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(*) indicates primary project advisor
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Introduction & Objectives

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- Excisional biopsy (EB) of an involved lymph node or tissue is the gold standard for diagnosing lymphoma.
- Recent literature suggests that novel diagnostic techniques (e.g. IHC, FC, FISH/Cytogenetics) enhance the accuracy of less invasive diagnostic procedures like Core needle biopsy (CNB)
- At TJUH, CNB has been ordered with increasing frequency
    - from 2016-2018 CNB for diagnosis of lymphoma increased from 19% to 31.6%
- CNB is less invasive, cheaper
- <u>Objective</u>: To determine if CNB are diagnostically adequate compared to EB

- <u>Question</u>: Does CNB with ancillary studies yield similar diagnostic adequacy rates compared to EB in patients with lymphoma at TJUH?
  - Variables: pathologist, class of lymphoma, site, FNA performed, number of passes, gauge size, subsequent biopsy, ancillary studies
- <u>Hypothesis</u>: CNB yields similar diagnostic adequacy compared to excisional biopsies
  - Adequacy determined by reviewing pathologist and whether subsequent biopsy was performed

Approach and Methods

- Retrospective cohort study
- TJUH patients from 01/01/2016 – 12/31/2019 who received a lymphoma dgx
- <u>Intervention</u>: CNB
- <u>Comparison group</u>: EB
- <u>Outcome Measured</u>: Was a diagnosis achieved?
- EPIC, Data collected in REDCap
- Diagnostic odds ratio and confidence interval (Baptista-Pike)

Diagnostic OR and NNH

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- A total of **579 biopsies** were collected for review, **122** were excluded
- <u>Excisional biopsy adequacy</u>: 96.8% (328)
- <u>CNB adequacy</u>: 56.8% (67)
- <u>Diagnostic odds ratio</u> of CNB was determined to be **0.03583**, [95% confidence interval {CI}: 0.01695 to 0.07532] (Baptista-Pike), p <0.0001 (Chi square).
- <u>Number needed to harm</u>: 2.5

Breakdown of Biopsies

	Excisional Biopsy N (%)	Core Needle Biopsy N (%)
Total Samples	339 (74.2%)	118 (25.8%)
Adequacy of sample	328 (96.8)%	67 (56.8%)
Diagnosis		
Benign	154 (45.4%)	50 (42.4%)
Diffuse Large B Cell Lymphoma	30 (8.5%)	12 (10.2%)
Other Large B Cell Lymphoma	13 (3.8%)	6 (5.1%)
Hodgkin Lymphoma	38 (11.2%)	7 (5.9%)
Follicular Lymphoma Grade 1/2/3A	29 (8.6%)	8 (6.8%)
Follicular Lymphoma Grade 3B	4 (1.2%)	0 (00%)
Mantle Cell Lymphoma	9 (2.7%)	2 (1.7%)
Marginal Zone Lymphoma	7 (2.1%)	1 (0.85%)
SLL/CLL	7 (2.1%)	3 (2.5%)
Peripheral T Cell Lymphoma, NOS	6 (1.8%)	0 (0.0%)
Angioimmunoblastic T Cell Lymphoma	4 (1.2%)	0 (0.0%)
ATLL	1 (0.3%)	0 (0.0%)
Other T cell Lymphoma	4 (1.2%)	0 (0.0%)
Solid tumor	19 (5.6%)	18 (15.3%)
Other	13 (3.8%)	10 (8.5%)
Lymphoplasmacytic Lymphoma	1 (0.3%)	0 (0.0%)
Low Grade NHL, NOS	0 (0.0%)	1 (0.85%)
Biopsy Location		
Cervical	136 (40.1%)	10 (8.5%)
Supraclavicular	21 (6.2%)	14 (11.9%)
Axillary	58 (17.1%)	41 (34.7%)
Mediastinal	6 (1.8%)	2 (1.7%)
Retroperitoneal	1 (0.3%)	12 (10.2%)
Intra-abdominal	14 (4.1%)	13 (11.0%)
Stomach	1 (0.3%)	0 (0.0%)
Other	17 (5.0%)	6 (5.1%)
Inguinal	79 (23.3%)	17 (14.4%)
Iliac	6 (1.8%)	3 (2.5%)
Reviewing Pathologist		
Hematopathologist	300 (88.5%)	84 (71.2%)
Non-Hematopathologist	39 (11.5%)	34 (28.8%)

- Our diagnostic OR was less than expected, suggesting CNB is not as effective as EB at diagnosing lymphoma

- These findings challenge literature suggesting CNB is non-inferior to EB (Allin D., et al 2017)

- Our findings beg the question why TJUH has been moving away from EB in recent years, as well as the decisions to include or exclude certain ancillary studies with CNB

Future Directions

- Currently analyzing 2020 lymphoma diagnoses

- Better understand the rationale for choosing CNB over EB at easily accessible EB sites

- QI project to reduce the number of CNB for suspected biopsies

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