ULTRASOUND GUIDED FINE NEEDLE THYROID BIOPSIES:

UNSATISFACTORY FOR PATHOLOGICAL ASSESSMENT RATE

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DISCLOSURE

- None
BACKGROUND

- Thyroid nodules common.
  - Incidence ~10-41 % on ultrasound.

- Fine needle thyroid biopsy (FNTB) plays essential role in management of thyroid nodules.
  - Cost effective and accurate.
  - Ultrasound (US) guided FNTB decreases unsatisfactory rate when compared to palpation FNTB.
BACKGROUND

• Bethesda Classification:
  • Satisfactory if $\geq 6$ groups of benign follicular cells with each group composed of $\geq 10$ cells.

• Sample may be considered unsatisfactory for pathological assessment if:
  • Inadequate cells.
  • Overly thick smears.
  • Obscuring blood.
  • Air drying of EtOH fixed slides.
BACKGROUND

- Low unsatisfactory rate decreases need for repeat FNTB, decreasing diagnostic conundrums and costs.

- Various techniques may be used to decrease unsatisfactory rate:
  - Modify procedure technique (needle gauge, # passes).
  - Increasing volume of cases.
  - Modifying slide preparation.
TRIGGERS FOR AUDIT

• Exposure to multiple FNAB techniques in PGY-1:
  • Palpation FNTB by pathologists.
  • General surgeons – US and palpation.
  • Radiologists with and without onsite cytotechs.

• With many FNTB cases being referred to radiology, were we meeting established literature standards for unsatisfactory for pathological assessment rates?
STANDARD

- Unsatisfactory for pathological assessment rate variable in literature.
  - Average ranges from 10-20%.

- Target for clinical audit set at < 20%.
METHODS

• Two tertiary care centers:
  • University of Alberta Hospital
  • Royal Alexandra Hospital

• Fifty consecutive US-guided FNTB with available pathology reports from October/November 2014 were reviewed at both sites.
  • One site with an onsite cytotech (site A) and one without (site B).

• Multiple technical factors compared.
RESULT – SITE A (with cytotech)

- Unsatisfactory rate: 6%.
- Procedures performed by 7 radiologists.
- Average # needle passes: 2.84.
- 25 gauge needle used in 86% of procedures.
  - 4% 22 gauge needle, 10% unreported.
RESULT – SITE B (without cytotech)

- Unsatisfactory rate: 10%.
- Procedures performed by 5 radiologists.
- Average # needle passes: 3.10.
- 25 gauge needle used in 100% of procedures.
Comparison of unsatisfactory rates, performing radiologists and average number of needle passes from both sites

<table>
<thead>
<tr>
<th>Category</th>
<th>Site A</th>
<th>Site B</th>
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<tbody>
<tr>
<td>Unsatisfactory %</td>
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<td>10</td>
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<tr>
<td># radiologists</td>
<td>7</td>
<td>5</td>
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<tr>
<td># needle passes</td>
<td>2.84</td>
<td>3.10</td>
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RESULTS

• Target met at both sites.

• Possible factors contributing to target being achieved include:
  • Appropriate technique.
  • Large volume cases.

• Approximate time spent on audit:
  • Data collection: ~ 7-8 hours.
  • Synthesis: ~ 2-3 hours.
ACTION PLAN

- Presentation at the resident research day (May 25, 2015).
- Communication with the technologists and radiologists to provide positive feedback.
- Place posters in both radiology departments outlining the success.
ACKNOWLEDGEMENTS

• Department of Radiology and Diagnostic Imaging
  • University of Alberta, Edmonton, Alberta

• Audit team:
  • Marnie Turnbull
  • Dr. Edward Wiebe
REFERENCES


