Research Article

Profile of Multi Nodular Goitre in Krishna Delta

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ABSTRACT

Krishna river flows over a distance of more than 700 (seven hundred) kms covering three states i.e.; Maharashtra, Karnataka and Andhra Pradesh. Thus the water content in addition to flora and fauna vary from soil to soil. As a result there is an increased incidence of flourosis and also iodine deficiency. This is very much reflected in clinical spectrum of the denizens. Thus the multinodular goitre is of common occurrence in this land. Therefore a prospective study of multinodular goiter (MNG) of 132 patients admitted with nodular thyroid swelling from july 2011 to August 2013 in the Department of general Surgery, Katuri Medical College, Guntur was undertaken. Out of this sample, majority 87% were females, within the age group of 41 – 50 years. The main complaint was swelling in front of the neck, with a duration of 1 month to 10 years. Concomitent family history was taken in 21% of the whole lot. Futhur more 71% had colloid goiter on FNAC. Both these factors substantiate the deficiency of iodine in the water. Pressure symtoms were elicited in 26% of cases. Toxic symptoms and signs were seen in 15% of the steady group. Thus 108(82%) subjects had near total thyroidectomy and rest 24(18%) underwent subtotal thyroidectomy. The complication rate was 17% in the total group, which was acceptable. The occurrence of iodine deficiency in general and female preponderance in particular leaves a doubt of hormonal factor as well.

Keywords: FNAC- Fine needle aspiration cytology, HPE- Histopathological examination, MNG- Multinodular goitre, RSG- Retrosternal goitre

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INTRODUCTION

The thyroid gland is one of the largest endocrine glands. The thyroid gland is found in the neck, below the thyroid cartilage (which forms the laryngeal prominence, or "Adam's apple"), The thyroid gland controls the body usage of energy, protein synthesis, and controls the sensitivity of the body to other hormones. It participates in these processes by producing thyroid hormones, the principal ones being triiodothyronine (T3) and thyroxine which can sometimes be referred to as tetraiodothyronine (T4). These hormones regulate the growth and rate of function of many other systems in the body. T3 and T4 are synthesized from iodine and tyrosine, the thyroid also produces Calcitonin, which plays a role in calcium homeostasis. The normal thyroid gland is a fairly homogenous structure, but nodules often form within its substance. These nodules may be only the growth and fusion of localized colloid-filled follicles, or more or less discrete adenomas, or cysts. Nodules larger than 1 cm may be detected clinically by palpation. Careful examination discloses their presence in at least 4% of the general population. Nodules less than 1 cm in diameter not clinically detectable unless located on the surface of the gland are much more frequent. The terms adenomatous goiter, nontoxic nodular goiter, and colloid nodular goiter are used interchangeably as descriptive terms when a multinodular goiter is found. In general, in iodine sufficient countries the prevalence of multinodular goiter is not higher than 4% [1]. In countries with previous deficiency that was corrected by universal salt iodination, elderly subjects may have an

incidence of, approximatively, 10% of nodular and multinodular goiter, attributed to lack of nutritional iodine in early adult life [1].

This is an endemic area of Iodine deficiency pertained to the Krishna raverine region. Frequently persons attend to the Faculty of Surgery with midline swelling in the neck, majority of them being females (81%) So, this prospective study was undertaken on felt need oriented basis from the period july 2011 to August 2013. The objective of this research study is to purport radical cure by total thyroidectomy or near total thyroidectomy.

MATERIALS & METHODS

It is a prospective study from july 2011 to August 2013 enrolling One hundred thirty two subjects in this project, after due clearance by the ethical committee. Out of them 114 were Females and 18 were Males, F: M is 6.3:1.

Inclusion criteria:-

A. Patients with enlarged thyroid gland with more than one palpable nodule.

B. Both toxic and non-toxic M.N.G were included in the study.

Exclusion Criteria:-

A. Diffuse hyperplastic Goitre.

B. Solitary Nodule.

C. MNG patients who are not willing for Surgery.

D. Co-morbid conditions.

E. Evidence of metastasis.

After admission a detailed history was taken and thorough clinical examination was made. Then routine investigations like Complete blood picture, Diabetic profile, Renal Profile, Viral markers, Blood Grouping and Rh typing, Serum cholesterol, X-ray of neck AP and Lateral view, Chest X-Ray, ENT Examination for vocal cords were done. In all patients a thyroid profile and FNAC were obtained. These patients underwent surgery under general anesthesia and all the excised thyroid specimens were sent for histopathological Examination. Patients were discharged after removal of sutures and were asked to come for follow up subsequently. Post operative thyroid profile was done during the first post operative week and one month later. They were advised appropriate medications accordingly.

RESULTS & DISCUSSION

Clinical examinations reveal multinodular goitre in all of them. 74% of the females were in the reproductive age group of 31 – 50 years.

Table 1: Age and Sex Incidence

Age and Sex	Male	Female	Percentage
Incidence	**n=18**	**n=114**	**100%**
21 – 30	2	12	10%
31 – 40	6	40	36%
41 – 50	4	47	38%
51 – 60	3	13	12%
61 and above	3	02	4%

Table 2: Duration of Swelling

Duration of Swelling	No. of Cases	Percentage
Incidence	**n=132**	**100%**
1 – 6	30	22.7%
6 – 12	62	47.7%
1 – 2	22	16.7%
2 – 5	12	9.1%
> 5	06	4.5%

Majority 48% of them were suffering from the M.N.G of 6-12 months duration. The vast majority 92% were painless swelling.

In comparing prevalence rate of goiter in different districts of Andhra Pradesh the results showed that more females were there in the study. F: M ratio is 6.3:1 which is in consonance with earlier worker [2]. It is higher in GUNTUR region in comparison to the adjacent districts of Andhra Pradesh.

Table 3: Prevalence Rate of Goitre [2] in Districts of Andhra Pradesh

District	Period of Survey	IDD Prevelence Rate in %
Srikakulam	1986	12.6%
Vizianagaram	1986	9.2%
Visakhapatnam	1986	34.7%
East Godavari	1986	64.4%
Khammam	1986	43.0%
Warangal	1986	30.0%
Guntur	**1986**	**54.0%**
Nellore	1988	16.6%
Krishna	1999	15.5%
Mahaboobnagar	1998	12.9%

Table 4: Pressure Changes

Symptoms	Present study	Antonio Rios et.al (3)
Pressure Symptoms	26%	55%
Dyspnea	05%	13%
Dysphagia	18%	26%

Out of The sample of 132 cases analyzed 85% were non toxic goiters and only 5% of the entire samples were retro sternal goiters. The pressure symptoms were seen in 34 cases which presented as voice change - 3%, dysphagia 18% and dyspnea 5% of cases. These dyspnic patients were subjected to routine pulmnology profile. They were found to have restrictive pattern in pulmonary function tests.

Table 5: FNAC Analysis

FNAC	Present Study	Muhammad Saddique et. al (4)
Colloid Goitre	72%	75%
Hashimotes Thyroidites	13%	05%
Follicular Neoplasm	10%	12%
Malignancy	05%	08%

After routine lab investigations, F.N.A.C was done as an OPD procedure which revealed colloid goitre in 72% cases, Hashimotos thyroiditis in 13% cases, Follicular Neoplasm in 10% and Malignancy in 5%.

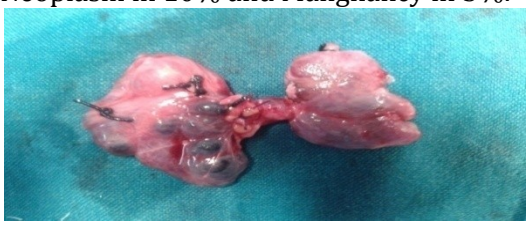

Figure 1: Gross specimen of thyroid gland after total thyroidectomy

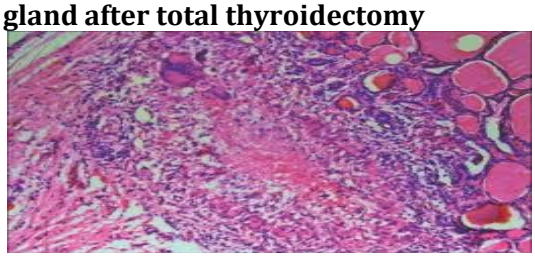

Figure 2: Photomicrograph of Follicular Adenoma

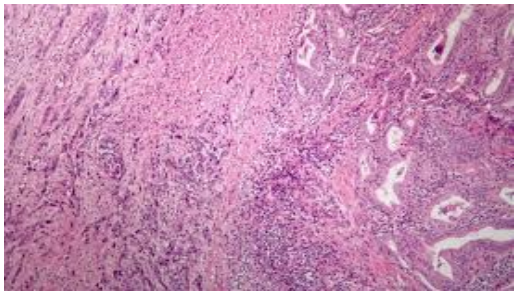

Figure 3: Photomicrograph of Follicular Carcinoma

This prospective study included 132 patients diagnosed and surgically operated for MNG between July 2011- August 2013.

1. M.N.G. defined as that which presents one or more nodules in each thyroid lobe on cervical exploration.
2. No prior cervical surgery.
3. No associated para thyroid pathology.
4. No goiters, where the thoracic approach is indicated from the outset.

The symptomatology varied from 30 days to 10 years. 70% of them presented in the first year. There was family history in 21% cases Majority of patients, the size of the gland was stage II according to WHO classification.

Surgery was done in all 132 cases under G.A (Nitrous oxide and Halothane anesthesia). 108 cases were subjected to total or near total thyroidectomy and remaining 24 cases underwent Sub-total thyroidectomy. The post operative period was uneventful. The post operative complications were transient hypoparathyroidism 3% and permanent hypoparathyroidism in1% cases and temporary recurrent laryngeal nerve palsy in 5% cases and permanent recurrent laryngeal nerve palsy in 1% of cases. Wound infection in 7% of cases was controlled by broad spectrum antibiotics. There was no mortality in our series.

Table 6: Complications Compared With other Studies

Complications	Present Study	T. A. Day et. al [5]
Transient Hypoparathyroidism	3%	28%
PermanentHypoparathyroidism	<1%	<1%
Transient RLN palsy	5%	8%
Permanent RLN palsy	1%	<1%

The present study after histopathlogical examination compared to others [4] shows higher percentage (13%) of Hashimotos thyroiditis, other conditions are more or less the same which signifies the deficiency of iodine in this region. The complications were few in comparison to others [5]. The notable thing in the present study was Transient hypoparathyroidism in comparison to 28% of the former [5].

Although majority of the females per se presented with swelling in the neck for cosmetic reasons clinicopathological profile revealed malignancy in 15% cases. This ascertains the importance of study and rational approach. More often than not females report for medical checkup much later considering the domestic and financial burden. However in this study, about 70% of the lots reported were within one year. Futhermore few complications occurred only with the indolent 30% of the spectrum as expected. The cases of follicular neoplasm 10%, Malignancy 5%, also had total thyroidectomy as they were localized. The occurrence of these nonetheless is marginally less than the adjacent place [4]. The high light of this study was correlation of FNAC findings and post surgery histopathology study.

CONCLUSION

This Krishna-Godavari delta region is deficient in iodine. Thus we had 132 cases of MNG which were successfully operated with minimum complications like transient hypoparathyoidism (3%) and transient Recurrent Laryngeal Nerve palsy (5%) of cases. Histopathological examination and results were analyzed.

I. MNG is the commonest thyroid disease in these regions.
II. MNG is more common in females in the age group of 41- 50 years (38%) with F:M ratio 6.3:1.
III. The chief complaint in majority is swelling in front of the neck and a few presented with pressure symptoms.
IV. The duration of swelling was between 1 month and 1 year in majority of patients.
V. Secondary thyrotoxicosis is seen in 15% of cases (20 cases).
VI. FNAC is very useful and it is simple OPD investigation to obtain cellular samples. Reviews have revealed its importance in assessment of thyroid nodules. A negative FNAC report does not exclude with certainity the possibility of carcinoma.
VII. Indications for surgery in our series are cosmetic problems, pressure symptoms, secondary thyrotoxicois and suspicion of malignancy.
VIII. Subtotal thyroidectomy is the choice of surgery. But total thyroidectomy is replacing the same in management of MNG as recurrence of goitre is avoided and second thyroid surgery is more difficult and associated with high risk of complications.

IX. Histopathology reveled colloid goiter in 72% of cases, attributable to iodine deficiency.

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