

Study of Various Treatment Modalities in 107 Cases of Solitary Thyroid Nodule in Central India

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ABSTRACT: Introduction. The Solitary thyroid nodule is defined as a palpably discrete swelling within an otherwise apparently normal gland and is usually a benign lesion. Screening of large numbers of patients previously unsuspected of having goitre suggests that the incidence of isolated thyroid nodule in the general population may be of the order of 1% to 5%. Despite of the high frequency of thyroid nodule in the general population, the occurrence of thyroid carcinoma in solitary thyroid nodule is rare (5-20% OR 40/1 million). It is thus a challenge to select from this large group of patients with thyroid nodules, those who require further investigation and perhaps surgical therapy. **Aims & Objectives.** To evaluate the various treatment modalities in solitary thyroid nodules with minimal morbidity. **Materials and methods.** The patients were subjected to aspiration, hemi thyroidectomy, subtotal or total thyroidectomy depending upon the clinical sonographic and cytologic diagnosis and the surgeons preference. **Observations.** Thus various therapeutic procedures were performed on all 107 cases. The cystic nodules which disappeared on aspiration were discharged and followed up on regular intervals. The rest of the cases underwent hemi thyroidectomy, total and subtotal based on the size, gland involvement and cytology **Conclusion.** Pre operative evaluation with ultrasound and Fine needle aspiration cytology can minimize the extent of surgery to be performed. Most of the times the solitary thyroid nodule harbors a benign pathology.

Key Words. • Fine-needle aspiration cytology • Thyroidectomy • Thyroid nodule

Introduction

The solitary thyroid nodule is defined as a palpably discrete swelling within an otherwise apparently normal gland. It is usually a benign lesion.^[1] It is common in clinical practice.

The swelling in question is often noticed accidentally by the patient or drawn to her attention by a family member, neighbor, or a friend. The nodule may also be encountered as an incidental finding when a patient is examined for some unrelated disease. Screening of large numbers of patients previously unsuspected of having goitre suggests that the incidence of the isolated thyroid nodule in the general population may be of the order of 1% to 5%.^[2]

A thyroid nodule larger than 1 cm in diameter is usually palpable. However, the detection of a nodule by palpation also depends on its location within the thyroid gland, on the structure of the patient's neck, and on the experience of the examiner. Despite the

high frequency of thyroid nodules in the general population, the occurrence of thyroid carcinoma in solitary thyroid nodule is rare (5%-to-20% or 40/1 million).^[3]

Due to the large number of pathologies that can present as solitary thyroid nodules, some basic questions remain to be answered: (1) Is intervention necessary? (2) How are the cases to be selected for surgery? (3) What should be done at surgery? It is thus a challenge to select from this large group of patients with thyroid nodules those who require further investigation and perhaps surgical therapy.

Aims & Objectives

The purpose of this study was to evaluate various treatment modalities for solitary thyroid nodules with minimal morbidity.

Materials and Methods

The present study was carried out in Acharya

Vinoba Bhave Rural Hospital, Sawangi (Meghe), Wardha over a period of 30 months from April 2007 to August 2009. A patient was admitted to the study if he or she had a solitary thyroid nodule, was euthyroid, and was admitted to this hospital. Each patient underwent a detailed clinical examination, routine investigations, a thyroid profile, ultrasonography, fine-needle aspiration cytology, indirect laryngoscopy, and cervical x-rays.

Ultrasound examination was done with a real time gray scale unit Philips envisor C (model-mc-md0288 Philips Co Ltd) with a 7 MHz sector transducer keeping a water path interface. Fine-needle aspiration cytology was done using a disposable 10 cc syringe and disposable 24 and 26 gauge needles.

The patients were subjected to aspiration performed with an 18 gauge needle and syringe. They underwent hemithyroidectomy or subtotal or total thyroidectomy, depending upon the clinical sonographic and cytologic diagnosis and the surgeons preference.

Observations

The diagnosis was made on fine needle aspiration cytology and ultrasonography. The various pathologies and the number of patients with each pathology are listed in Table 1.

FNAC*	Number of patients
Colloid goitre	62
Follicular adenoma	27
Thyroiditis	6
Follicular malignancy	3
Papillary malignancy	3
Inadequate material	6

*Fine-needle aspiration cytology

A variety of procedures was performed on the 107 patients. Each patient underwent aspiration. Eleven patients' cystic nodules disappeared upon aspiration. These patients were discharged and followed up on regular intervals. The rest of the patients underwent one of 3 therapeutic procedures: hemithyroidectomy or total or subtotal thyroidectomy. The procedure that was performed was based on the size of the nodule, the gland involvement, and the cytology. Table 2 shows the number of patients who underwent each of the 3 procedures.

Of the 107 patients, 87 followed up regularly

and had no recurrence. Seven patients had recurrence, and 13 never turned up for follow up evaluations (see Graph 1).

Discussion

The management protocol for a solitary thyroid nodule is not fixed; opinions differ among various authors. In our study of 107 cases, 11 (10.28%) were discharged after aspiration because their nodules disappeared, 62 (57.94%) underwent hemithyroidectomy, 28 (26.17%) underwent subtotal thyroidectomy, and 6 (5.61%) underwent total thyroidectomy.

Of the patients who were discharged after aspiration, 4 had no recurrence and 2 did not follow up. Five had recurrences even after reaspiration. As a result, they underwent surgery as per the size and the lobe involved. This is comparable to the reports of other authors who performed similar procedures.^[4,5]

Of all the cases, 62 (57.94%) underwent hemithyroidectomy. Patients had either right or left thyroidectomies based on the side and tissue involved. Similarly, a few researchers reported performed hemithyroidectomy in 70% of their patients who had solitary thyroid nodules.^[6]

Table 2. The treatment modalities.

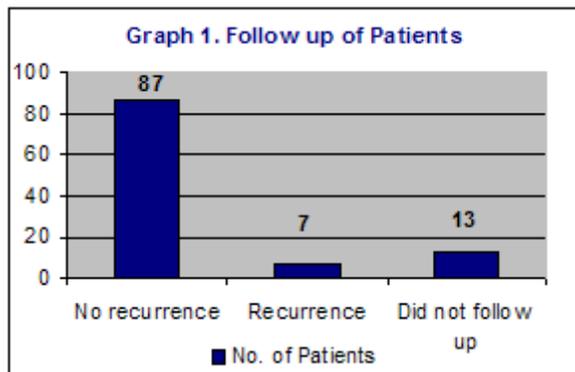
Procedure done	Number of patients
Aspiration	11
Hemithyroidectomy	62
Subtotal thyroidectomy	28
Total thyroidectomy	6

Hemithyroidectomy was preferred unless there was clearcut evidence of multinodularity or involvement of the other lobe. With this mode of management, there was less chance of postoperative morbidity and less chance of recurrence.

The 28 patients (26.16%) who had subtotal thyroidectomies were those whose thyroid glands were multinodular on ultrasonography and those who had inconclusive fine-needle aspiration cytology results. Six patients (5.07%) underwent total thyroidectomies. Their thyroid tissue was proven malignant on cytology, although there was no lymph node involvement. This result corresponds to the results in a few other studies.^[7,8]

Surgery for solitary thyroid nodules should be performed if there is any cytologic suspicion or evidence of malignancy or hyperthyroidism. In endemic

goitrous areas, however, more thyroidectomies are performed on the basis of clinical suspicion of malignancy. The reason is that it is recognized that even early cancers behave virulently, and the treating surgeons do not want to miss any cancers in solitary nodules of patients from socio-economically backward and remote areas who are likely to be lost to follow-up.



The first follow up was 15 days from the day of discharge followed by 2-to-3 visits in the next 6 months. If the patient did not turn up in the first 3 months, he or she was declared lost.

Of 107 patients, 87 followed up regularly and had no recurrence. Seven patients, however, did have recurrences. Five of these patients had been aspirated and reaspirated and consequently underwent surgery. Of the patients who had recurrences, 2 had follicular carcinoma and presented with positive lymph nodes. They were referred to a higher centre for radiotherapy, as our facility was not able to provide this service. Thirteen patients did not follow up.

There were no mortalities, and no patient developed complications following aspiration of his or her cystic nodule. No patient suffered from post-opera-

tive laryngeal nerve palsy, and no patient had a wound infection.

Conclusion

Preoperative evaluation with ultrasound and fine needle aspiration cytology can minimize the surgery that must be performed. In most cases, the solitary thyroid nodule harbors a benign pathology.

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