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Address of Correspondence

Executive Editor, TMSS Medical College Journal, TMSS Medical College
Rangpur Road, Thengamara, Bogura, Bangladesh.
Phone: 051-61830, Fax : 051-61830
e-mail: editortmcjournal@gmail.com, Web: www.tmssmedicalcollege.com

Original Article

Assessment of Clinical Characteristics and FNAC Findings of Different Thyroid Lesions in a group of Bangladeshi patients

Chowdhury MA[1*], Rahman DMA[2], Raza AKMM[3] , Karim SN[4], Nowsher MN[5], Rahman ZS[6], Hoque MM[7]

1. Dr. Mehdi Ashik Chowdhury, Associate Professor, Department of Pathology, Tairunnessa Memorial Medical college, Gazipur.
2. Dr. DM Arifur Rahman, Assistant professor Department of Histopathology, TMSS Medical College, Bogura.
3. Dr. A K M Maruf Raza, Associate Professor, Department of Pathology, Jahurul Islam Medical College, Kishoregonj.
4. Dr. Syeda Noorjahan Karim, Assistant Professor, Department of Pathology, Gazi Medical College, Khulna.
5. Dr. Md. Neaz Nowsher, Pathologist, Khulna Medical College Hospital, Khulna.
6. Dr. Zerin Shabnam Rahman, Lecturer, Department of Microbiology, Jahurul Islam Medical College, Kishoregonj.
7. Dr. Mohammad Mahabubul Hoque, Junior consultant, Department of Pathology, Sheikh Sayera Khatun Medical College, Gopalganj.

***Corresponding Author**

Abstract

Introduction: Cytological evaluation of thyroid swellings is now used as a screening tool. The distinction of the benign and malignant thyroid lesions is very important because malignancy necessitates surgery, where as strict patient follow-up is necessary in the case of a benign mass. With too little complications now a days FNA is gaining popularity amongst clinicians to differentiate between benign and malignant thyroid lesions. Therefore the aim of the study is to compare the cytological findings of thyroid lesions with clinical findings. **Materials and Methods**: In this cross sectional study, 250 cases were subjected to perform FNAC in the Department of pathology of Jahurul Islam Medical College, Bajitpur, Kishoreganj from March 2019 to May 2020. Then the FNA findings were compared with the clinical findings and relevant data. **Results:** Out of 250 cases studied, 162(69.6%) cases were diagnosed as Benign. The most common benign lesion was nodular goitre. 45 (18%) cases were diagnosed as Inflammatory, 30 (12%) cases were diagnosed as Follicular lesions. 13 (5.20%) cases were diagnosed as malignant. Papillary carcinoma was the commonest malignancy. One case of medullary carcinoma was found. **Conclusion:** Only clinical evaluation is not enough for further management of thyroid swelling. We suggest that clinicopathological correlation can markedly reduce the false negative as well as false positive diagnosis and reduce unnecessary surgery.

Key Word: Thyroid, Fine needle aspiration cytology (FNAC), clinical characteristics, cytologic findings.

Introduction

Thyroid gland is the largest endocrine gland in the body. It is the first endocrine organ to develop in fetal life. Even after 100 years, Thyroid gland has been the subject of interest for research and considerable attention due to the vast array of diseases. Various thyroid lesions including developmental, inflammatory, hyperplastic and neoplastic disorders are exceedingly common in clinical practice.[3] Fine-needle aspiration (FNA) cytology is a well-established procedure in the primary diagnosis of benign and malignant thyroid disorders. FNAC is a rapid, easy and inexpensive diagnostic procedure.[1] It is an invasive pre-operative investigation. Its simplicity and safety justify its use for "selective" surgery. The distinction of the benign and malignant thyroid lesions is very important because malignancy necessitates surgery; where strict patient follow-up is necessary in the case of a benign mass. And for this it is considered as the "gold standard" in the management of thyroid nodules.[2] FNAC is usually performed without local anesthesia and the patient does not require any previous preparation. The fundamental clinical assessment supplemented by FNA is capable of making the distinction between benign and malignant nodules in a large proportion of cases.[4,5] Therefore, the aim of our study is to assess the effectiveness of thyroid FNAC, as a simple procedure for the diagnosis of thyroid swelling and to compare various clinical features with the FNAC findings.

Materials and Methods

This was a cross sectional observational study carried out at the Department of pathology of Jahurul Islam Medical College and Popular Diagnostic center, Gazipur in between April 2019 to May 2020. 250 cases were subjected to perform FNAC of thyroid swelling. We kept the patients' data in records. The procedure was done by pathologists in all cases. Aspiration is done after proper physical examination to identify the mobility of the thyroid swelling with deglutition and the presence of cervical lymphadenopathy. Prior to aspiration the patients were asked to lie in supine position with stretched neck. A 23 gauge needle attached to a 5cc disposable syringe was used. Two or three passes were made in each case. Multiple prick were done in case of a large multi-nodular goitre or diffuse swelling. After aspiration the aspirates were put in slides. 2 to 4 slides were made and fixed immediately in 95% ethyl alcohol contained in a coplin jar and after 30 minutes the slides were stained with Papanicolaou stain. During and after the procedure we didn't have any major complication. Only some patient complained of pain. Then cytological evaluations were done under microscope. Various clinical data and FNAC findings were tabulated. Then cytological findings were compared with clinical features.

Results

This cross sectional study was aimed to evaluate the cytological findings and to compare these findings with various clinical features. About 250 cases with thyroid swelling were taken for this study. In this study age of the patients varied from 16-75 years. Out of 250 cases, 65.20% were belonged to age 20-40 years. Female patients have outnumbered male patients with a ratio of 7:1 (Fig 1)

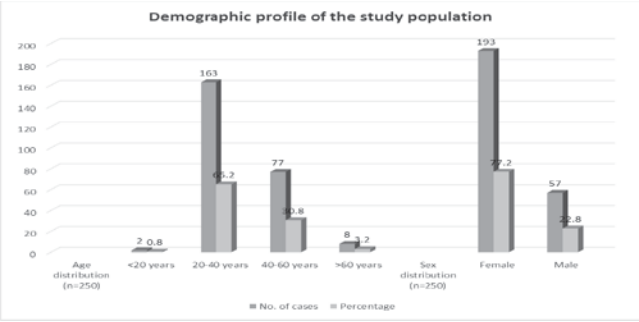

Figure 1: Demographic profile of the study population

It was noted that 250 (100%) patients sought medical advice because of the swelling in front of the neck. Pressure effects like dyspnea and dysphagia were seen in 31(12.40%) and 37 (14.80%) patients respectively (Table-I).

Table I: Distribution of study subjects according to the presenting features

	Clinical symptoms	No. of patients	Percentage
1	Swelling in front of neck	250	100
2	Pain	37	14.80
3	Dyspnea	31	12.40
4	Dysphagia	37	14.80
5	Hoarseness of voice	22	8.80

Regarding site, it was observed that 103 41.20% patients had swelling in the right lobe followed by 57 22.80% patients in the left lobe of the thyroid gland. It was also found that majority of the swelling 81.20% was of firm consistency followed by hard 12.0% and soft 6.80%. Most of the patients presented with nodular thyroid swelling 79.20% (Table-II).

Table II: Distribution of study subjects according to the nature of the swelling

Nature of swelling	Number of cases	Percentage
Location		
Right lobe	103	41.20
Left lobe	57	22.80
Isthmus	11	4.40
Right lobe and Isthmus	18	7.20
Left lobe and Isthmus	23	9.20
Bilateral	38	15.20
Total	250	100
Consistency		
Firm	203	81.2
Hard	30	12
Soft	17	6.8
Total	250	100
Appearance of swelling		
Nodular swelling	198	79.2
Diffuse swelling	52	20.8
Total	250	100

Out of 250 cases studied 162 (64.80%) cases were diagnosed as Benign, 45 (18%) cases were inflammatory lesions, 30 (12%) cases were diagnosed as Follicular lesions and 13 (5.20%) cases were diagnosed as malignant (Table III). Among 13 malignant lesions 12 cases were diagnosed as papillary carcinoma and only 1 case diagnosed as medullary carcinoma.

Table III: Distribution of cases depending on FNA diagnosis

FNA Category	FNA Diagnosis	Number of patients	Percentage
Benign lesion	Colloid goiter	08	3.2
	Nodular goiter	107	42.8
	Nodular goitre with cystic change	27	10.8
	Nodular goitre with co existent thyroiditis	20	8
Subtotal		162	64.80
Inflammatory lesion	Granulomatous thyroiditis	05	2
	Lymphocytic hyroiditis	31	12.4
	Hashimoto thyroiditis	09	3.6
Subtotal		45	18.0
Follicular lesion	Follicular lesion other than follicular neoplasm	24	9.60
	Follicular neoplasm	06	2.40
Subtotal		30	12
Carcinoma	Papillary carcinoma	12	4.8
	Medullary carcinoma	01	0.4
Sub total		13	5.20

Figure 2 and 3 shows cytomorphological images of papillary carcinoma. Figure 4 shows a follicular lesions diagnosed as cellular follicular lesion. Figure 5 shows a case of Thyroiditis characterized by presence of hurthle cells.

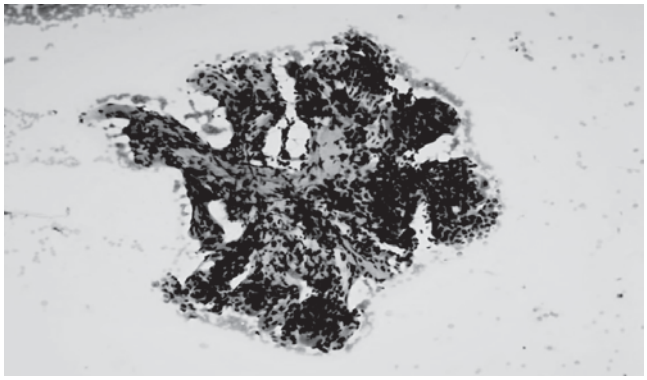

Figure 2: Photomicrograph showing papillary thyroid carcinoma in FNA smear (Pap stain x400)

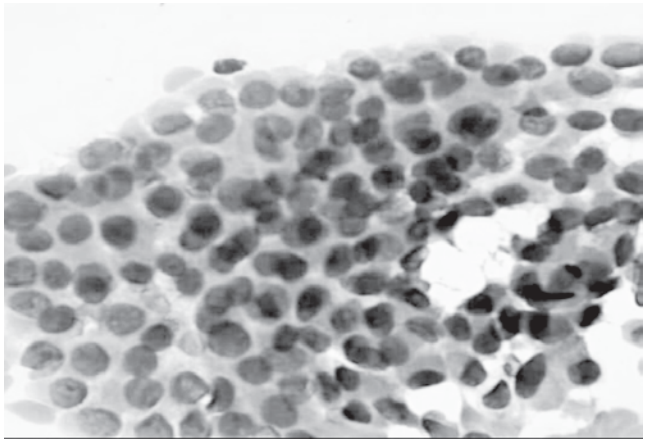

Figure 3: Photomicrograph showing nuclear grooving and clearing in papillary carcinoma (Pap stain x400)

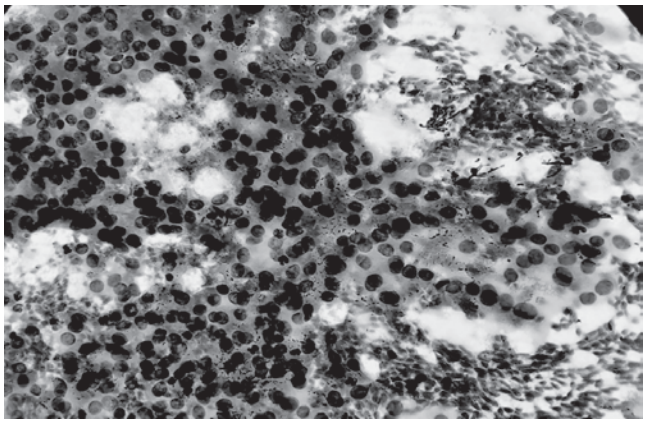

Figure 4: Photomicrograph showing cellular follicular lesion (Pap stain x400)

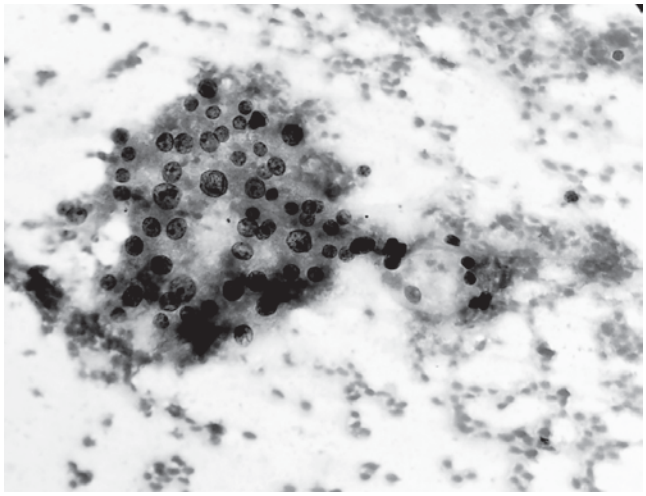

Figure 5: Photomicrograph showing Hurthle cell in Hashimoto thyroiditis (Pap stain x400)

Discussion

Thyroid gland is unique among endocrine organs as it is the largest endocrine gland in the body and the first to develop in fetal life. Even after 100 years, thyroid gland has been the subject of intense research and considerable attention due to the vast array of developmental, inflammatory, hyperplastic and neoplastic disorders which are exceedingly common in clinical practice[6]. Clinical examination along with FNAC is the pillar of evaluation of thyroid lesions. FNAC has helped us decrease the number of unnecessary thyroidectomies for benign thyroid swellings[7]. In the present study, it was observed that majority (193) patients were female with a male female ratio 1:7. Similar findings were observed in some other studies. Another author found exactly same result like us[8]. Some authors found most of the patients were female with a male female ratio 1:6.35 [9]. Another group of authors also observed female predominance with a male female ratio 1: 9[10]. In our study, all 250 patients (100%) presented with swelling on the front of the neck. About 37 (14.8%) patients also complained of pain in the swelling. Our results were comparable with another study where complaint of neck swelling in front was present in all 434 (100%) cases[9]. Our study revealed that, difficulty in breathing and swallowing was complained by 31 (12.4%) and 37(14.8%) patients respectively. About 22 (8.8%) patients also present with change of voice. Another study shows quite similar results like ours[11]. In that study, complaint of neck swelling in front was present in all 100 (100%) cases. Pain in the swelling was present in 15 (15%) cases. Pressure symptoms that is dyspnea, dysphagia, hoarseness of voice was present in 13 (13%), 12 (12%), 13 (13%) cases respectively. In our study the swelling was located in the right lobe in 41.20% of the cases. Left lobe swelling was found in 22.80%. The site affected in the thyroid gland varied in reports of different study groups; most have found right lobe to be affected more[12, 13, 14, 15]. In our series, consistency of the thyroid swelling varied with highest as firm (66.8%). Few other authors also reported that the majority of the nodules in thyroid cancer were firm in consistency[16]. In this study most of the cases presented with nodular swelling which was solitary or multiple (79.20%). About 52 cases present with diffuse swelling. Which corresponds to other studies[9, 15]. Out of 250 cases about 162 cases were benign. Among benign cases nodular goitre was most common finding (107 cases). About 45 cases were diagnosed as inflammatory lesion of which lymphocytic thyroiditis was most common. About nine cases were diagnosed as Hashimoto thyroiditis which was confirmed by antibody titer. We found 30 thyroid lesions which were categorized as follicular lesion. About 13 cases were diagnosed as carcinoma and most of them were papillary carcinoma (12 cases). Only one case of medullary carcinoma was found. Re-aspirations were done from the case in case of unsatisfactory smears.

Another study is quite similar to ours. In that study, 148 (83.14%) cases were diagnosed as Benign including inflammatory, 27 (16.2%) cases were diagnosed as Follicular lesions and 7 (3.93%) cases were diagnosed as malignant[15]. A group of authors found that, among 112 cases. 91(81.25%) cases were Benign including inflammatory, 19 (16.9%) cases were diagnosed as Follicular lesions and 2 (1.7%) cases were diagnosed as malignant[6]. Another study showed that, 228 (90.5%) cases were diagnosed as Benign including inflammatory lesions, 6.7%[17]. Some authors showed in a study that 122(61%) cases were diagnosed as Benign including inflammatory, 58 (29%) cases were diagnosed as Follicular lesions and 20 (10%) cases were diagnosed as malignant[18]. Another group of authors stated that 50 (53.16%) cases were diagnosed as Benign including inflammatory, 35 (37.2%) cases were diagnosed as Follicular lesions and 7 (7.4%) cases were diagnosed as malignant and 2 (2.12%) cases were unsatisfactory even after reaspiration[19].

Conclusion

To diagnosis of thyroid lesion, FNAC along with proper clinical data should be the mainstay in thyroid management for a developing nation like Bangladesh.

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