

# Clinical, Radiological, Radio-isotope and Histopathological findings of patients with Solitary Cold Nodule Thyroid, keeping in view the main outcome measures i.e., frequency of carcinoma and type of carcinoma

SHAHID GHAFUOR MALIK<sup>1</sup>, ASIF MANZOOR<sup>2</sup>, ARSHADULLAH AFRIDI<sup>3</sup>

## ABSTRACT

**Aim:** To record the clinical, radiological, radio-isotope and histopathological findings of all patients with solitary cold nodule thyroid, keeping in view the main outcome measures i.e., frequency of carcinoma and type of carcinoma.

**Methods:** It was a hospital based study so, subjects were selected according to inclusion criteria from the outpatient department of otolaryngology, Shaikh Zayed Hospital, Lahore during September 11, 2012 and completed on November 11, 2012 and were entered in the study.

**Results:** The age range was 15 to 65 years. The average age was 40±10 years. The male patients were 33 (25.38%) and 97 (74.61%) patients were female. Male to female ratio was 1:3.33. Out of these patients 28 (21.54%) diagnosed as having carcinoma in solitary cold nodule. 14(50%) were male and 14(50%) were female. 3(3.71%) had follicular carcinoma and remaining 25(89.28%) had papillary thyroid cancer.

**Conclusion:** It is concluded that solitary cold nodule thyroid is prevalent in female population .Once diagnosed proper workup should be done to rule out malignancy .Mostly, differentiated thyroid cancers (i.e., Papillary and Follicular carcinomas) present as solitary cold nodule thyroid. Papillary carcinoma is more prevalent than the follicular cancer.

**Keywords:** Solitary cold nodule, MNG, Cervical adenopathy, papillary carcinoma, follicular carcinoma

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## INTRODUCTION

Solitary cold nodule is a discrete mass, greater than or equal to 1cm in diameter, discovered by palpation of a thyroid gland otherwise of normal size and consistency and composed of cells which do not make thyroid hormone. Thyroid nodular is quite common disease, particularly in iodine-deficient areas. Clinically overt thyroid cancer accounts for 1% of all new malignant morbidities, though the annual rate is reported to be increased<sup>1</sup>. The risk that a thyroid nodule either in the perspective of multinodular goiter (MNG) or solitary may harbor a cancer is relatively lower when clinically evident thyroid cancers are considered. Though, it is higher when cancers are incidentally detected on the histology in cases operated on for compressive symptoms or hyperthyroidism<sup>2</sup>.

Most are benign, yet up to 30% of the solitary cold nodules may harbour malignancy<sup>3,8</sup>. Most commonly, thyroid nodules are found between 20-40 years of age group<sup>4</sup>. The incidence of thyroid nodules is much commoner in females, male to female ratio

being 1:6.3<sup>5</sup>. Thyroid malignancy is more common in women but the rate before puberty and after menopause is equivalent in both genders. The frequency of solitary thyroid nodule malignancy was found to be 13.33% in another study<sup>6</sup>. Similarly discrete thyroid swellings are 3-4 times more common in females than males<sup>7,9</sup>. Mainly, malignant nodules are carcinomas while lymphomas or metastases are found less commonly. A history of nodule hardness, neck irradiation or fixity to adjacent structures, and cervical adenopathy strongly suggested as malignancy. But in a large number of patients, the physician is left with more general clinical features e.g., age, sex and solitary or multiple nodularity, the importance of which is reported in previous studies with discrepant results<sup>12,13,14</sup>. The distribution of histological categories was as follows: 88percent papillary, 9percent follicular, and 3percent poorly differentiated (medullary and anaplastic)<sup>10</sup>. After primary thyroid disease is ruled out with normal thyroid function test and thyroid scan, the diagnostic procedure is FNAC of the thyroid nodule. Cytological results were recorded by following the British Thyroid Association as: non-diagnostic, non-neoplastic (benign or negative for malignancy), follicular, suspicious of malignancy; and indicative of malignancy<sup>11</sup>.

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<sup>1</sup>Assistant Prof. ENT Lahore Medical & Dental College Lahore

<sup>2</sup>Assistant Prof. ENT Shalmar Medical and Dental College Lahore

<sup>3</sup>Assistant Prof. ENT Shalmar Medical & Dental College Lahore

Correspondence to Dr. Shahid Ghafoor Malik,  
Email: drmalikent@gmail.com 03214841337

The rationale of the study is that there is variability in data of frequencies regarding CA in solitary cold nodule in the local studies I could find, so I want to counter check it in my study. Also there is no data previously on the type of carcinoma in any of our local studies so my study will give a baseline data regarding this.

**METHODOLOGY**

It was a hospital based study so, subjects were selected according to inclusion criteria from the outpatient department of otolaryngology, Shaikh Zayed Hospital, Lahore during September 11, 2012 and completed on November 11, 2012 and were entered in the study. Operative procedures were conducted in the operation theatre of the department of otolaryngology and the assessment of main outcome measure was done on the basis of histopathology reports from the department of histopathology Shaikh Zayed Hospital, Lahore. A total of 130 cases between 16 to 65years, Both male and female and Having solitary cold nodule thyroid were included in the stud while patients with warm and hot (functional) nodule(assessed on thyroid scan) were excluded from our study. A Performa was prepared, all patients with cold nodule thyroid were prepared for surgery to have the cold nodule resected at ENT operation theater for histopathologic analysis, the sample was sent to the Histopathology laboratory of ShaikhZayed Hospital, Lahore and on the basis of histopathologic report patients were labeled as positive or negative for carcinoma. The positive cases then further were divided according to their histopathologic types of carcinoma.

**RESULTS**

The age range was 15 to 65 years. The mean age±SD was 28.67±14.51 years, the male patients were 33(25.38%) and 97(74.61%) patients were female. Male to female ratio was 1:3.33, out of these patients 28(21.54%) diagnosed as having carcinoma in solitary cold nodule, 14(50%) were male and 14(50%) were female, 3(3.71%) had follicular carcinoma and remaining 25(89.28%) had papillary thyroid cancer.

Table 1: Frequency of Carcinoma In Solitary Cold Nodule (n=130)

CA +ve Solitary Cold Nodule	n	%age
Yes	28	21.54
No	102	78.46
Total	130	100

Table 2: Type of Carcinoma(n=28)

Type of Carcinoma	n	%age
Follicular CA	3	3.71
Papillary CA	25	89.28

Table 3: Gender Distribution Of Carcinoma(n=28)

Gender	n	%age
Male	14	50%
Female	14	50%

**DISCUSSION**

Most of the solitary thyroid nodules are benign, yet up to 30% of the solitary cold nodules may harbour malignancy<sup>3,8</sup>. Thyroid nodules are most commonly recoded between 20 and 40 years of age group<sup>4</sup>. The incidence of thyroid nodules is much commoner in females, male to female ratio being 1:6.3<sup>5</sup>. Thyroid malignancy is more common in females but incidence before puberty and after menopause is equal in both sexes. The frequency of solitary thyroid nodule malignancy was found to be 13.33% in another study<sup>6</sup>. Similarly discrete thyroid swellings are 3-4 times more common in women than men<sup>7,9</sup>. Malignant nodules are mainly carcinomas, and, less frequently, lymphomas or metastases. The distribution of histological categories was as follows: 88%papillary, 9% follicular, and 3% poorly differentiated (medullary and anaplastic)<sup>10</sup>.

In this study I included 130 patients with diagnosed solitary cold nodule thyroid. Their selection was random with no gender discrimination or age specification. The age distribution was:15-30 years included 95(73.08%) patients, 31-45 years included 10(7.69%) patients, 46-65 years included 25(19.23%) patients. Of these 33(25.38%) were male and 97(74.61%) were female patients. The frequency of carcinoma in solitary cold nodule thyroid turned out to be 28(21.54%), the rest of 102(78.46%) patients got benign lesions. Out of these 28 carcinoma positive patients 3(3.71%) had Follicular carcinoma and 25(89.28%) had Papillary carcinoma. The carcinoma positive male patients comprised 14(50%) and the female were 14(50%).

**CONCLUSION**

It is concluded from the study that solitary cold nodule thyroid is prevalent among female population. Once diagnosed as solitary cold nodule thyroid, proper workup should be done to rule out malignancy .Mostly, differentiated thyroid cancers (i.e., Papillary and Follicular carcinomas) present as solitary cold nodule thyroid. Papillary carcinoma is more prevalent than the follicular cancer.

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