

Rising Trend of Goitre In the Northern India - Is It Due To Non Usage of Fortified Salt?

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Abstract

Background- Thyroid swellings shows increasing trend in our tertiary care centre inspite of a strict government legislation which allows only iodine fortified salt to be sold, bought and used as per National Iodine Deficiency Disorders Control Programme (NIDDCP) 1998,

Objectives- To study the emerging and changing trend of goitre in all thyroid swellings in a tertiary care centre..

Methods-1000 Patients with thyroid swellings who came to department of pathology G.R Medical college Gwalior over a period of 10 years (from Jan 2009 to December 2018) were studied.Study included age, sex, duration, presenting signs & symptoms. Diagnosis of the lesions was made using smears stained with Romanowsky stains.

Results-Out of 1000 cases 115 (11.5%) were neoplastic (Benign & malignant). 85 (8.5%) cases showed thyroiditis.45 (4.5 %) cases were thyroid cyst. But majority of 755 (75.5 %) cases showed features of colloidal goitre. Male : Female ratio was 1:5.54. Mean age of presentation was 37.3 ± 14.9 years. Majority of patients presented as nodular goitre.

Conclusion- We concluded that there was a rising number of goitre patients in our tertiary care centre over the 10 years period despite the legislation of government to implement NIDDCP Although there is a government ruling to supply only iodized salt but the rise in incidence of goitre suggest that people may still be using non iodized salt from other sources and this requires further stringent regulation.

Keywords: Colloidgoitre, Papillary neoplasm, Thyroiditis.

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I. Background

Thyroid swellings show an increasing trend in our tertiary care center inspite of a strict government legislation which allows only iodine fortified salt to be sold, bought and used as per national iodine deficiency disorder control program (NIDDCP) 1998.

II. Introduction

Goitre is the term which means enlarged thyroid gland.¹ This endocrine disease is the commonest one affecting almost 300 million worldwide and about 42 million in India ^{2,3}. Goitre prevalence also depends upon the geographical ethnic and environmental conditions ⁴.The hilly Himalayan regions are said to be endemic due to its remoteness from sea and also due to low iodine content of the soil.

Universal iodization of salt introduced on recommendation of Central Council of Health in 1984 significantly controlled IDD, but IDD continues to be a significant public health problem in India ⁵⁻⁷

Thyroid function Tests (TFT) which includes Triiodothyronine (T₃), Thyroxine (T₄) and Thyroid Stimulating Hormone (TSH) helps in assessing the thyroid function. Apart from Fine Needle Aspiration Cytology (FNAC) also plays a very significant role in cytological diagnosis, as it is a simple, quick, economical OPD procedure and can throw light on neoplastic, non neoplastic, benign and malignant lesion.

Our study aims to study the emerging & changing rising trend of all thyroid swellings and categorizing them on the basis of age, sex, duration, signs and symptoms and cytological findings.

III. Methods

This archival study was included all patients with thyroid swelling who came to the Department of Pathology, G.R.M.C, Gwalior over a period of 10 years (From January 2009 to December 2018). 1000 patients of all ages and both sexes were included in the study. Patients with swellings other than thyroid swelling were excluded from the study.

Study included age, sex, duration, presenting signs and symptoms and were subjected to FNAC.

The results were analyzed as under:

1. Age and sex distribution
2. Types of thyroid swellings categorized cytologically.

IV. Results

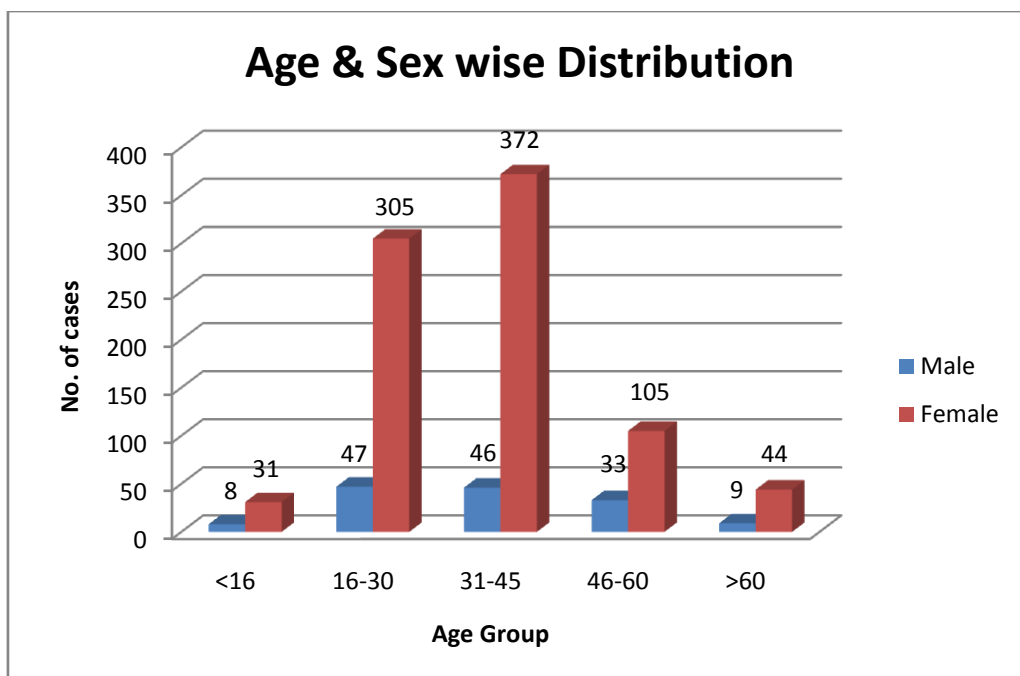
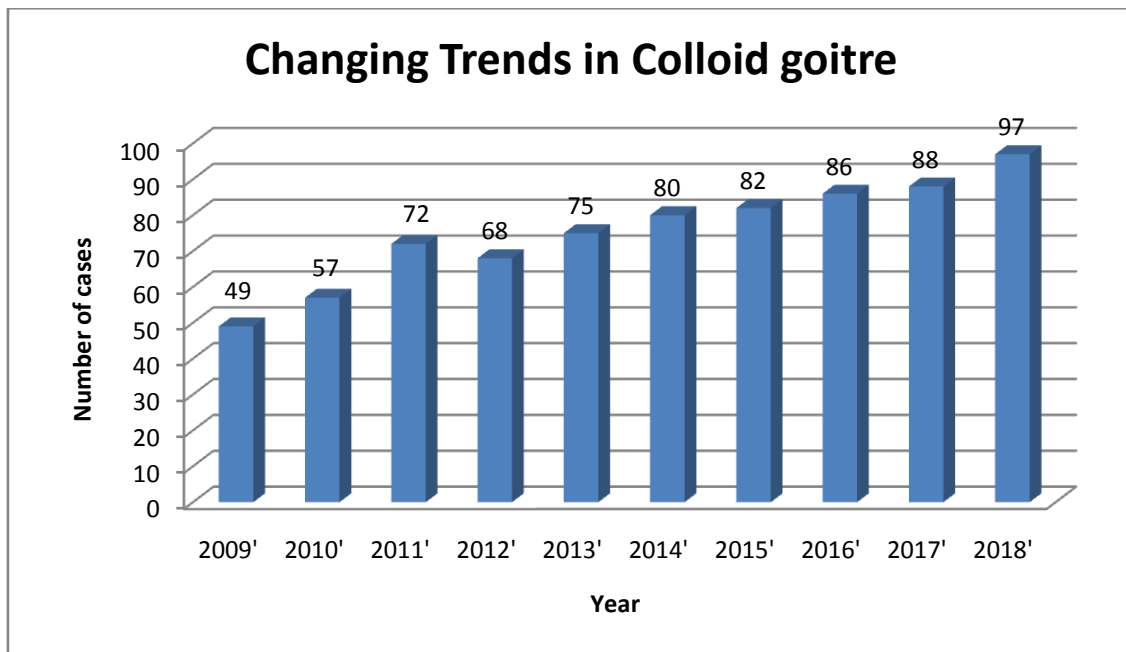
In this archival study 1000 patients belonging to all age groups and both sexes were considered for the study.

Only thyroid swellings were included in this study.

The mean age of the patients were 37.3 years \pm 14.9 SD

Majority of the patients were of female sex – Male: Female – 1:5.54.

Most of thyroid swellings showed non neoplastic lesion. Amongst these lesion colloid goiter with various regressive changes was commonest – 75.5% (755/1000 cases). Secondly, it was thyroiditis 8.5% (85/1000 cases) and lastly it was cystic lesion – 4.5% (45/1000). Neoplastic lesions were 11.5% (115/1000). Amongst these 1.7% (17/1000) was malignant and 9.8% (98/1000 cases) was benign lesions.



V. Discussion

The probable changing trends of goiter in Northern India was studied from the archival material. This study included all cases in a period of 10 years (January 2009 to December 2018) and we looked into the probable increasing trend in goiter despite the legislation which present selling of unfortified salt. This study included age, sex and cytological diagnosis.

Primary aim of this study was to equate unfortified salt with colloid goiter. Goitrogenic swellings in the Northern India could be rising as there is a very reduced access to sea salt and also lack of education on of how goiter form due to Iodine deficiency.

There are studies that state that prevalence of goiter has reduced due to fortified salt usage⁸. According to our study thyroid disorder are 5.5 times more common in female than in males. A female predominance was also observed by Sharma et al and other studies⁹. Study by Nanda MS et al also showed 3.5 times predominance of females over males¹⁰. Female predominance could be because of increased demand during puberty, pregnancy and lactation due to effects of estrogen and progesterone. Peak incidence of thyroid disorder is in the 4th decade according studies by Sengupta et al. and Pradeep Kumar et al^{11,12}. Another study recorded a mean age of 39 years¹³. After other studies showed increasing incidence with advanced studies¹⁴. In a study conducted by Nanda NS et al showed most of patients were in younger and middle age group¹⁰.

According to various studies non neoplastic lesion are commoner than neoplastic lesions as in a study done by Ahmed et al who found 64.3% of lesions were nonneoplastic¹⁵ and similar results were got by Patil et al¹⁶.

According to our study the commonest nonneoplastic lesion was nodular colloid goiter and this was in concurrence with the study by other author's also¹⁷. Some other studies observed that the solitary thyroid nodule was the most common lesion¹⁸.

Amongst malignant lesion papillary carcinoma was the commonest as also observed by other authors¹⁹. In our study non neoplastic lesions was the commonest thyroid lesion as also observed by Nanda MS et al¹⁰.

VI. Conclusion

It can be concluded that there is a rising frequency of patients with non neoplastic lesions of thyroid and this was predominant in female sex who belonged to early middle age and late middle age.

Diffuse nodular goiter was the most common nonneoplastic lesion. Papillary carcinoma was the most common malignant lesion of thyroid. The increasing trend of nonneoplastic lesions could be in women of middle age group could be because of usage of non iodized rock salt which is very common in Northern India as most of regions are far away from sea.

Although there is a government regulation to sell only iodized salt the rising incidence of nodular colloid goiter shows that people are still using rock salt which is devoid of Iodine. This requires even more stringent regulation by the National Iodine Deficiency Disorder Control Program (NIDDCP) 1998.

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