Research Article

Surveillance of Thyroid Swelling Patients in a Tertiary Care Teaching Hospital

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Accepted on: 10-12-2015; **Finalized on:** 31-12-2015.

ABSTRACT

Surveillance of thyroid patients in a tertiary care teaching hospital and compared with two conventional methods like ultrasonography and fine needle aspirated cytology. Thyroid nodules are very common in the general population. The prevalence of palpable thyroid nodules is increased day by day. So, we have studied the prevalence of thyroid swelling in our locality. All clinical suspected thyroid swelling patients were sent for USG and FNAC diagnosis and compared their result and evaluate the true positive, true negative, false positive and false negative cases of thyroid swelling for a period of 5 years. Apart from this, we have documented the demographic data of all patients attending to outpatient department. All the data were analyzed with Microsoft excel office. From 650 clinically suspected thyroid patients, 600 cases were positive (thyroid nodule) in ultrasonography and 632 cases were positive in FNAC. In our study, we found true positive (620), true negative (18), false positive (8) and false negative (4). With USG FNAC, the sensitivity was 99%, specificity was 70%, positive predictive value was 98.72% and negative predictive value was 81.81%. Based on the reports patients were subjected to thyroid surgery. In our study, none of them were showing any distance metastasis or lymph node involvement and 620 cases showed true positivity. These findings are also different from other study. Most patients with thyroid nodule do not reach the tertiary care hospital, which is very far from their places. If facilities (USG neck and FNAC) are available in the district hospitals then a lot of poor people having thyroid nodule can be approachable and appropriate treatment can be given to the mass public.

Keywords: Thyroid nodule, FNAC, USG, Sensitivity, Specificity.

INTRODUCTION

Thyroid nodules are very common in the general population. The prevalence of palpable thyroid nodules is only approximately 4–7%, but the prevalence of ultrasound-detectable nodules is between 19 and 67%.[1] Twenty to forty-eight percent of patients with apparently solitary thyroid nodules palpated on physical exam will have additional sonographically detectable nodules.[2,3] Thyroid nodules are more common in women than in men by a ratio of about 4 to 1, and increase in frequency with age and with decreasing iodine intake.[4] Thyroid nodules are also more common in patients who have a history of head and neck irradiation, developing at a rate of about 2% per year compared with 0.1% per year in patients without a history of significant radiation exposure.[5] The great majority of thyroid nodules are benign, with the differential diagnosis including simple or hemorrhagic cysts, colloid nodules, follicular adenomas, or thyroiditis.[6] The overall risk of malignancy in a thyroid nodule is 5–10%.[7]

While thyroid nodules are relatively common in the general population, in contrast, thyroid cancer is relatively uncommon with an expected annual incidence in the United States (U.S.) of 37,340 cases in 2008, constituting only 2.6% of all cancers and only 0.3% of cancer deaths.[8] The incidence of thyroid cancer has increased 2.4-fold in the U.S. over the last 30 years, from 3.6 per 100,000 in 1973 to 8.7 per 100,000 in 2003.[9] Thyroid cancer is more common in women than in men by a ratio of about 3 to 1, and has now become the sixth most common cancer in women.[8] While thyroid cancer is more common in women, mortality rates from thyroid cancer are higher for men; this is thought to be related to an older age at diagnosis in men.[9]

In this study we documented the number of patients attended to our surgery OPD for thyroid swelling also compared with two conventional diagnoses i.e. USG and FNAC.

MATERIALS AND METHODS

In a prospective study, 650 midline neck swellings were diagnosed clinically as thyroid swelling in a tertiary care teaching hospital over a period of 5 years. Subsequently, these patients were sent for further investigations in order to get the confirmative diagnosis. These investigations were biochemical tests (thyroid function test), ultrasonography of neck and Fine needle aspiration cytology. The patients enrolled in this study belonged to the age group 10-70 years. The patients having morbid conditions like metastatic carcinomas, multi-organ involvement, congenital anomalies like cystic hygroma and thyroglossal cyst were excluded from the study. A detailed and reliable history of the patients was elicited. The duration of the symptoms were 6 months to 3 years.

The commonest clinical presentation was mass in the anterior aspect of the neck.

All the data collected from FNAC and USG of neck were analyzed with the help of SPSS 20 software.

RESULTS

Figure 1: Thyroid nodule of the patients

Figure 2: USG of neck showing thyroid nodule

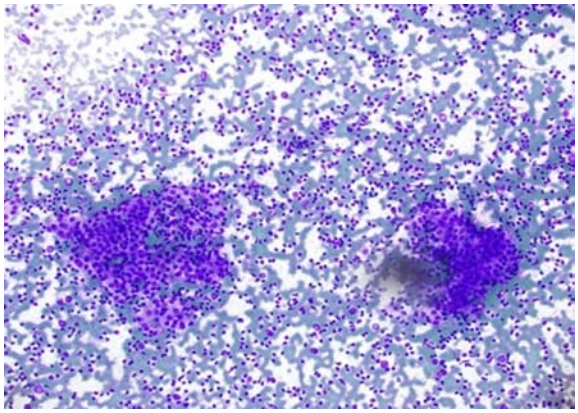

Figure 3: FNAC of the thyroid nodule

In a 5 year prospective study, 650 patients were diagnosed clinically as thyroid swellings (Fig 1).

Those patients were sent for ultrasonography (USG) of neck using high resolution probe (Fig 2), simultaneously they were sent for fine needle aspiration cytology (FNAC).

The USG revealed 600 patients were positive for thyroid nodule and rest were negative (50).

In FNAC, 632 patients were diagnosed as positive (Fig 3) in categorizing thyroid nodules and 18 patients were negative report.

Among the patients with thyroid nodule, the all presented with mid line neck swelling.

Apart from this, the other complaints like associated pain (14.1%), breathing difficulty (2.3%), difficulty in swallowing (9.38%), hyperthyroidism (7.07%) and hypothyroidism (10.76%) Table1.

It was observed that majority of the patients with thyroid swellings belonged to the age group 41-60 years.

In the lower age group i.e 10-20 years were having least number of thyroid swelling patients.

In our study group females were predominant to their male counter parts.

Most patients usually belonged to the tribal belt in our study.

Interestingly, it was observed that more number of married individuals were detected to be having thyroid nodules.

Stress level of a person also played a major role in our study (Table 2).

Both USG and FNAC diagnosis were compared and it was found that true positive cases were 620 and false negative cases were 4 (Table 3).

With the help of USG of neck, we were able to categorize the thyroid nodules into solitary nodule (285), multinodular goiter (186), thyroid cyst (72) and carcinoma thyroid (57).

FNAC of thyroid nodules revealed colloid goiter (188), thryroid cyst (113), Hashimoto's thyroiditis (68), follicular carcinoma (135), papillary carcinoma (75), medullary carcinoma (23) and anaplastic carcinoma (30).

We co-related the clinical diagnosis, FNAC report and USG finding and arrived at fairly accurate end point followed by preoperative workup was done.

We subjected 600 patients to surgical procedures i.e. enucleation of thyroid cyst 90, hemithyroidectomy 115, sub total thyroidectomy 132 near and total thyroidectomy 263.

Table 1: Presenting complaints of patients with thyroid swelling.

S. No.	Principal complaints	Numbers
1	Neck swelling	650 (100%)
2	Associated pain	92 (14.1)
3	Difficulty in breathing	15 (2.3)
4	Difficulty in swallowing	61 (9.38)
5	Hyperthyroidism	46 (7.07)
6	Hypothyroidism	70 (10.76)

Table 2: Demographic profile of the thyroid patients attending outpatient department of Surgery.

Age distribution (Years)	Gender		Location		Marital status		Stress	
	Male	Female	Tribal	Urban	Married	Un-married	Y	N
10-20	9	22	42	12	0	31	0	31
21-40	109	212	176	116	311	10	186	135
41-60	117	181	218	86	296	2	203	95
Total	235	415	436	214	607	43	389	261

Table 3

Status of diagnosis	USG	FNAC	Number
True positive (TP)	+ve	+ve	620
True Negative (TN)	-ve	-ve	18
False Positive (FP)	+ve	-ve	8
False Negative (FN)	-ve	-ve	4

DISCUSSION

Ultrasound of the neck is a non-invasive, simple and an accurate modality to evaluate both palpable as well as non-palpable thyroid nodule. The American Thyroid Association (ATA) guidelines suggest that, in general, only nodules larger than 10 mm in diameter should be evaluated as the nodules having the potential to represent a clinically significant cancer.[10] Sometimes occult carcinoma may arise from the nodules less than 10 mm therefore a careful evaluation is necessary from the patients with these smaller lesions.[11,12] In this study, the sensitivity and negative predictive value of performing an USG for the diagnosis of non-palpable thyroid nodules were high as compared with values obtained for other studies; however, positive predictive value was low.[13]

Positive predictive value indicates that many of the positive results from this testing procedure may be false positives. Thus it will be necessary to follow up any positive result with a more reliable test (FNAC) to obtain a more accurate assessment regarding the diagnosis. Nevertheless, such a test may be useful if it is inexpensive and convenient. Therefore in this test sensitivity and specificity should be used to detect the reliability of FNAC.

With USG FNAC, the sensitivity was 99%, specificity was 70%, positive predictive value was 98.72% and negative predictive value was 81.81%. Based on the reports patients were subjected to thyroid surgery. In our study, none of them were showing any distance metastasis or lymph node involvement and 620 cases showed true positivity. These findings are also different from Kim.[13]

CONCLUSION

Thyroid enlargement is a common condition in the northern and southern Odisha. Due to ignorance and lack of health care facilities the patient seek medical attention quite late. Females outnumber the males to extent of 4:1. The exact reason for disproportion is not yet clearly understood. Benign lesions while long standing can undergo malignant transformation. But the incidence of primary thyroid malignancy is negligible. Hypothyroidism is an inherent complication of near total thyroidectomy and the affected patient will need lifelong thyroid supplement.

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Source of Support: Nil, **Conflict of Interest:** None.