

# Voluminous Goiters in Surgery B of Chu of Point G: Diagnostic Aspects

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## Abstract

**Purpose:** To describe the aspects of the positive diagnosis of large goiters. **Patients and Methods:** We conducted a retrospective and prospective study including 115 patients from January, 2009 till December, 2014 (6 years) in Central Hospital of University of Point G in Bamako (Mali). The diagnosis of large goiters was based on the measurements of the anterior neck swelling. Thus large goiter was defined as any goiter including the height or width was greater than or equal to 10 cm (centimeters). **Results:** We operated 115 cases of large goiters on 760 goiters operated either 15.1%. The average age of patients was 44, 43 years  $\pm$ 14, 3 with extremes of 9 and 80 years. There was 101 women (87.8%) and 14 men (12.2%) with a sex ratio of 7.2 in favor of women. The signs of compression were dyspnea in 40% of cases (46/115), dysphonia in 13.0% (15/115), and dysphagia in 8.6% (10/115). The average height of goiter was 12.1 cm  $\pm$  3.5 cm with extremes of 10 and 29 cm and the average width was 14.4 cm  $\pm$  5.4 cm with extremes of 10 and 32 cm. Thyroid ultrasound found large goiters multinodular in 100%. Cervical radiography found the tracheal deviation in 48.2% (42/87), tracheal compression in 20.6% (18/87), plunging goiters in 11.5% (10/87). Cytology found a benign goiter in 97.4% of cases (112/115), malignant (thyroid cancer) in 2.6% of cases (3/115). **Conclusion:** Diagnosis of large goiters was based on the measurement of the swelling in our context. The signs of compression are the severity of this condition.

## Keywords

Voluminous Goiters, Thyroid, Diagnosis

## 1. Introduction

Large goiters are frequent in endemic areas because of deficiency in iodine [1].

Gardiner 1995 [2] describes 64 large goiters operated on a set of 474 goiters or 14%, Tahsin, C. in Turquie 2004 [3] conducted a study on 11 large goiters operated on a set of 200 goiters or 55.5%, Chohail in Maroc 2002 [4] described 83 large goiters operated on a set of 225 goiters or 36.8%, Talla, A. in Dakar 2001 [5] described 27 large goiters operated on a set of 494 goiters or 5.46%.

According to the WHO, the goiter is defined as being a palpable thyroid which the side lobes have a volume greater than the size of the distal phalanx of the thumb of the person examined and large goiter is one that is visible from a distance (stage 3) [6]. In a study conducted by Gardiner in RoyaumeUni in 1995, it was classified as large goiter all goiter weighing more than 100 g in post operative [2]. Lack of specific study on large goiters, we took as a definition in this study all goiter whose height and/or width is greater than or equal to 10 cm. The definition of large goiter based on the remote goiter's view lacks precision, especially in terms of distance. The one based on the weight of the goiter post-operative does not allow a pre-operative diagnosis. We took a definition based on the measurements of the goiter (height, width) for on the one hand accuracy and on the other hand the possibility of pre-operative diagnosis of goiter.

We wanted to do this study in order to describe the diagnostic elements of large goiters.

## 2. Patients and Methods

We conducted a retrospective and prospective study including 115 patients from 2009 till 2014 (6 years) in the Service of surgery B of the CHU of Point G. Large (voluminous) goiter was defined as any goiter including the height and or width was greater than or equal to 10 cm. We have included in this study all goiters operated with a height or width greater than or equal to 10 cm in the Service of surgery B of CHU of Point G. The goiters operated with a height less than 10 cm and a width less than 10 cm were not included. Diagnosis of large goiters was based on the measurements of the swelling. The studied parameters were epidemiological and sociodemographic data, clinical aspects (signs of compression, measurements) and paraclinical aspects (ultrasound, radiology, biology, cytology).

Data processing and analysis was done on the Microsoft Windows software version 2007, SPSS 12.0 for Windows. The probability test used was Chi2 with a threshold of meaning  $p < 0.05$ .

## 3. Results

For 6 years the Service of surgery B has identified 115 large goiters on 760 operated goiters either 15.1%. Also large goiters accounted for 5.5% of all surgical interventions (115/2107) in the service.

The average age of patients was 44, 43 years  $\pm$ 14, 3 with extremes of 9 and 80 years.

There was 1 female child who was 9 years old. In this study there was 101 women (87.8%) and 14 men (12.2%) with a sex ratio of 7.2 in favor of women. Large anterior neck swelling was present in 100% of patients. The signs of compression were dyspnea in 40% of cases (46/115), dysphonia in 13% (15/115), and dysphagia in 8.6% (10/115). There was no sign of compression in 47% of cases (54/115).

The average height of goiter was 12.1 cm  $\pm$  3.5 cm with extremes of 10 and 29 cm and the average width was 14.4 cm  $\pm$  5.4 cm with extremes of 10 and 32 cm.

The height of swelling (goiter) was less than 15 cm at 79.1% of patients (91/115) (**Table 1**). The width of swelling was less than 15 cm at 69.6% of patients (80/115) (**Table 2**). Also the cervical perimeter of swelling was greater than 40 cm at 51.3% of patients (59/115) (**Table 3**).

Thyroid ultrasound found large goiters multinodular in 100% of cases, bilateral in 76.5% of cases (88/115), unilateral in 23.5% (27/115). Cervical radiography front and profile found the tracheal deviation in 48.2% (42/87), tracheal compression in 20.6% (18/87), calcifications in 11.5% (10/87), plunging goiter in 11.5% (10/87). The hormonal dosage (tetra iodothyronine, and thyroid stimulating hormone) has been achieved in all patients. It was of goiters in hyperthyroidism in 21.7% of cases (25/115), goiters in euthyroidism in 78.3% of the cases

**Table 1.** Distribution of the patients according to the height of the swelling.

Height swelling	Effective	Percentage
<15 cm	91	79.1
15 < H < 20	13	11.3
H > 20 cm	11	9.6
Total	115	100

**Table 2.** Distribution of the patients according to the width of the swelling.

Width swelling (cm)	Effective	Percentage
L < 15	80	69.6
15 < L < 20	18	15.6
L > 20	17	14.8
Total	115	100

**Table 3.** Distribution of the patients according to the cervical perimeter (around the neck).

Cervical perimeter (cm)	Effective	Percentage
<30	2	1.7
30 < PC < 40	54	47
>40	59	51.3
Total	115	100

(90/115). There is no case of hypothyroidism. Cytology found a benign goiter in 97.4% (112/115) cases, malignant (thyroid cancer) in 2.6% (3/115).

We proceeded of surgical treatment in 100% of cases (115/115).

The postoperative suites were simple in 81.7% (94/115), complicated in 18.3% (21/115).

#### 4. Discussion

In terms of methodology, it was a retrospective and prospective study on 115 cases of large goiter during a period of 6 years, from 2009 till 2014.

The frequency of large goiters operated was 15.1%. This same trend was found by Gardiner in RoyaumeUni ( $p = 0.812$ ) [2]. By against Tahsin, C. in Turquie, Chohail, H. in Maroc and Talla, A. in Dakar [3] [4] [5] were reported respectively higher frequencies ( $p < 0.05$ ). This difference could be explained by the fact that in their studies large goiter was defined as any visible goiter remotely (type III according to WHO). This definition of large goiter based on the view of remote tumefaction is subjective and imprecise.

We have not observed significant difference between the average age of our patients (44, 43 years) and that of the other authors [3] [7] [8] [9].

The sex ratio in our study was 7.2 in favor of women. It was the same in other studies with (3.8 to 5.1) for women [7] [8] [9]. This female dominance could be explained by puberty, pregnancy, and childbirth.

Dyspnea was the most frequent sign of compression with 40%. This rate was consistent with the data in the literature [3] [10] [11].

Dysphagia was found in 6% of cases. This rate is lower than those of Gardiner, K.R. in RoyaumeUni (22%,  $p < 0.05$ ), Bircha, M. in Maroc (40%;  $p < 0.05$ ) and Rim, Z. in Tunisie (30.2%;  $p < 0.05$ ) [2] [10] [11]. Dysphonia was found in 13% of the cases. Bircha, M. brought a higher rate of dysphonia (73.2%;  $p < 0.05$ ) [10]. We believe that these differences could be explained by the fact that the studies of Bircha, M. in Maroc and Rim, Z. in Tunisia were on plunging large goiters which were more compression [10] [11].

In our study the diagnosis of large goiter was based on the measurements (height and width of the swelling) pre operative. So was called goiter all large goiter including the height or width was greater than or equal to 10 cm. Of the 115 patients identified 79.1% had a height of less than 15 cm, 11.3% had a height between 15 and 20 cm and 9.6% had a height greater than 20 cm (**Table 1**). The width was less than 15 cm in 69.6%, between 15 and 20 cm in 15.6% and greater than 20 cm in 14.8% (**Table 2**). Too the cervical perimeter was less than 30 cm in 1.7% of cases, between 30 and 40 cm in 47% and greater than 40 cm in 51.3% of the cases (**Table 3**). However, in studies of Gardiner in RoyaumeUni, Dyde, A.K. in Hollande and Andreas, H. in Allemagne [2] [7] [12] the diagnosis was respectively based on the weight of the thyroid in post operative and the size of the gland on ultrasound thyroid in pre operative. We believe that measurements allow to make the diagnosis of large goiter prior to the operation. They are simple,

practical and not expensive as they are by the clinic.

Thyroid ultrasound of large goiters found multinodular goiters in 100% of cases. This rate is not different significantly from those of Talla, A. in Dakar (100%,  $p > 0.05$ ), Rim, Z. in Tunisie (97.2%,  $p > 0.05$ ) and Keita, M. in Mali (96.9%,  $p = 0.75$ ) [1] [11] [13].

Cervical radiography, front and profile were conducted in 87 patients (75.6% of cases). The deviation of the trachea was the most frequent sign with 36.5% of cases. This rate was lower than that of Gardiner, K.R. in RoyaumeUni (70%;  $p < 0.05$ ) [2]. This difference could be explained by the fact that in our study large bilateral goiters were more numerous. These bilateral goiters do less tracheal deviation. Tracheal compression was found in 15.6% of cases. We did not find difference between this rate and the Chohaill in Maroc (20.6%;  $p = 0.37$ ) [4], but Gardiner, K.R. brought a higher rate (42%;  $p < 0.05$ ) [2]. This difference could be explained by the fact that in the study of Gardiner KR [2] cervical radiography was performed in all patients. In this study the goiter was plunging in 8.7% of cases. This rate was lower than that of Rim, Z. in Tunisie (100%;  $p < 0.05$ ) [11]. This difference could be explained by the fact that the study of Rim, Z. in Tunisie [11] covered big plunging goiters.

## 5. Conclusion

In this study we have identified 115 large goiter cases in the Service of surgery B of CHU of Point G. Large goiters are frequent in our service. Women are much more affected than men. The diagnosis of large goiters was based on the measurements of the swelling.

## Authorization of the Ethics Committee

We, undersigned, authors of this article give evidence that we received the authorization of the Ethics Committee for the realization of this study.

## Conflicts of Interest

The authors state that there is no conflict of interest in the publication of this article.

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