Research Article

Follicular lesions of thyroid- A diagnostic dilemma in cytopathology

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Abstract

Introduction: Follicular lesions of thyroid fall in the gray zone of cytopathology. The bulk of cytohistologic discordant cases belong to this gray zone due to the presence of overlapping features. **Aims/objectives**: To find out the diagnostic accuracy of thyroid FNA in diagnosis of follicular lesions and to critically evaluate theses cases for causes of discordance. **Materials and Methods**: 1091 patients underwent thyroid FNA in a period of 2 years in our institute. Histopathological diagnosis was available in 313 cases. Data of these cases was collected and statistically analyzed considering histopathology as the Gold Standard. **Observation/results**: Of the 313 cases with histopathology, 56 cases were follicular lesions cytologically, which were broadly grouped as adenomatous lesions (33) and follicular neoplasms (23). Of 33 adenomatous lesions, 7 cases did not correlate with histopathology. Of 23 follicular neoplasms, 6 cases were discordant. Overall diagnostic accuracy of FNAC for follicular lesions was 77%. We then analysed the possible causes for discordance. Too much emphasis on cellularity and presence of focal subtle nuclear features and less emphasis on the amount of colloid were the most common reasons for discordance. Hashimotos thyroiditis and adenomatous hyperplasia were the most common false negative diagnoses in the group of follicular neoplasms. **Conclusions**: Since the follicular lesions of thyroid constitute good number of discordant cases due to the focal presence of subtle nuclear features, there is a need to formulate sensitive cytologic scoring criteria. Establishing of criteria will also minimize inter-observer variations.

Key Word: follicular lesions, thyroid FNA, diagnostic accuracy.

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INTRODUCTION

Fine needle aspiration cytology (FNAC) is a popular diagnostic as well as therapeutic test in thyroid pathology. Given the ease of technique and relatively minimal invasive nature of the procedure, it has become a popular diagnostic modality. It is being widely used to differentiate benign from malignant lesions. But there is some "gray zone" of thyroid FNAC where the diagnostic efficacy becomes low (1), making it less reliable in categorizing the nature of the lesion leading to discrepant cases. Follicular lesions of thyroid fall in the gray zone of cytopathology. The bulk of cytohistologic discordant cases belong to this category due to the presence of overlapping features.

AIMS AND OBJECTIVES

To find out the diagnostic accuracy of thyroid FNA in diagnosis of follicular lesions and to critically evaluate theses cases for causes of discordance.

MATERIALS AND METHODS

This retrospective study was conducted in the Department of Pathology at Father Muller Medical College, Mangalore. A total of 1091 patients with thyroid swelling were aspirated during a period of two years from 2011 to 2013 using a 23-gauge needle and a 5-ml syringe. The slides were both air-dried and wet-fixed for May-Grünwald Giemsa and Papanicolaou stains, respectively. A concise clinical history, examination and details of relevant investigations were also obtained. Surgical follow-up was available for 313 aspirations. 56 cases were follicular lesions cytologically and these were selected for study.

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OBSERVATION AND RESULTS

Of the 313 cases with histopathology, 56 cases were follicular lesions cytologically, which were broadly grouped as adenomatous lesions (33) and follicular neoplasms (23). Of 33 adenomatous lesions, 7 cases did not correlate with histopathology. Of 23 follicular neoplasms, 6 cases were discordant. Overall diagnostic accuracy of FNAC for follicular lesions was 77%. We then analyzed the possible causes for discordance. Too much emphasis on cellularity and presence of focal subtle nuclear features and less emphasis on the amount of colloid were the most common reasons for discordance (figure 1). Hashimotos thyroiditis and adenomatous hyperplasia were the most common false negative diagnoses in the group of follicular neoplasms.

DISCUSSION

FNAC has become a primary diagnostic tool for evaluating thyroid nodules. A correct cytologic diagnosis obviates unnecessary thyroid surgeries. The percentage of patients undergoing thyroidectomy has decreased by 25%, and the yield of carcinoma in patients who undergo surgery has increased from 15% to at least 30%. Fine-needle aspiration has decreased the cost of care by 25%.(2).However, FNA has few inherent limitations which are related to inadequate sampling and its inability to distinguish between benign and malignant follicular lesions in the absence of nuclear features of papillary carcinoma(3). Another limitation of FNAC is its inefficiency in diagnosing group of lesions which have overlapping benign and malignant features. For instance, the distinction between a cellular colloid goiter and a follicular neoplasm may be impossible (4). Our study focused on follicular lesions of thyroid which were diagnosed by cytology and compared it with histopathology. We then looked into diagnostic accuracy of cytology in diagnosing follicular lesions. We also looked into cytological differences between various follicular lesions of thyroid. Comparison of results of our study with other study are shown in Table no. 1

Table 1: Comparison of present study with various other studies

	Goitre	Adenoma	FVPCT	FC	Others
Martin (5)	39	15	4	5	37
Baloch (6)	42	23	21	9	5
Bosolo(7)	80	NA	NA	4	16
Wu (8)	NA	76	NA	6	18
Present study	22	35	26	9	8

NA-not available, FVPCT- follicular Variant of Papillary Carcinoma, FC- Follicular Carcinoma.

Greaves *et al* studied 92 cases of follicular lesions of which in 63 cases there were no distinguishing features predictive of the histologic outcome (9).We reviewed these cases to find out the potential clues that can help us in differentiating benign from malignant lesions and also at the same time we attempted to delineate the features which can be potentially misleading. Syncytial pattern, papillary pattern and micro follicular pattern are more common in neoplasms and thyroiditis. The predominant cell pattern gives us a clue as to what we are dealing with and aids in diagnosis in combination with cell morphology and background details in the cytological diagnosis of thyroid lesions (10) A finding of 2 different populations of follicular cells or cells with 2 different types of nuclear chromatin should raise a strong suspicion of neoplastic lesion. Also another pointer towards neoplastic lesion is the different looking or altered nature of the colloid. Too much emphasis on cellularity and presence of focal subtle nuclear features and less emphasis on the amount of colloid were the possible causes for discordance. Hashimotos thyroiditis and adenomatous hyperplasia were the most common false negative diagnoses in the group of follicular neoplasms

CONCLUSIONS

Since the follicular lesions of thyroid constitute good number of discordant cases due to the focal presence of subtle nuclear features, there is a need to formulate sensitive cytologic scoring criteria. Establishing of criteria will also minimize inter-observer variations.

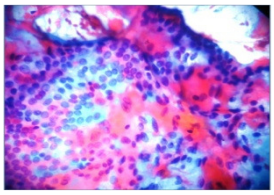

Figure 1: FNAC of FVPCT misdiagnosed on cytology as adenomatous goiter showing elongated groved nuclei

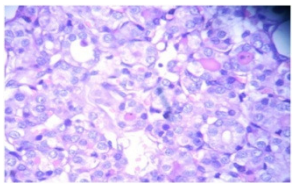

Figure 2: Histopathology of above case diagnosed as FVPCT

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