



## Research Article

# Thyroidectomies in the Elderly: A Multi Centric Study at ENT Department of Cheikh Anta Diop University of Dakar

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### Abstract

**Objective:** To determine if age was a contraindication to thyroidectomy in our current practice.

**Material and Methods:** We conducted a multi centric retrospectively and analytical study at the ENT units of General Hospital of Grand-Yoff and National Teaching Hospital of Fann in Dakar, Senegal (West-Africa). From January 2013 to December 2014, we recorded 35 cases of patients aged over 60 years (Elderly group) who underwent thyroidectomy in our ENT units. The latter group was compared to another sample of 55 patients aged less than 60 years (Young group) who underwent thyroidectomy during the same period. Following data were studied: age, gender, comorbidities, surgical indications, procedures, pathological findings and morbidity.

**Results:** High blood pressure (HBP) was significantly more present in the Elderly group than among the Young group (5.5%) ( $p=0.02$ ). Heteromultinodular goiter (HMNG) was the most frequent surgical indication 54.3% in the Elderly group. Total thyroidectomy was the mainly performed procedure. There was no significant difference in terms of morbidity between the Elderly group (5.7%) and the Young one (2%) ( $p=0.55$ ).

**Conclusion:** As reported in the literature, age is not an absolute contraindication to thyroidectomy. But Elderly patients had more comorbidities to take into account before thyroidectomy.

**Keywords:** Thyroid; Thyroidectomy; Elderly; High blood pressure; Diabetes

### Introduction

There is no consensual definition in the medical literature of « an elderly ». According to various studies, the threshold beyond which a person is considered “elderly” is between 60 and 80 years [1-6]. The population of Senegal was estimated at 14. 548.000 inhabitants while gross domestic product per capita (current US\$) and gross national income per capita (current US\$) were respectively assessed to 1072 and 988.5 [7]. Of a household's health expenditures, 89% was out-of-pocket spending while 11% was in the form of health insurance contributions [8]. In Senegal, people aged above 60 are commonly referred to as «elderly». An ageing of the population linked to the demographic transition is noted. From 4% of the population in 2009, the elderly accounted for 5.5% of the population in 2013 in Senegal [9,10]. Thyroid gland disorders increase with age [11,12]. The surgical indications of thyroidectomy in the elderly are the same as in young [13]. But however, the attitude is more in favor of a conservative approach in the elderly because of comorbidities associated [14]. Seybt et al. [15] and Bliss et al. [4] concluded that thyroidectomy in the elderly was not associated with increased complications while Soza et al. [13] in a population-based study and Sullivan et al. [12] in systematic review showed that elderly patients had more postoperative complications than younger. However, Lang et al. demonstrated that total thyroidectomy for multinodular goiter in elderly patients had a similar perioperative outcome as their younger counterparts but their long-term outcome was likely to influence by the number of comorbidities [16]. We have retrospectively compared surgery in patients aged 60 years and older with surgery in younger to determine whether age is a contraindication for thyroidectomy.

### Material and Methods

We conducted a multi centric and retrospectively and analytical study at the ENT units of two major hospitals, Grand Yoff General Hospital and Fann National Teaching Hospital, from January 1<sup>st</sup> 2013 to December 31<sup>st</sup> 2014. Inclusion criteria were: age equal or above 60, complete medical history including clinical examination, surgical indication, the surgical report, histological examination of the thyroidectomy specimen and the postoperative data. Patients who did not fill these criteria were not included. Out of 50 medical records (of aged patients) selected, 35 were retained and 15 were excluded (30%) because some records were incomplete and some other patients were lost to follow-up. These patients were considered “elderly” as defined in Senegal. The surgeries were performed by the same teams in both services. The results were then compared to those of a sample of 55 patients aged fewer than 60 who underwent a thyroidectomy procedure in the same hospitals over the same period. These patients filled the inclusion criteria excluding age. That sample was selected randomly from the medical files numbers of patients under 60. This group was referred to as “the young sample”. The variables we studied included: age, sex, comorbidities, surgical indication, type of surgery, histological findings of the surgical specimen, post operation complications and mortality. An indirect laryngoscopy was performed systematically in all patients preoperatively and postoperatively before discharge. A complication was defined as permanent if it lasted more than six months.

Data entry and analysis were made using SPSS (Statistical Package for Social Science) v20 software. We used the Fisher exact test to

compare qualitative variables. A p-value<0.05 was considered significant.

## Results

During the study period, 300 thyroidectomies were performed. Among the elderly, mean age was 65 years (SD: 5 years; median age: 64 years, range: 60-82). In the young sample, mean age was 36 years (SD:

12 years; median age: 35 years, range: 11-58). There were 28 female among the elderly (80%) and 49 (89.1%) in the young. Regarding comorbidities, High blood pressure and diabetes mellitus were the 2 main groups of comorbidities found in our patients. High blood pressure was significantly more frequent among the elderly than in the young (p=0.02). Diabetes mellitus was more common among the elderly than in the young, but the difference was not significant (p=0.56) (Table 1).

		Elderly (n=35) n (%)	Young (n=55) n (%)	p-value
<b>Comorbidities</b>	HBP*	8 (23)	3 (5.5)	0.02
	Diabetes mellitus	2 (5.7)	1 (2)	0.56
<b>Surgical indications</b>	HMNG**	19 (54.3)	25 (45.5)	0.5
	Thyroid nodule	15 (43)	20 (36.4)	0.66
	Diffuse goiter	1 (2.9)	10 (18.2)	0.02
<b>Surgery</b>	Total thyroidectomy	20 (57)	16 (29)	0.08
	Loboisthmectomy	13 (37.1)	33 (60)	
	Sub-total thyroidectomy	2 (5.9)	6 (11)	
<b>Pathology</b>	Malignant lesion	5 (14.3)	3 (5.5)	0.25
	Follicular carcinoma	2	2	
	Papillary carcinoma	2	1	
	Anaplastic carcinoma	1	0	
	Benign lesion	30 (85.7)	52 (94.5)	
	Benign goiter	10	35	
	Follicular adenoma	15	9	
	Colloid adenoma	3	5	
	Hashimoto's thyroiditis	2	0	
	Graves' disease	0	1	
	Mature teratoma	0	1	
	HMNG	0	1	
<b>Complications</b>	Recurrent nerve palsy	2 (5.7)	1 (2)	0.55
	Transient	1	1	
	Permanent	1	0	

**Table 1:** Distribution of patients according to the comorbidities, surgical indications, type of surgery, pathology and complications \*High blood pressure \*\*Hetero-multinodular Goiter

Past medical history also found in the elderly group other comorbidities like sickle cell anemia (1/35, 2.8%) and family history of goiter (4/35, 11.4%). Among the younger group there were family history of goiter (4/50, 8%), and other comorbidities like asthma, gastro-esophageal reflux, gastric ulcer and tuberculosis in 2% (1/50) each. According surgical indications, Hetero-multinodular goiter (HMNG) was the most frequent surgical indication in both groups, followed by thyroid nodule. Diffuse goiter was more common among

the young (p=0.02) (Table 1). Graves' disease was the surgical indication for 5 young patients and 1 among the elderly. Surgical management included total thyroidectomy (57% in the elderly group) and loboisthmectomy (60% in the young sample). In 3 patients of the elderly group (8.6%) lymphadenopathy was found intraoperative and central neck dissection was achieved. After pathological studies, benign lesion of the thyroid gland was predominant in both groups. Follicular adenoma was prevalent in the elderly and benign goiter was

prevalent among young. Elderly patients had proportionally more malignant lesions of the thyroid (14.3% vs. 5.5%) but this difference was not significant. In both groups, follicular carcinoma was prevalent (2 cases in each group), followed by papillary carcinoma. Mean postoperative period was 195 days (SD: 194 days, range: 30-839 days). In the elderly group, transient and permanent recurrent laryngeal nerve palsy was respectively found in 1 case. Complication of permanent recurrent laryngeal nerve paralysis occurred in a case of anaplastic carcinoma with laborious resection of a thyroid nodule of 150 mm diameter. A young patient had transient recurrent nerve palsy. There is no significant difference in the incidence of complications between the two groups ( $p=0.55$ ). Mortality was zero in both groups.

## Discussion

There is no widely accepted definition of «an elderly» throughout the medical literature that could prevail consistently in all contexts. According to studies, the age beyond which a person is referred to as «aged», varies between 60 and 80 years [1-6,17]. A WHO expert committee considers as elderly population, those people aged 60 and over [1]. In Senegal this definition prevails. Senegal, like many countries in Africa is undergoing a demographic transition resulting in the steady rise of the elderly. So their portion in the Senegalese population grew from 4% in 2009 to 5.5% in 2013 [9,10]. There is a direct link between age and increased structural changes of the thyroid gland [11]. Ultrasound studies support a prevalence of thyroid nodules of 50-76% beyond 60 years [18]. The main limitation of our study may be at the level of the selection of elder patients. Thyroidectomy from 2.5 to 21.2% of the patients was performed in the elderly [14]. In the 2 ENT units of our study, 17% of thyroidectomies were performed in the elderly. The lack of consensus on a definition of the elderly does not make possible comparisons between the results of different publications. Increasing the age limit translates into a reduction in the frequency of thyroidectomy in the elderly. At 60, in our series thyroidectomy accounted for 16.67% against 2.5% in Mekel et al. [6] who chose 80 years as the age limit.

High blood pressure and diabetes were found in 28.7% of our elderly patients. Hypertension was significantly more frequent in the elderly than in the young ( $p=0.02$ ). In the literature, comorbidities are found in 35-85% of elderly patients who underwent thyroidectomy [3,6,13,18]. They include high blood pressure, diabetes mellitus, and cardiovascular disease, pulmonary and neurological diseases [3]. Our result is lower than found in the literature. It is indeed underestimated because few people know their real status regarding comorbidities. The population does not visit their practitioners on a regular basis. Comorbidities are often discovered incidentally during a follow-up to another condition, a preoperative workup or during a complication of the comorbidity.

The common indications of thyroidectomy in the elderly are the malignant thyroid tumors suspected or proven, local compressive signs and hyperthyroidism resistant to medical therapy [5,14]. Bliss et al. [4] reported as the main surgical indications: compression signs and suspicion of malignancy. The frequency of compressive goiter was significantly higher in the elderly. Passler et al. [2] came to the same conclusions. On the opposite, in our study, HMNG was the most common surgical indication, followed by thyroid nodule. The prevalence of HMNG in patients 55-75 years is estimated at 74% [19]. For Mekel et al. [6] the main surgical indications were benign thyroid diseases (51.1%) including nodules, benign goiter and Graves' disease. Surgical indications of Sosa et al. [14] and Tartaglia et al. [3] had

corroborated those of Mekel and ours. They noted respectively 69% and 82% of benign lesions. Thus, the operative indications of thyroidectomy in the elderly vary according to the habits of each team. Total thyroidectomy is the surgical procedure most frequently performed in the elderly. Its frequency had varied from 55-91% [4,6,19]. In our series 57% of patients underwent total thyroidectomy. Nevertheless some authors like Sosa et al. [15] reported a predominance of lobectomy to 57%. In most studies, histological results of the thyroidectomy specimen were in favor of a benign thyroid [6,13,15,19]. Our results had corroborated those found in the literature.

Age was not linked to an increased risk of postoperative morbidity [2-5,12]. We found no significant difference in terms of morbidity between the elderly and the young. Mortality was zero. Two elderly patients (5.7%) had postoperative recurrent laryngeal nerve palsy. Passler et al. [19] reported 7.35% of recurrent nerve palsy. There was no significant difference with the incidence of postoperative complications between both groups. Gervasi et al. [5] in a meta-analysis reported no statistically significant difference in terms of morbidity and mortality by age. Seybt et al. [13] found 2.9% of transient recurrent nerve palsy, with a similar rate of postoperative complications in elderly patients and younger patients. Tartaglia et al. [3] reported postoperative complications as: bleeding, recurrent nerve palsy and transient hypocalcaemia. Morbidity and mortality are not related to surgery, but to comorbidities that increase their frequency. Tartaglia et al. [3] found a 2.4% mortality-related comorbidities. Mekel et al. [6] showed increased morbidity with age from 9% in patients under 80 years to 24.4% in octogenarians. However, most complications were related to comorbidities and the general condition of patients. Bliss et al. [4] on a series of 200 patients over 75 years reported a case of death following a pre-existing heart failure. For Sosa et al. [13] the surgeon's experience was a very important factor of morbidity. In fact they showed that experienced surgeons (over 30 thyroidectomies per year) were responsible for fewer postoperative complications; and their patients had a shorter hospital stay. The experience of surgeons has not been assessed in our study. Comparison in terms of mortality with different studies is difficult because of the difference in composition of the groups of patients and surgical techniques.

## Conclusion

Surgeons will have to make more frequent resection of the thyroid gland in the elderly, with the aging of the population. The experience of the surgeon is a valuable asset in thyroid surgery. The results of our work had corroborated most international publications on the subject: age is not an absolute contraindication against the thyroid surgery. However the elderly are subject to more comorbidities responsible for postoperative complications, hence the need for good preoperative assessment of patients and excellent training of surgeons in the removal of the thyroid.

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