

Introduction

- Fine needle aspiration (FNA) is a vital step in evaluating patients with thyroid nodules. FNA cytology is assigned a Bethesda System for Reporting Thyroid Cytopathology category (BC) which can be used to assess risk of malignancy and guide surgical selection.
- FNA remains the most accurate way to differentiate benign and malignant nodules.¹
- Specimens that have some atypical features which may be seen in either benign or malignant lesions are classified as Atypia of Undetermined Significance (AUS) or Follicular Lesion of Undetermined Significance (FLUS), BC-III or as Suspicious for Follicular Neoplasm, BC-IV.
- BC-III and BC-IV are considered indeterminate and their risk of malignancy is anywhere from 5-30%.²
- Chronic Lymphocytic Thyroiditis (CLT), or Hashimoto's thyroiditis, is an autoimmune disease which is the leading cause for hypothyroidism in the United States and results in chronic inflammation of the thyroid gland.
- Due to the nature of Chronic Lymphocytic Thyroiditis there is increased difficulty determining malignancy through FNA, sometimes leading to false positives.³
- Our aim is to identify whether FNA cytopathology of patients with CLT is more likely to be classified as indeterminate cytology, BC-III or IV, and whether that nodule is more likely to be malignant on final pathology.

Methods

- We retrospectively analyzed 490 patients who had undergone thyroid surgery from January 1, 2018-April 1, 2020.
- Inclusion criteria included adults over 18 years of age who underwent FNA biopsy of a thyroid nodule and had confirmed CLT on final pathology.
- Exclusion criteria included all patients whose FNA report is unavailable, patients under the age of 18, and patients for whom enough clinical/demographic data is not available.
- Statistic methodology included univariate and multivariate analysis of the submitted demographics and clinical data.

Results

- The study included 63 patients with CLT noted on final pathology.
- The sample had a median patient age of 51 with a range of 21-88 and was 80.6% female.
- Two of the nodules were found to have NIFTP on final pathology and were classified as benign.
- Overall, 89 nodules were included in the study.

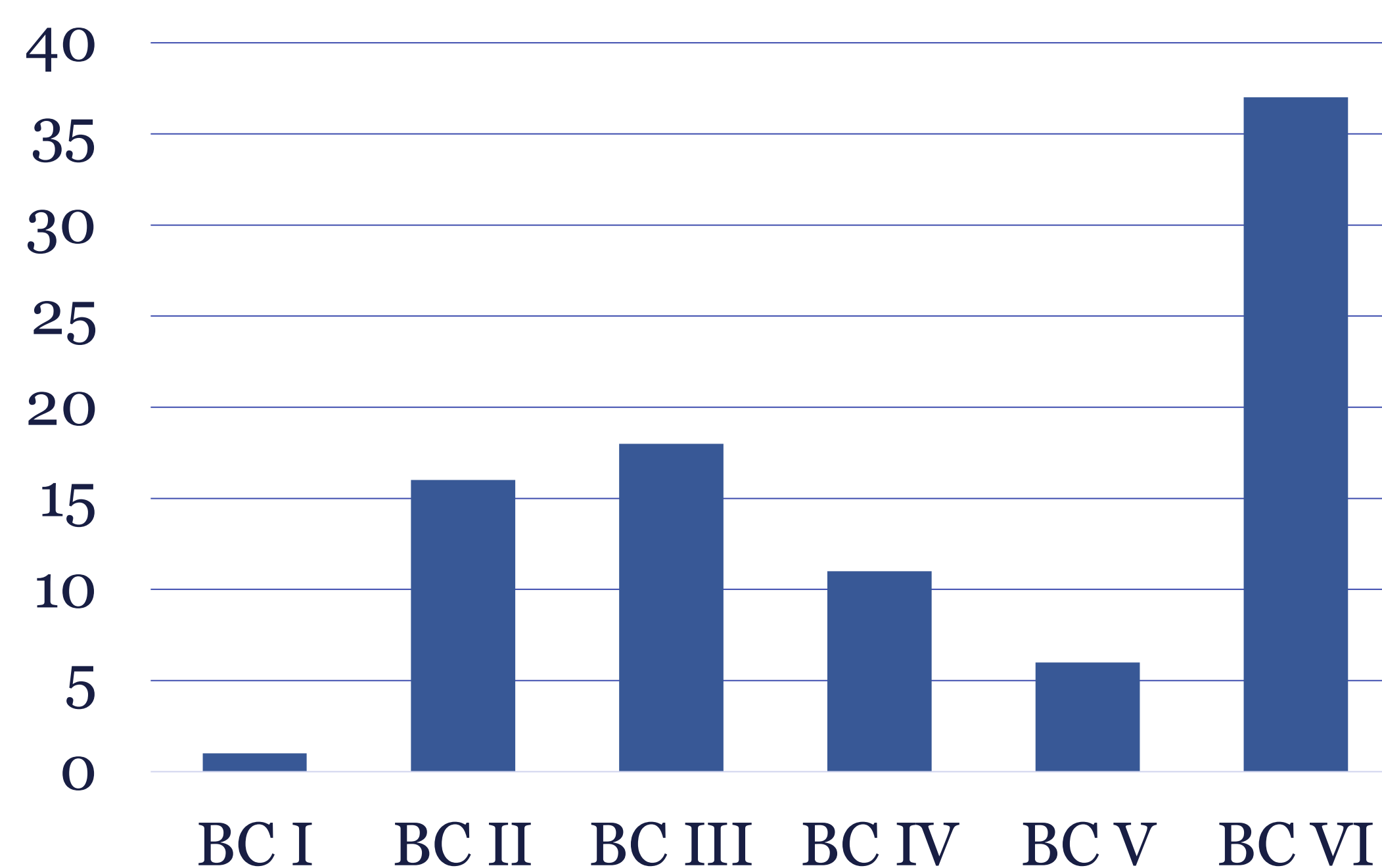


Table 1. Bethesda Category distribution of the studied nodules.

	Benign	Malignant	% Malignant
BC III	9	9	50.0%
BC IV	2	9	22.2%
Total	11	18	62.1%

Table 2. Stratification of indeterminant nodules based on final pathology.

- The malignancy rate for this CLT subset was 68.5%.
- We found 33.0% of the nodules were classified as indeterminate (BC III and BC IV).
- On final pathology, 11 of the indeterminate nodules were benign (37.9%) while 18 were found to be malignant (62.1%).

Conclusion

- While the overall incidence for indeterminate nodules has been reported with wide variation, the frequency is around 20% of all thyroid FNAs. In our CLT patients, we found 33% of the lesions were called indeterminant.
- BC III biopsies have a 5-15% risk of malignancy while BC IV biopsies carry a 15-30% risk of malignancy. In our Chronic Lymphocytic Thyroiditis patient population, final pathology revealed 50% of BC III biopsies and 81.8% of BC IV biopsies to be malignant.
- This indicates that patients with CLT may be more likely to receive an indeterminate result from FNA biopsies and malignant classification of that nodule on final pathology.

Future Steps

- To determine the significance of these results, we plan to identify a matched cohort of patients without CLT to compare the prevalence of indeterminate nodules and risk of malignancy between groups.
- We also plan to collect data on both ultrasound findings on the nodule prior to FNA and molecular testing done on the sample to understand the role these additional tools may play in clinical guidance.

References

1. Dean DS, Gharib H. Fine-Needle Aspiration Biopsy of the Thyroid Gland. [Updated 2015 Apr 26]. In: Feingold KR, Anawalt B, Boyce A, et al., editors. Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000.
2. Pasha HA, Dhanani R, Mughal A, Ahmed KS, Suhail A. Malignancy rate in thyroid nodules with atypia or follicular lesion of undetermined significance. *Int Arch Otorhinolaryngol*. 2020;24(2):e221-e226.
3. Hu F, Yan Z, Ma B, Jiang Y, Huang H. The impact of concurrent hashimoto thyroiditis on thyroid nodule cytopathology assessed by ultrasound-guided fine-needle aspiration cytology. *Postgrad Med*. 2020;132(6):506-511.

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