean (days): 10.1 Pre, 7.2 Post
- P-value: 0.045

**Graph**

- Bar chart showing Mean TAT Pre and Post RadPath.
- Pre: Dark blue bar
- Post: Light blue bar

**Table**

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We have shown a statistically significant decrease in turnaround time from procedure report finalization to pathology addendum in image-guided breast biopsies following initiation of the RadPath notification system.

Timely notification and documentation of pathology results and establishment of radiologic-pathologic concordance is crucial for patient care and quality assurance.

We believe patient and referring clinician satisfaction will also be improved and that this pattern will hold true across our enterprise.

We also plan to implement our RadPath system across our enterprise to further explore our hypotheses regarding improvement in turnaround time and patient/clinician satisfaction.