

## Prevalence of Multinodular Goiter at Prince Mutaib Hospital in Sakaka Al-jouf

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### ABSTRACT

**Background:** Multinodular Goiter (MNG) is a diffuse multi-nodular enlargement of the thyroid gland in response to chronic TSH stimulation.

**Objective:** The aim of this study was to find the prevalence of MNG among patient attending endocrinology outpatient department.

**Methods:** This was a hospital-based study that included 324 patients who had visited the OPD in Prince Mutaib Hospital in Sakaka, Saudi Arabia, in a two months period (Dec 2014 and Jan 2015). Data analysis was looking for sex, age, marital status and number of children of those who have MNG. Data were analyzed using SPSS Version-17 and frequencies were obtained.

**Results:** Files of 324 patients were examined in endocrinology section, 23 of them (age 18-42) were suffering from Goiter giving a prevalence rate of 10%. 11 of the patients were having Multinodular type of goiter giving a prevalence of 4.7%, while the rest have solitary type of goiter. Among those 11 patients who are married, 45% of them have MNG type. In addition, male to female ratio regarding MNG was 1.75: 1. Conclusion: In conclusion, the study showed that there is prevalence of MultiNodular Goiter of 5% among population of Aljouf.

**Keywords:** Multinodular Goiter, Prevalence, Endocrinology

### INTRODUCTION

Thyroid gland is one of the endocrine glands that is responsible mainly for the production of triiodothyronine (T3) and thyroxine (T4) <sup>(1)</sup>. These hormones work in regulatory functions of many parts of the body, also in growth and rate of energy consumption and making proteins. The normal thyroid gland is anatomically consisted of two lobes; however, pathological nodules formed within its structure. These nodules may be only localized colloid-filled follicles, adenomas, or cysts <sup>(1)</sup>. Nodules that is larger than 1 cm are easily found in clinical situation by palpitation, but if nodules is smaller, it may need further investigations <sup>(1)</sup>. Many terms such as adenomatous goiter, nontoxic nodular goiter, and colloid nodular goiter are used to describe Multinodular Goiter. Multinodular Goiter (MNG) is diffuse multi-nodular enlargement of the thyroid gland in response to chronic TSH stimulation <sup>(2)</sup>.

Epidemiological studies showed that goiter is more common and endemic in population suffering from deficiency in iodine intakes, giving a prevalence of 15% for mild deficient and 22.6% in moderate iodine deficient area, and the size of the thyroid affected is relevant to the increase in the deficient <sup>(3)</sup>. Globally, around 30% of the world's population lives in area with low iodine intakes, such as Latin America and central Africa, were more than 60 million of those are known to have goiter <sup>(4)</sup>. On the other hand, sporadic goiter is associated with defect in the synthesis of the thyroid hormones <sup>(3)</sup>. Countries that has a sufficient intake of iodine, show a prevalence of approximately 5% <sup>(3)</sup>. As in United States, the most common cause of multi nodular

goiter is sporadic, and there is an estimated incidence of 5 % in North America <sup>(4)</sup>. While in area with previous suffering from iodine deficiency that was corrected later on, elderly people have an incidence of 10% of developing MNG due to defiance in their younger ages <sup>(2)</sup>. In Saudi Arabia, a hospital-based study in King Khaled University hospital that has been concluded in 1994, 614 patients diagnosed with goiter over a period of 3 years, the percentage of MNG was 44 % <sup>(3)</sup>. Also, king Abdul-Aziz University hospital has recorded 135 patients in 2005 had MNG <sup>(4)</sup>.

### OBJECTIVE

The aim of this study was to find the prevalence of Multi Nodular Goiter in Aljouf main hospital Prince Mutaib bin Abdul-Aziz.

### MATERIALS AND METHODS

**Subjects:** 324 patients who had visited the OPD in Prince Muteb Hospital in Sakaka, Saudi Arabia, in a two months period (Dec 2014 and Jan 2015).

**Design:** hospital-based design by accessing to hospital patients records and obtaining information.

**Data Collection:** sex, age, marital status and number of children of those who have MNG.

**Inclusion/Exclusion:** all patients visited the endocrinology department during the two months periods in Prince Mutaib Hospital were included.

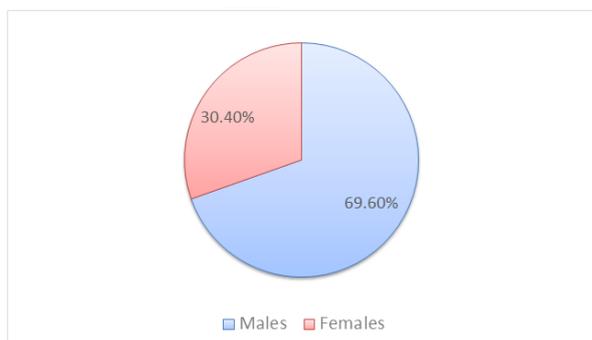
**Analysis:** Data analysis were carried out using SPSS Version-17 and frequencies were obtained.

**RESULTS**

Files of 324 patients were examined in endocrinology section, 23 of them (age 18-42) were suffering from Goiter giving a prevalence rate of 10%. The frequency of males was 16 while there were seven female patients giving a male to female ratio of 1.75:1 [Table.1, Figure.1]

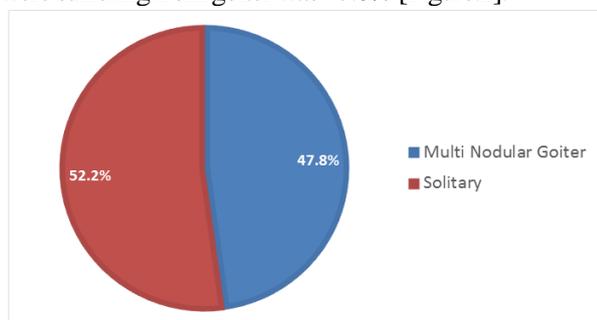
**Table (1):** Distribution of the gender of goiter patients.

Gender	Frequency	Percentage
Male	16	69.6
Female	7	30.4

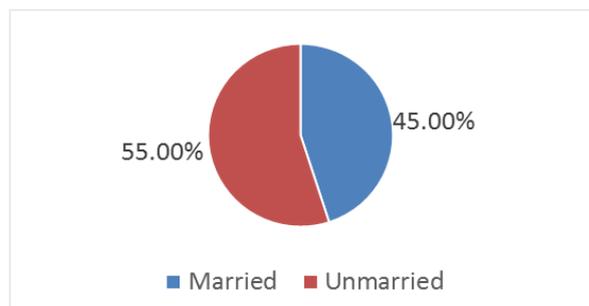


**Figure (1):** Distribution of MNG gender.

Eleven out of those 23 patients suffering from goiter were having Multinodular type of goiter, so the prevalence of MNG was 4.7%, while the rest have solitary type of goiter, so the proportion of MNG among those who were suffering from goiter was 47.8% [Figure.2].



**Figure (2):** Types of Goiter.



**Figure (3):** Marital status of patients with MNG types of Goiter.

**Table (2):** Number of Children for patients who have Goiter.

	Types of goiter		Total
	Solitary	Multinodular	
Number of Children	2.00	0	1
	3.00	2	3
	4.00	1	1
	5.00	0	1
	6.00	1	0

Regards the 11 patients who have MultiNodular Goiter, 45% of them are married and 4 of the patients are having 2 to 6 children [Figure.3, Table.2].

In comparison between the frequencies of the two types in regard to the gender, male to female ratio was 3:1 for solitary goiter, while 1.57:1 was for multi nodular type of goiter. [Table.3]

**Table (3):** Distribution of gender between the two types of Goiter.

Gender	Type		Total
	Solitary	Multinodular	
Male	9	7	16
Female	3	4	7
Total	12	11	23

**DISCUSSION**

Multinodular Goiter (MNG) is a diffuse multi-nodular enlargement of the thyroid gland in response to chronic TSH stimulation. Worldwide, the prevalence of goiter is around 5%, except for the countries that has deficient in iodine deficiency. The prevalence of goiter in Saudi Arabia; was estimated to be less than 5% according to WHO. However, in our study which target the patients in endocrinology department in Prince Mutaib Hospital, the prevalence of Goiter was 10%, out of those patients 47 % of them were suffering from MultiNodular type of goiter, which is close to the previous study that had been carried out and concluded in 1994 at King Khaled University hospital in which 44% of goiter patients had MNG. There is a lack of studies regarding this topic, therefore, intensive studies have to be carried out to gather further information regarding MNG.

In regard to all the frequencies in the study, MNG type of goiter is lower in all aspects and it is less frequent among both gender in comparison with solitary type of Goiter.

It was difficult for the research group to obtain all the required information, as it was harder to

deal with unavailable files all the time, however, contacting the physicians directly sometime was useful to gain certain ideas.

## CONCLUSION

In conclusion, the prevalence of goiter on prince Mutaib Hospital is 10% regarding the patients on endocrinology department. The study showed that there was prevalence of MultiNodular Goiter of 4.7% among population of Aljouf, and the rest of goiter patients were those having solitary type of goiter. Further studies are required to estimate the prevalence on the community.

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