



RESEARCH ARTICLE

THYROIDECTOMY: INDICATIONS AND POST-OPERATIVE EVOLUTION BASED ON 135 CASES REPORT IN BANGUI (CAR)

*¹Doui, AD., ²Poumale, F., ³Kossinda, F., ¹Nghario, ¹L., Issa Mapouka, PA., ³Malendoma, JR., and ¹Nali, NM.

¹Service de Chirurgie Générale, Hôpital de l'Amitié, BP 2166, Bangui, République centrafricaine, Central African Republic

²Service d'Oto-RhinoLaryngologie. Hôpital de l'Amitié BP 2166, Bangui République centrafricaine, Central African Republic

³Service d'Oto-RhinoLaryngologie du Centre National Hospitalier et Universitaire de Bangui, Central African Republic

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ABSTRACT

Introduction: The main purpose of the surgery of thyroid tumors is to cut the pathological portions of the gland, which at the same time carried an important part of the healthy parenchyma, the seat of possible recurrences. The aim of this study was to determine the frequency of thyroidectomy performed at Bangui, identify the indications, and describe the surgical procedure and the post surgical complications.

Patients and Methods: This was a cross sectional study based on the files of patients who have undergone thyroidectomy between January 2009 and December 2013 at the ENT and surgery department of the hospitals of Bangui. Our variables of interest were age and sex, reason for surgery, type of surgery, complications and issue of the patient.

Results: 3266 patients were operated during the study period among whom 135 cases of thyroidectomy (3.7%). The sample included 108 women (80%) and 27 men (20%). The average age was 36 years (range: 10 and 62 years). The main surgical indications were simple goiter (34.8%) and adenomas (31.9%). Cancers of the thyroid represented 3.7% of cases. The most frequent surgical procedures were lobo-isthmectomy (55.6%) and total thyroidectomy (42.2%). 55 patients (40%) developed complications and the most frequent were bleeding (38.1%), cardiac arrest (21.8%), keloid scars (14.5%) and paralysis laryngeal nerve (7.3%).

Conclusion: Thyroidectomy is mainly done on women. The main indications are simple goiter, adenoma and multinodular goiter. The main complications are bleeding, cardiac arrest and keloid scars.

INTRODUCTION

Thyroid pathologies are common and sometimes require surgical treatment. The main goal of surgery for thyroid tumors is to resect pathological portions of the gland carrying at the same time an important part of healthy parenchyma, seat of eventual recurrences (Malaise *et al.*, 2000; Tran *et al.*, 1983). Hemorrhagic, nervous and parathyroid risks represent the main pitfall of thyroidectomies. Whatever the surgeon's experience, the imperatives of this intervention lie in limiting the risk of haemorrhagic, nervous and parathyroid complications and the maintenance of sufficient endocrine function (Vignikin-Yéhouéssi *et al.*, 2000; Conessa *et al.*, 2000; Vignikin-Yéhouéssi *et al.*, 2008). In the Central African Republic, thyroidectomies have been performed for more than 40 years at the level of the General Surgery and Otorhinolaryngology departments. But the data concerning this surgery is not

available. To this end, we conducted this study whose objectives were to analyze the indications and the operating methods, to report the complications encountered and to draw lessons from them.

MATERIALS AND METHODS

This is a retrospective descriptive transversal study performed in the Department of Otorhinolaryngology (ENT) of the National University Hospital Center (CNHUB) and the General Surgery Department of Bangui Friendship Hospital. The study population consisted of patients operated on for an ENT condition from January 2009 to December 31, 2013. Patients who underwent total or partial thyroidectomy were included, regardless of age, one or the other of the two services and having a medical file with an operative report, regularly updated. Our sampling was of convenience. The information sought was completed in the hospital records and operating reports. A study sheet was used to collect data and included parameters such as age, sex, operative indication, operative

procedures, per and postoperative complications, treatment of complications and evolution. The study cards were anonymous to respect the confidentiality of patients. The collected data was processed and analyzed using the EpiInfo 2008 version 3.2.3 software.

RESULTS

During the study period, 135 patients underwent thyroidectomy out of a total of 3662 surgical procedures performed at a relative frequency of 3.5%. The sample consisted of 27 men and 108 women, an F / H sex ratio of 4.0. The average age of patients was 36, with extremes of 10 years and 62 years. The subjects aged 21 to 60 represented 94.1% of the sample. Table 1 shows the details of thyroidectomies by age group.

Table 1. Frequency of thyroidectomies in relation to age (years)

| Age (ans) | N | % |
|-----------|-----|-------|
| 0-10 | 1 | 0,7 |
| 11-20 | 1 | 0,7 |
| 21-30 | 27 | 20,0 |
| 31-40 | 36 | 26,7 |
| 41-50 | 41 | 30,4 |
| 51-60 | 23 | 17,0 |
| > 60 | 1 | 0,7 |
| Total | 135 | 100,0 |

The main operative indications are listed in Table II.

Table 2. Thyroidectomies Indications

| Indications | N | % |
|--------------------|-----|-------|
| Simplegoiter | 47 | 34,8 |
| Adenomas | 43 | 31,9 |
| Multinodulargoiter | 26 | 19,3 |
| Kysticnodular | 8 | 5,9 |
| Thyroidite | 5 | 3,7 |
| Cancers | 5 | 3,7 |
| Maladie de Basedow | 1 | 0,7 |
| Total | 135 | 100,0 |

All patients were operated on under general anesthesia and orotracheal intubation. The thyroidectomy technique used included Kocher's bow-shaped anterior cervicotomy, dissection of the upper and lower skin flaps, exposure of the thyroid gland, and recurrent nerve location according to habits of the surgeon, the ligation first section of the inferior pedicle and the superior pedicle, the release of the posterior lobe of the gland by the resection of the Grüber ligament with the electrocautery to the level of the thyroid isthmus, the isthmectomy if this is a unilateral lobectomy or total thyroidectomy.

Table 3. Operative procedures according to pathologies

| Pathologies | Total thyroidectomy | Lobo isthmectomy | simple resection enucleation | Total |
|-----------------------------|---------------------|------------------|------------------------------|-------|
| Multinodulargoiters | 26 | 0 | 0 | 26 |
| thyroiditis/ Basedowdisease | 6 | 0 | 0 | 06 |
| Kyste | 0 | 8 | 0 | 08 |
| Adénomas | 0 | 40 | 3 | 43 |
| single goiters | 20 | 27 | 0 | 47 |
| Cancers | 5 | 0 | 0 | 5 |
| Total | 57 | 75 | 3 | 135 |

After verification of the haemostasis, the closing of the incision was done on an aspirative drain, or a passive drain according to the availability of means. The table below shows the operative procedures performed according to the affections. After the intervention, 55 patients, 40.7% had a complication. Table IV details the nature of these complications.

DISCUSSION

The frequency of thyroidectomy is low 3.7% compared to that of the literature. Vigniki (Vignikin-Yêhouéssi *et al.*, 2000) reported a frequency of 14.96% thyroidectomies on 3523 surgeries performed. However, the age profile of their patients is similar to that observed in Africa (Conessa *et al.*, 2000; Vignikin-Yêhouéssi *et al.*, 2008). These are often young people. In contrast, in France and more particularly in Montpellier, thyroidectomy are often performed in older people, the average age being 54 years with extremes of 21 years and 81 years (Poumale, 2005). According to operative indications, we found a predominance of benign tumors (56.1%), the most frequent being single goiters (34.8%) adenomas (31.9%), and multi heterodular goiter (19%). , 3%). In our series, thyroiditis and cancers accounted for 3.7% of the workforce, respectively. The high rate of goiter seen in our series is due to the fact that our country is a goitrous endemic area due to iodine deficiency disorders. In the series described by Vigniki (Vignikin-Yêhouéssi *et al.*, 2008), 71% of cases were multi heteronodular goiter, 9% were basedowdisease and 5% were cancers. Indications for thyroidectomy vary from one country to another. In our study, lobo-isthmectomy was performed 75 times out of 135 followed by total thyroidectomy (57 cases).

Lobo-isthmectomy was indicated in cases of adenoma and goiter, while total thyroidectomy was performed mainly in cases of multi nodular goiter, and cancers. In the procedures, bleeding was the main complication (38.1% of cases). The bleeding occurred during the operation in 17 patients (30.9%) and postoperatively in two patients following the release of ligatures. These bleeding are often observed in cases of thyroiditis that bleed a lot, and bulky goiters hyper vascularized. These are sometimes associated with hyperthyroid diseases that increase the risk of bleeding. The circumstances of bleeding are numerous; bleeding can come from the injury of a muscle, or gland, during the release of a ligature, or when a vein is torn off during the delicate handling of the gland. Compared with those in the literature, the complication rate noted in our study is very high. Conessa (Conessa *et al.*, 2000) reported a complication rate of 1.9%. In Europe, hemorrhage is no longer a major concern. The interventions concern small thyroid nodules and the surgeon also has an adequate technical platform.



Picture 1. specimen of total thyroidectomy

Table 4. Types of complications according to the operating period

| complications | Number | % |
|------------------------------------|--------|-------|
| Per opératoires | | |
| Bleeding | 17 | 31,5 |
| Cardiacarrest | 12 | 22,2 |
| Hyperthyroiditis | 3 | 5,5 |
| Post Opératoires Précoces | | |
| Laryngeal Nerveparalysis | 4 | 7,4 |
| Bleeding | 2 | 3,7 |
| Compressifhaematoma | 2 | 3,7 |
| Superior Laryngeal Nerveparalysis | 1 | 1,9 |
| Hypoparathyroiditis | 1 | 1,9 |
| Post Opératoires Tardives | | |
| Keloidscars | 8 | 14,8 |
| Permanenteparalysislaryngeal Nerve | 4 | 7,4 |
| Total | 54 | 100,0 |

To prevent Hemorrhage, some authors insist on the rigor of the operative tactics and the administration of Lugol preoperatively in case of hyperthyroidism which makes it possible to avoid peroperative bleeding (Casanelli *et al.*, 2007; Chang *et al.*, 1987). Among the other complications we found were four cases of recurrent paralysis, two transient and two definitive, an overall incidence of 2.9%. In the literature the rate of recurrent paralysis ranges from 1.2% to 8.5%. Some authors believe that this type of complication is related to anatomical abnormalities of the recurrent nerve (Flament *et al.*, 1983). This hypothesis would be partly true. Proye (Proye *et al.*, 1980) noted that the incidence of nerve complications varies depending on the thyroid condition. Lower laryngeal nerve paralysis (NLI) is a serious iatrogenic complication that can induce significant disturbances of phonation, respiration and swallowing. In our study, we recorded four cases. To better preserve the lower laryngeal nerve, some authors suggest that it should be dissected (Malaise *et al.*, 2000; Flament *et al.*, 1983). The dissection of this nerve has not been commonly done in our series. It has only been performed in four cases of lobectomies. In other cases, goiter volume, hyper vascularized environment, bleeding and changes in anatomical structures did not allow this dissection. To avoid the NLI section in an unfavorable environment, it is advisable to avoid both places where the nerve is particularly vulnerable. At the lower pole of the gland, the terminal branches of the inferior thyroid artery, which cross the recurrent nerve, should not be tied together. The ligation must be elective, linking one to one and separately the branches of this artery by ultra-ligatures in contact with the thyroid parenchyma.

Then, avoid any dangerous action (crushing or electrocoagulation) of the outer edge of the lateral ligament or the recurrent nerve before entering the constrictor muscle of the pharynx. By doing so, one avoids a dangerous nerve dissection that will expose it to multiple traumas and a fatal devascularization of the nerve even in the absence of iatrogenic lesions. Regarding the paralysis of the external laryngeal nerve (NLE), we noted a single case. This paralysis is often neglected and yet the consequences of its section are not negligible: hoarseness of the voice, vocal fatigability, impossibility of singing and false roads by disorders of the sensitivity. The risk of injuring this nerve during thyroid surgery lies in the release of the upper pole where the NLE elbow contracts very close anatomical relationships with the superior thyroid artery branches (ATS).

Some authors (Proye *et al.*, 1980; Prades *et al.*, 1996) advise to dissect it systematically and to isolate it at the level of one's elbow. But the practice in our study is that of Paineau (Paineau *et al.*, 1983) who proscribes mass ligation of the superior thyroid pedicle. The branches of the ATS are linked separately to the contact of the parenchyma while avoiding pulling down the upper pole of the pathological lobe. Despite these precautions, Paineau (Paineau *et al.*, 1983) reported a NEL paralysis rate of 0.57%. As for postoperative hypoparathyroidism, we observed only one case whose clinical manifestation had resulted in the onset of a tetanus attack. Conessa (Malaise *et al.*, 2000) reported a hypoparathyroidism rate of 6.1% on the basis of serum calcium determination at day 3, 4 and 5 postoperatively. The risk of hypoparathyroidism comes from haemostasis, which can put the vessels of the para-thyroid gland at risk. The most important step in preventing this complication is the preservation of the arterial blood supply of the para-thyroid gland (Poumale, 2005; Prades *et al.*, 1996). The keloid scar is a late complication. It is rare in Europe but relatively common in Africa. There was a reported rate of 11% in Dakar (Conessa *et al.*, 2000), and 5.9% in our series. The quality of the ligatures used for cutaneous sutures and especially the predisposition of the black subjects to develop keloids scars are the incriminated factors. To limit the occurrence of keloids, scarring should be monitored particularly, from 10th to 20th day postoperatively. In case of inappropriate budding causing fear of a keloid scar, corticosteroid infiltration is performed at the scar which will disappear at the cost of intermittent pigment discoloration. Cardiac arrest and hyperthyroidism are the other complications we have noted. We could not determine the cause of the 12 cardiac arrests that occurred during surgery. They could be related to poor preparation of patients, effects of anesthetic products or compression of the carotid primitive. As for acute hyperthyroidism, it is rarely observed when patients are adequately prepared for surgery and present in a euthyroid state. We noted three cases related to poor preoperative preparation.

Conclusion

Thyroidectomy is a relatively common surgery in ENT in Bangui with a frequency of 3.7%. Its main indications are single goiters, adenomas and multi-nodular goiters. The most common surgical procedures are lobo-isthmectomy, total thyroidectomy, and simple resection enucleation. Hemorrhage, recurrent nerve paralysis and cardiac arrest are the dreaded complications. We recommend that surgeons perfect

hemostasis and good control of the thyroidectomy technique to minimize complications

Conflict of Interests: The authors declare that there is no conflict of interest regarding the publication of this article.

REFERENCES

- Malaise, J., Mourad, M. and Squifflet, P. 2000. La chirurgie thyroïdienne. Expérience européenne indications et tactiques chirurgicales à l'université catholique de LOUVAIN. *Louvain Med.*, 119 : 305-313.
- Tran Ba Huy, P., Bastian, D. and Fouda, A. 1983. Les thyroïdectomies. *Encyclopédie Medico chirurgicale (EMC)*, ORL 1120875 B10: p1-12.
- Vignikin-Yêhouéssi, B., Vodouhe, S. J., Assoa, N., Doutetien Ade, G. C., Biotchane, I., Amoussou-Guenou, D. and Assouto, P. 2000. Les complications de la thyroïdectomie. A propos de 27 cas chez 527 opérés en ORL au CHU de Cotonou (1979-1998). *Benin Médical*, 15 : 1-2.
- Conessa, C.L., Sissokho, B. and Faye, M. 2000. Les complications de la chirurgie thyroïdienne à l'hôpital principal de Dakar. A propos de 155 interventions. *Méd. Afr Noire*, 47(3) :157-160.
- Vignikin-Yêhouéssi, B., Flatin, M.I., Vodouhès, J., Hounkpè, Y.Y.C. and Médji, A. L. 2008. Place de la thyroïdectomie en pratique ORL au CNHU de Cotonou. *Rev CAMES – Série A*, 06 : 36-41.
- Poumale, F. 2005. Méthode de dissection antérograde et rétrograde du nerf récurrent dans la chirurgie thyroïdienne. *Mémoire AFS Université Montpellier I*, 60p.
- Casanelli, J.M., Blegole, C., N'dri, J., Aboua, G., Moussa, B. and Ngessan, H. 2007. Les complications de la chirurgie thyroïdienne au CHU de Treichville à propos de 149 interventions. *Med Afr Noire*, 54(5) : 245-248
- Chang, DCS., Wheeler, M.H. and Woodcock, JP. 1987. The effect of preoperative lugol's iodine on thyroid blood flow in patients with Graves' hyperthyroidism. *Surgery*, 102: 1055-1061.
- Flament, J. B., Delattre, J. F. and Palot, JP. 1983. Les pièges anatomiques de la dissection du nerf récurrent. *J Chir.*, (Paris) 120(5) : 329-333.
- Proye, C., Patoir, A., Trincaretto, F. and Darras, J. 1980. Valeur de la dissection systématique du nerf récurrent en chirurgie thyroïdienne (428 thyroïdectomies en 1978). *J Chir.*, (Paris) 117 : 155-160.
- Prades, J.M., Dumolard, J.M., Melis, N., Mayaud, R., Estour B. and Martin, CH. 1996. Anatomie chirurgicale de l'Hyperparathyroïdie primaire. *J Forl.*, 45(1): 7-12.
- Paineau, J., Hingrat, JY., Lehur, P.A. and Visset, J. 1983. Voix, nerfs laryngés et chirurgie thyroïdienne. Etude anatomique et clinique. Résultats à propos d'une série homogène de 378 interventions. *J Chir (Paris)*, 120(6/7) : 367-372.
