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### RESEARCH ARTICLE

#### THE OUTCOME OF SURGICAL TREATMENT OF FIFTY PATIENTS WITH GOITER IN BAGHDAD-IRAQ

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#### Abstract

**Background:** Thyroid diseases are common problem in the population. One of the important factors in pathogenesis of nodular disease is thyroid-stimulating hormone, still the etiology of thyroid nodule is complex and underexplored. The diagnosis of goitre depends on the visibility of the thyroid gland, the degree of enlargement of the gland, or on the presence of nodules in the gland.

**Methodology:** A descriptive study of 50 patients with goiter. Patients with goiter collected over twenty-months' time. Hormonal study, ultrasound image of the thyroid gland, fine needle aspirate, and the general investigation to prepare them for general anesthesia.

**Results:** About three quarters of the patients 35(70%) were in the age group ranged from 15-30 year. Majority of the patients were female 42(84%). The highest group were the euthyroid patients forming 35(35%) of the sample, followed by patients with hyperthyroidism 10(20%), and finally came patients in hypothyroid state 5(10%). Multinodular goiter at the top of the list (60%), and single nodule forming only (8%) of the total patients. Adeno tumor forming half of the sample 3(50%). The other three types colloidal goiter, papillary carcinoma and medullary carcinoma forming the second half.

**Conclusion:** because of high incidence of goiter and possibility of carcinomatous changes total thyroidectomy is advisable with hormonal replacement.

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#### Introduction:-

Thyroid diseases are common problem in the population. This small gland located in the neck plays an important role in regulating metabolism, and functioning of a whole ranges <sup>(1)</sup>.

The WHO definition of goitre is "a thyroid gland whose lateral lobes have a volume greater than the terminal phalanges of the thumbs of the person being examined" <sup>(2)</sup>.

The prevalence of thyroid disorders depends on a large number of factors, of which, the most important include: age, sex, geographic factors, ethnicity. The prevalence of thyroid disorders is higher in countries with iodine deficiency <sup>(3)</sup>. Nearly one third of the world's population lives in areas with iodine deficiency <sup>(4)</sup>. One of the important factors in

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pathogenesis of nodular disease is thyroid-stimulating hormone (TSH), still the etiology of thyroid nodule is complex and underexplored <sup>(1)</sup>.

#### **Examination and diagnosis:**

The thyroid gland is located superficially and is easily palpated. A careful examination should record the size, shape and consistency of the gland. Also, record number, dimensions and consistency of any nodules <sup>(5)</sup>. The diagnosis of goitre depends on the visibility of the thyroid gland, the degree of enlargement of the gland, or on the presence of nodules in the gland <sup>(6)</sup>.

Assessment of TSH to determine the current functional status of the thyroid. If the TSH is abnormal, a free T4 and free T3 should also be checked. An ultrasound performed at the time of the initial clinical assessment is useful for diagnosis <sup>(5)</sup>.

Functionally thyroid gland could be presented as: Euthyroid; Hypothyroidism <sup>(6)</sup>; Subclinical hypothyroidism <sup>(7)</sup>; or Hyperthyroidism <sup>(8)</sup>.

#### **Aim of the study:**

Is to find the goiter presentation state and its final outcome.

#### **Patients and Methods:-**

A descriptive study of 50 patients with goiter, in Al-Noor general hospital in Baghdad capital of Iraq. Patients with goiter collected over twenty-months' time started in January 2011. All patients submitted to surgical treatment for their goiters.

In pre-operative period: Full clinical examination of the patients. Functional hormonal study (TSH, T3, and T4) for the patients. Ultrasound study of the thyroid gland for all the patients. Fine needle aspirate was done for the goiter. In addition to the general investigation to prepare them for general anesthesia.

#### **Operative note:**

According to the clinical evaluation and investigation a pre-operative decision was made on the type of operation suitable for individual patients; either subtotal thyroidectomy, total thyroidectomy or radical neck dissection.

#### **Post-operative:**

surgically removed mass were send for histopathology.

#### **Statistical issue:**

Data were collected, grouped, and expressed in term of frequencies and percentages.

#### **Ethical issue:**

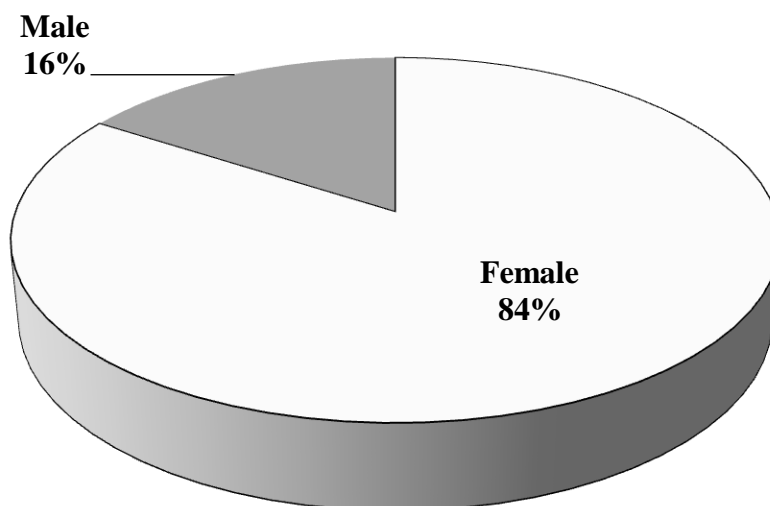
Approval was taken from the higher authority. Verbal consents were taken from all the participants.

#### **Results:-**

About three quarters of the patients 35(70%) were in the age group ranged from 15-30 year (table-1). Majority of the patients were female 42(84%) while male constituted only 8 patients forming 16% of the patients (figure-1).

**Table 1:-** Distribution of the sample according to age group.

Age group	Patients	
	n	%
1-15	2	4
15-30	35	70
30-70	13	26



**Figure 1:-** Patients distributed according to gender.

Table 2 showed the state of thyroid gland function. The highest group were the euthyroid patients forming 35(35%) of the sample, followed by patients with hyperthyroidism 10(20%), and finally came patients in hypothyroid state 5(10%).

**Table 2:-** Distribution of the patients according to thyroid function state.

Thyroid function state	Patients	
	n	%
Euthyroid	35	70
Hyperthyroidism	10	20
Hypothyroidism	5	10
Total	50	100

Table-3 revealed 30(60%) of the patients had multinodular goiter at the top of the list, while single nodule came at the bottom of the list forming only (8%) of the total patients.

**Table 3:-** Types of goiter.

Type of goiter	Patients	
	n	%
Multinodular goiter	30	60
Diffuse goiter	10	20
Single nodule	4	8
Calcified tissue	6	12

Table-4 represented the results of the histopathological examination of the post-operative specimen. Adeno tumor forming half of the sample 3(50%). The three other types colloidal goiter, papillary carcinoma and medullary carcinoma forming the second half.

**Table 4:-** Distribution of patients with thyroid gland tumor according to histopathological examination.

Histopathological results	Patients	
	n	%
Adenoma tumor	3	50
Colloid goiter	1	16.7
Papillary carcinoma	1	16.7

Medullary carcinoma	1	16.7
Total	6	100

### Discussion:-

About three quarters of the patients in this study were in the age group ranged from 15-30 year. Results of Barzanji et al study showed that the disease was more among adult age <sup>(9)</sup>. The age wise prevalence was higher in age group (26-50) years according to Saqlain et al study <sup>(10)</sup>. In a worldwide reports the age was that of midlife (46-54) years <sup>(10)</sup>. The variability in the results of these studies probably due to sampling technique used, sample size, different countries with variable geographical and environmental factors.

In many studies the rate of thyroid diseases more common in females than males <sup>(9)(11)(12)(13)</sup>. In the current study the majority of the patients were female 42(84%). This was higher than Al-Msari et al study who found female forming (78.72%) <sup>(12)</sup>. But lower than Saqlain et al study who showed highest prevalence of goiter in female with (94.7%) <sup>(10)</sup>.

The higher prevalence of hypothyroidism was in females 24.6%, cold nodule in left and right lobe in females 17.5%, hyperthyroidism in females 14.0% and euthyroidism was found in males 3.2% but in literature higher prevalence of euthyroidism was in females 68.9%, while in males 19.0% <sup>(14)</sup>.

Most of the patients with goiter in this study were euthyroid 36(35%) of the sample. This was in agreement with a study done by Nicholas et al who stated that goiter, commonly occur without abnormal thyroid function (euthyroid) <sup>(15)</sup>. Another study done by David et al in British, also agree with our study that showed the most common thyroid disease in the community is simple (diffuse) physiological goiter (euthyroid) <sup>(16)</sup>.

Also, our study agreed with another study done in Indian by Unnikrishnan and Menon (2011), they showed that about 12% of adults have a palpable goiter, the prevalence of hypothyroidism was 3.9% <sup>(17)</sup>.

In this study patients with hyperthyroidism constituted 20% of the sample. This was similar to the results of a study done by Barton in Pakistan, who showed the hyperthyroidism more common than hypothyroidism <sup>(18)</sup>. While it was against another study where hyperthyroidism was present in only 1.6 and 1.3% of subjects participating in a community survey <sup>(12)</sup>.

Unnikrishnan et al reported in his study that a significant proportion of patient may go undetected and untreated hypothyroidism even as it impairs the daily quality of life, work performance and economic state of the subject <sup>(11)</sup>. In our study only 10% of patients were in hypothyroid state. Which was against Al-Msari et al study where hypothyroid state was less than euthyroid but more than hyperthyroidism <sup>(12)</sup>.

In this study multinodular goiter was the commonest type of presentation followed by diffuse goiter then single nodule. among patients treated by surgery in Barzanji et al study, 44.2% of patients were with multinodular goiter type of thyroid disorder <sup>(9)</sup>.

In multinodular goiter, surgery is offered for cosmetics, the compressive symptoms, toxicity and for the suspicion of malignancy. Although traditionally thought to be at a low risk for malignancy as compared to a solitary nodule thyroid <sup>(19)</sup>.

Diffuse shape thyroid disorder is common among patients of Barzanji et al study <sup>(9)</sup>. While thyroid nodules are the most common in women and older population according to a study of Popoveniuc and Jonklaas in year 2012 <sup>(20)</sup>.

Risk factors for thyroid cancer: Female gender, familial or genetic factors, radiation, an increased thyroid-stimulating hormone level, Iodine deficiency, autoimmune thyroid disease, toxic chemical exposures <sup>(21)</sup>.

In the current study histopathological examination of the post-operative specimen revealed that six patients out of the total 50 patients with goiter were found to have tumor (12%). Adenocarcinoma forming half of the patients operated upon (3 out of 6) 50%, one patient (16.7%) of each of medullary carcinoma, papillary carcinoma and colloidal goiter.

According to Dean and Hay thyroid cancer appears in less than 5 to 10 % of hypofunctioning thyroid nodules<sup>(22)</sup>. It has been shown that from 15 to 40 % of thyroid nodules are partly or entirely cystic and the majority of these lesions are benign<sup>(23)</sup>.

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