

Incidental Thyroid Carcinoma in Multinodular Goitre

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Objectives: This study aims to determine the diagnosis of incidental thyroid carcinoma in patients operated on for multinodular goitre. **Study design:** Descriptive. **Place and duration:** Surgical Department, Nishtar Hospital Multan during January 2005 to June 2006. **Patients and methods:** Study was carried out on 100 patients of either sex, above the age of 14 years with euthyroid multinodular goitre. **Results:** Of the 100 patients of multinodular goitre, 89 were females, with female to male ratio of 8.09:1. The pressure symptoms were present in 28 patients, commonest one was dyspnoea in 18%. Swelling was bilateral in 82 patient with retrosternal extension in 6%. Thyroid carcinoma was reported in 11% patients during histopathology after subtotal thyroidectomies. The most common malignancy was papillary carcinoma with 54.54%. Papillary to follicular ratio was 2:1. Postoperative complications occurred in 8 patients, wound infection 4%, temporary hoarseness 3% and Hypoparathyroidism 1%. No patient required reexploration due to postoperative haemorrhage. Mortality was nil. **Conclusion:** Risk of malignancy in MNG should not be underestimated and dominant nodules in multinodular goitre should be valued as solitary nodule.

Key words: Multinodular Goitre, Subtotal Thyroidectomy, Carcinoma, Papillary.

Goitre is the enlargement of thyroid gland. It may be diffuse or nodular. Incidence of multinodular goitre (MNG) differs according to countries and seems to be widely dependent on the iodine status. One study indicates that 4.75% of the active population is suffering from MNG, this incidence is increased with gender and age. The role of genetic factors is estimated as being around 80%. The remaining 20% are related to environmental factors¹. Euthyroid multinodular goitre is caused by excessive replication of thyroid epithelial cells, due to persistent and fluctuating stimuli. With time there is a gradual increase in size and nodularity².

Multinodular goitre is a very common pathology among people especially female adult and represents more than 90% of the thyroid surgery³. It is usually a benign thyroid disease however variable and sometimes surprisingly high occurrence of malignancy has been reported. The diagnosis of incidental thyroid carcinoma (ITC) in patients operated on for a benign disease is frequent. The majority of ITC was represented by microcarcinomas, but in approximately 25% of patients, the tumour size was greater than 2cm⁴. The incidence of malignant involvement in cold nodules of MNG does not differ significantly from solitary nodule⁵.

Thyroid carcinoma represents the most frequent form of cancer of the endocrine glands. Epidemiologically ascertained risk factors are ionising radiation, the presence of thyroid adenoma and multinodular goitre⁶. Of the primary thyroid tumours, 75% are papillary, 10% are follicular, less than 5% undifferentiated, 8% medullary and remaining are lymphoma, sarcoma and unclassified tumours. Female to male ratio is 4:1⁷.

Goitre is one of the common diseases in Southern Punjab. So this study was carried out to evaluate the frequency of carcinoma in thyroidectomies for nontoxic multinodular goitre.

Patients and methods

It was a descriptive type of study. It was carried out on 100 patients of either sex above the age of 14 years who had clinically and biochemically euthyroid multinodular goitre. Patients with diffuse goitre, solitary nodule, hyperthyroidism and having diagnosed thyroid carcinoma were excluded.

All patients were admitted through out patient department. A detailed history was taken regarding lump, local symptoms and systemic effects. After thorough local and systemic examination, the patients underwent CBE, CUE, Chest X-ray. Thyroid function tests and FNAC of dominant, hard and suspicious nodules were already performed on outdoor basis. Indirect laryngoscopy and serum Calcium were advised preoperatively. Operation was subtotal thyroidectomy in all patients. Patients were observed for operative complications. The specimens were sent to pathology department of Nishtar Hospital for histopathology. The patients were then followed up in out door patient department. A performa was filled with relevant information. The results were analyzed and conclusion made.

Results

Out of hundred patients of multinodular goitre 89 were females, with female to male ratio of 8.09:1. The age distribution observed in this study is shown in Figure-I. Majority (71%) patients were in 3rd and 4th decade of life. The mean age was 36.5 years.

Nishtar is situated in Multan which is the main city of Southern Punjab. It has vast drainage area. Dera Ghazi Khan and Rajan Pur are known as iodine deficiency areas. The residential areas of these patients (Table 1).

The patients presented late with history of 6 – 7 years of swelling in front of neck. Patients had pressure symptoms like dyspnoea, dysphagia and hoarseness of voice with 18%, 9% and 1% respectively. Family history of

goitre was present in 24 patients. There was no history of head and neck irradiation in childhood. As all patients were euthyroid so there was no signs of hypo- or hyperthyroidism. Swelling was bilateral in 82% of patients and unilateral involving the one lobe and isthmus in 18% of patients. Pemberton's sign was positive in 6 patients. Clinical examination (Table 2).

Thyroid function tests were done in all patients. FNAC of hard, dominant and suspicious nodule were performed. Malignant cytology was excluded from the study. X-ray chest showed tracheal deviation in 2 patients and 6 patients had retrosternal extension.

Out of hundred patients who underwent subtotal thyroidectomy for multinodular goitre, 11% were diagnosed as carcinoma by histopathology. Out of 11 patients, 9 (81.81%) were females and 2 (18.18%) were males, with female to male ratio of 4.5:1.

Majority of females (66.6%) were in fourth and fifth decade of life while males were in their fifth and sixth decade of life. Age and sex distribution of carcinoma patients are shown in figure 2. Histopathology revealed that majority had papillary carcinoma with 54.54% followed by follicular, medullary and anaplastic with 27.27%, 9.09% and 9.09% respectively. Papillary to follicular ratio was 2:1. Postoperative complications are shown in Table 3. There was no mortality in the study. The patients were followed up in outpatient department for six month.

Fig.1: Age distribution of cold thyroid nodule

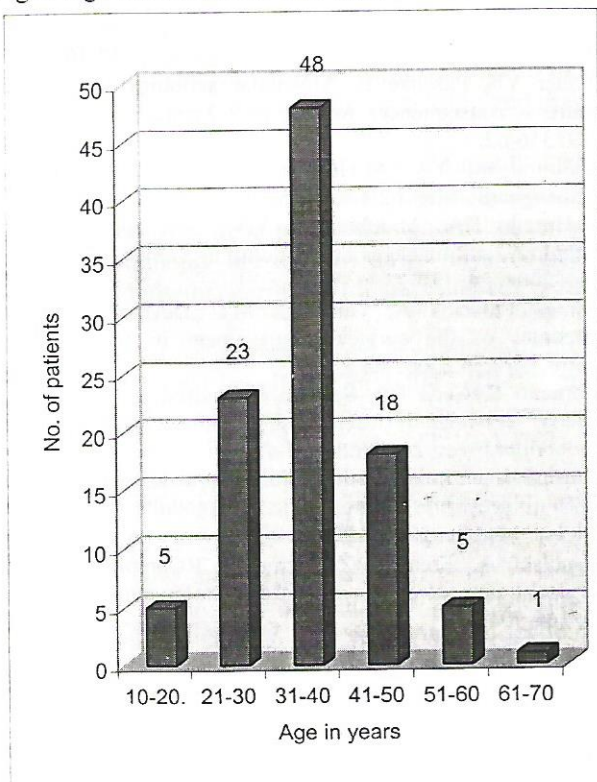


Table I: Residential areas of the patients

Districts	=n	%age
Dera Ghazi Khan	40	40.0
Rajan Pur	28	28.0
Multan	12	12.0
Muzaffar Garh	12	12.0
Other	8	8.0

Table II: Results of clinical examination

Signs	=n	%age
Bilateral swelling	82	82.0
Unilateral swelling	18	18.0
Dominant nodule	28	28.0
Firm consistency	95	95.0
Hard nodule	5	5.0
Retrosternal extension	6	6.0
Tracheal deviation	2	2.0

Fig. 2: Age and sex distribution of carcinoma patients

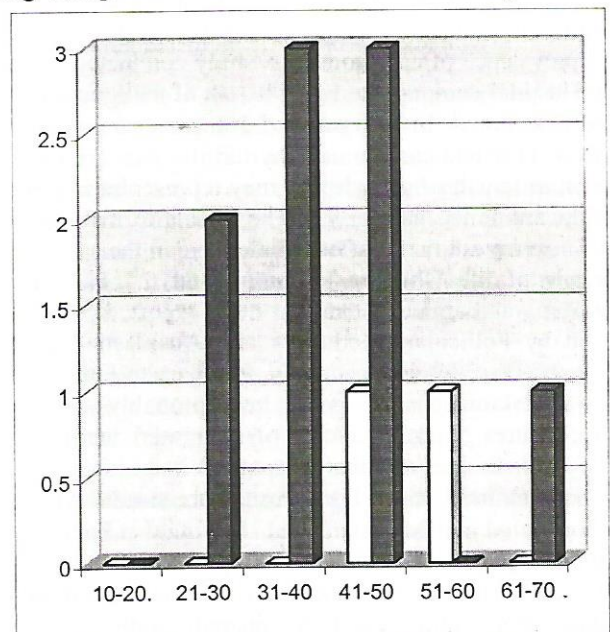


Table III: Postoperative complications

Complications	=n	%age
Temporary hoarseness	3	3.0
Permanent hoarseness	0	0.0
Hypoparathyroidism	1	1.0
Wound infection	4	4.0
Hemorrhage (needed re-exploration)	0	0.0

Discussion

Thyroid diseases are quite common in South East Punjab. All forms of goitres are more common in females⁷. This study also shows predominance for females with female to male ratio of 9:1. In women, physiological stresses like pregnancy increases the demand for iodine. Another cause

is increased urinary iodine excretion in second trimester⁸. In my study, the presentation of goitre was mostly in 3rd and 4th decade of life (Mean age 36.5).

A French study showed that mean age for goitre was 43 years⁹. Iodine deficiency is the most important factor in the etiology of nodular goitre¹⁰. Southern Punjab has areas of endemic iodine deficiency. Results of my study revealed that goitre is more common in Dera Ghazi Khan and Rajan Pur districts. A Study conducted in a hospital of Yemen showed that average duration in which patient noticed swelling and took treatment was 4 years¹¹. The presentation was too late in my study with 6 to 7 years. In under developed countries like Pakistan, lack of education and poverty are main causes for this delay. A considerable percentage (28%) of patients presented with pressure symptoms and dyspnoea was the commonest among them. This is the same with a study showing that 20.5% patients had pressure symptoms¹².

The incidence of Thyroid Carcinoma in multinodular goitre ranged from 8% to 15%^{7,13}. In a series of 998 consecutive thyroidectomies for MNG, Piccoli P reported 10.4% prevalence of carcinoma⁴. A study conducted in an Italian Hospital demonstrated 13.7% risk of malignancy in thyroid resections⁶. In my study of 100 patients operated for MNG, 11% had carcinoma. Thyroid diseases are more prevalent in females but male sex may represent a risk for Thyroid Carcinoma in elderly¹⁴. The female to male ratio was 4.5:1 in my study. Most of female were in their 4th and 5th decade of life while males in 5th and 6th. Papillary Carcinoma was commonest in my study reported 54.54% followed by Follicular, Medullary and Anaplastic being 27.27%, 9.09%, 9.09% respectively. Papillary to Follicular ratio was 2:1 which was very low, probably due to endemic goitres. Another factor of decreased incidental Papillary Carcinoma was that no patient had history of head and neck irradiation. These results are similar with a study conducted in PIMS Islamabad showing that Papillary Carcinoma accounted for 57.89%¹⁵.

Complications of thyroidectomy were infrequent but recurrent nerve injury and hypoparathyroidism were present with a frequency of 2.2% and 1% respectively¹⁶. Temporary hoarseness is relatively more common. In my study, temporary hoarseness occurred in 3% of patients which resolved in three months. Permanent damage of nerve was not examined, probably due to nerve identification. Only one patient developed hypoparathyroidism after STT which is same with above mentioned data. Because of good sterilization and aseptic technique, wound infection occurred in only 4% patients which was settled with dressings. No patient required

reexploration due to postoperative haemorrhage. Mortality was nil. Carcinoma patients were managed accordingly.

Conclusion

The possibility of malignant transformation should be kept in mind in long standing cases of thyroid swellings. FNAC proved inconclusive in excluding malignancies. Dominant nodules in multinodular goitre should be given importance as if it is solitary nodule in an otherwise normal gland.

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