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Laryngeal Cancers at the Pathological Anatomical Laboratory (ACP) in Dakar about 215 Cases

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Abstract

Introduction: Laryngeal cancer is the first cancer of upper aerodigestive tract. Dysphonia, dyspnea and dysphagia are evocative signs. Diagnosis is histological and squamous cell carcinoma is the most common type. The objective of our study was to discuss epidemiological and anatomo-pathological characteristics of laryngeal cancers diagnosed in different pathological anatomy and cytology (ACP) laboratories of Dakar hospitals. **Material and method**: This was a retrospective study spanning from January 2013 to December 2018 at the pathological anatomy laboratories of Fann, Aristide Le Dantec and Idrissa Pouye hospitals. All patients with laryngeal cancer confirmed at histology were included. Data collection was based on clinical records of the patients and archives of histological reports of the pathological laboratories. Data analysis was performed under the Excel software. **Results:** We collected 215 cases of laryngeal cancer. The average age was 58.01 years with extremes of 07 and 94 years. The male sex was predominant with 183 patients (85.12%) against 32 women (14.88%). The most noted risk factor was tobacco which affected 14 patients, or 60.87%. Three patients (13.04%) did not present any alcohol-smoking impregnation. Clinically, dysphonia was noted in 22 patients (26.51%). It was associated with dyspnea in 0.48% of cases and dysphagia in 3.61%. Laryngoscopy was performed in 62 patients or 28.83% of cases, nasofibroscopy in 6.45% of cases. Cord arythenoid fixity was noted in two patients (3.23%) and hypo-mobility in 1 patient (1.61%). The most frequent local extension was involvement of the piriform sinus with 11.29% of cases. Palpable lymphadenopathy reported in 17 patients (20.48%). Pathological examination was performed in all patients after post endoscopic biopsy in 92

patients (42.79%), and after obtaining the operative specimen in 123 cases (57.21%). The three floors affected 76 patients (35.35%). The ulcerative budding aspect most noted concerned 108 patients (60.97%). Histologically, it was a squamous cell carcinoma in 205 patients (95.34%). The most site invaded by the tumor was cricoid cartilage.T4 type was most found (45 patients or 40.90%) followed by the T3 type with 34.55%. There was no lymphadenopathy invasion (Type N0) in 74 patients (67.27%), capsular rupture was reported in five patients (6.77%), no evaluable metastasis in 110 patients (97.27%), and stage IVA predominated in 66 patients (60%). **Conclusion:** laryngeal cancer is a reality in our contexts, however, its incidence is poorly understood in Senegal. The main risk factors remain tobacco and alcohol. Histology confirms the diagnosis. Its management is multidisciplinary and must be early.

Keywords

Laryngeal Cancer, Carcinoma, Dakar

1. Introduction

Laryngeal cancers, on the rise worldwide, are dominated by squamous cell carcinoma. They represent 3.5% of malignant tumors diagnosed annually worldwide [1].

Incidence and mortality rates are higher in Europe and lower in Africa, but the ratio between deaths and incidence is the highest in Africa. Cigarette smoking and alcohol abuse contribute for about 90% of overall worldwide mortality for laryngeal cancer [2].

In most African countries, the majority of patients come to the clinic at advanced stages of the disease [3]. This situation causes a real problem of management especially when we know that cancers in general are more serious in sub-Saharan Africa where mortality rates are on average around 75% [4]. The anatomo-pathological examination confirms the diagnosis and specifies the tumor extension in the lymph node areas and neighboring organs for an adequate therapeutic choice. The objective of our study was to discuss epidemiological and anatomo-pathological characteristics of laryngeal cancers diagnosed in three ACP laboratories of Dakar.

2. Material and Methods

This was a retrospective and descriptive study spanning 5 years, covering the period between January 2013 and December 2018. It was carried out using the archives and registers of histological reports from pathological anatomy and cytology laboratories (ACP) at university hospitals of Fann, Aristide Le Dantec and General Idrissa Pouye. All patients with histologically confirmed laryngeal cancer were included. A survey form was prepared for each patient with the follow-

ing items: age, sex, risk factors, clinical symptoms, the seat of the tumor, the ulcerated, budding and/or infiltrating characters, the histological type of the tumor, the state of the resection margins, the different types of lymph node dissection, the number of lymph nodes as well as the neighboring organs invaded and The TNM classification were recorded.

The data collected was analysed using Excel 2010 and SPSS 20.0.

3. Results

1) Prevalence

Between January 2013 and December 2018, two hundred and fifteen (215) laryngectomy specimens were collected.

2) Sex

These samples concerned 183 men who constituted 85.12% of the series and 32 women or 14.88% (Figure 1). The sex ratio was 5.7.

3) Age

The average age of these patients was 58.01 years, with extremes of 07 and 94 years. In men, it was 59.75 years while in women the average age was 48 years. The most affected age group regardless of gender was between 51 and 60 years old with 33.95% of the series (Figure 2).

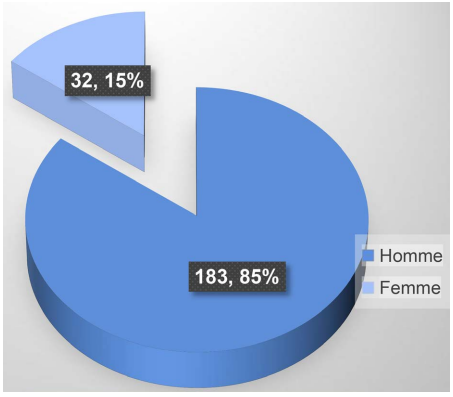


Figure 1. Distribution of laryngeal cancers according to sex.

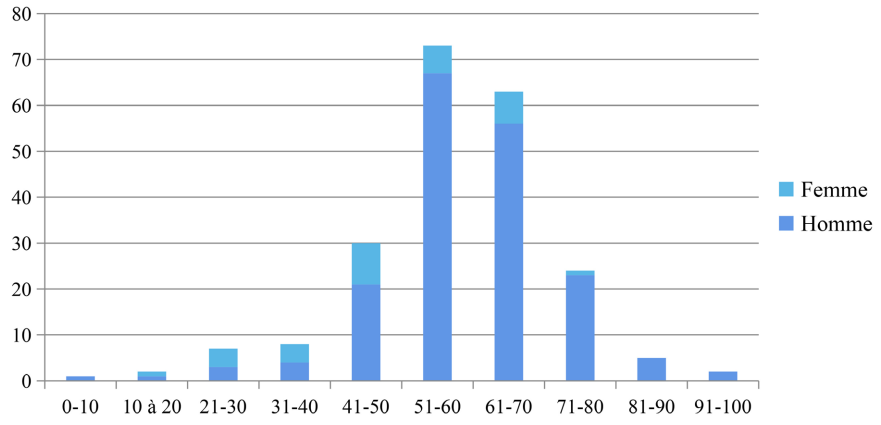


Figure 2. Distribution of laryngeal cancers according to age and sex.

4) Risk factors

The risk factors were only specified in 23 patients (10.70%). One hundred and ninety-two (192) reports did not include information on the presence or absence of risk factors. Among these 23 patients, 14 (60.87%) were chronic smokers, the quantity consumed being specified in only two patients and varying between 5 and 15 packets of years. No case of isolated alcohol poisoning had been notified. The association of smoking and alcohol was reported in 6 patients (26.09%).

5) Clinical aspects

Dysphonia was the most noted clinical sign, concerned 22 patients (26.51%) of the cohort and the association of dysphonia and dyspnea was noted in 17 patients (21.25%). Eight (8) patients (10%) of the series, had consulted for dysphagia and 14 for cervical lymphadenopathy (17.5%) (Table 1). Indirect laryngoscopy performed in 62 patients of the cohort (28.83%) had reported a lesional process in these patients.

6) Macroscopy

The tumoral lesion was purely budding in 69 patients (32.09%), infiltrative for 30 patients (13.95%) of cases, ulcerated in 4 cases (1.87%) and mixed in 112 patients (52.09%) of this cohort. In this batch of mixed lesions, one hundred and eight (108) cases of budding ulcer lesion, two (2) cases of budding and infiltrating form and 2 cases of infiltrating ulcer had been identified (Table 2). The laryngeal tumor was located on the 3 levels of the larynx in 76 patients (35.35%), on the glottic level in 35 patients (16.27%), on the glotto supraglottic level for 26 patients (12. 09%) and on the subglottic floor 15 cases (6.97%).

7) Microscopy

The histological examination was carried out on biopsy samples in 92 patients (42.79%), and on an operating specimen in 123 patients (57.21%). Keratinizing differentiated squamous cell carcinoma constituted 95.34% of the series (205 cases). The other histological types were represented by adenoid cystic carcinoma (2 cases), spindle cell carcinoma (2 cases), verrucous carcinoma (1 case) and mucosquamous cell carcinoma (1 case).

Table 1. Distribution of clinical signs.

Clinical signs	Effective	Percentage (%)
Dysphonia	22	27.5
Laryngeal dyspnea	5	6.25
Dysphagia	8	10
Dysphonia + dyspnea	17	21.25
Dysphonia + dysphagia	3	3.75
Dysphagia + Dyspnea	4	5
Dysphagia + Dyspnea + Dysphonia	4	5
Odynophagia	3	3.75
Lymph node	14	17.5
Total	**80**	**100**

Squamous cell carcinoma was well differentiated in 159 patients (73.95%), moderately differentiated in 36 patients (16.74%) and poorly differentiated in 7 patients (3.26%).

The lower resection margin passed into the tumor zone in 16.66% (9 cases).

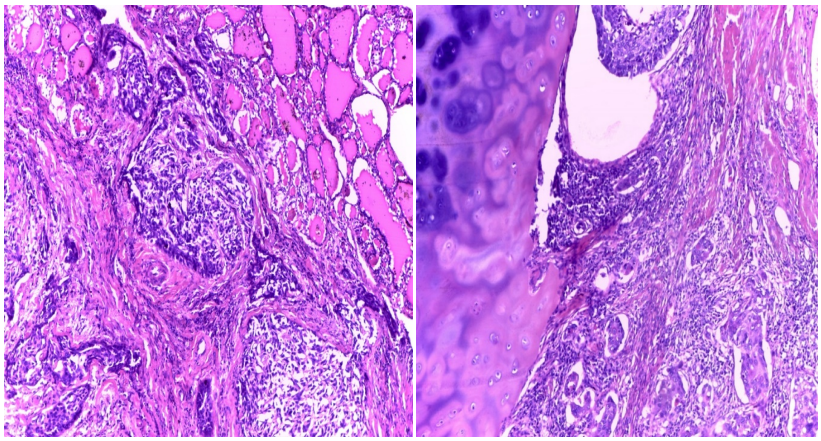
The cricoid cartilage was invaded in 53.40% (55 cases), the thyroid in 22.3% (23 cases) (Figure 3) (Table 3).

Table 2. Macroscopic appearance of the laryngeal tumor.

Characters	Number	Percentage (%)
Ulcer	4	1.87
Ulcéro-budding	108	50.23
Budding	69	32.09
Infiltrating	30	13.95
Ulcero-infiltrating	2	0.93
Infiltrating and budding	2	0.93
Total	**215**	**100**

Table 3. Distribution of local tumor infiltration.

Local infiltration	Number	Percentage (%)
Cricoid cartilage	55	53.40
Aryténoid cartilage	3	2.91
Thyroid cartilage	2	1.94
Thyroid gland	23	22.33
Anterior commissure	12	11.65
Posterior commissure	5	4.85
Trachea	3	2.91
Total	**103**	**100**



(A) (B)

Figure 3. Larynx cancer infiltrating cricoid cartilage (A) and thyroid tissue (B) HE × 400.

Lymph node status was studied on an average of 15 lymph nodes per case. Lymph node invasion was noted in 35 patients (31.82%) of the series and capsule rupture specified in 5 patients (6.77%).

The TNM classification was made in 110 patients (51.16%).

The T4 type occupied the first rank and concerned 45 patients (40.90%), followed by the T3 type with 38 patients (34.55%). Stages IVA and III were the most frequently diagnosed with respectively 66 patients (60%) and 37 patients (33.60%).

4. Discussion

Our series included 215 cases collected over 5 years. By comparing our results with those of Mvouni Oyono *et al.* [5] (18 cases in 6 years) and Diouf *et al.* [6] (61 cases in 10 years), the prevalence of laryngeal cancers in this series shows a clear increase. Authors in Brazzaville [7] listed 46 patients with laryngeal cancer in a hospital cohort over ten years, which indicated a double progression compared to their 2002 series. The actual prevalence of laryngeal cancer in Senegal is poorly known due to the absence of a national cancer registry. This situation is common to some African countries where the available figures are those evaluated from hospital cases as shown by the Togolese [8] and Cameroonian [9] series. The incidence and prevalence of this cancer have increased by 12% and 24%, respectively, over the past 3 decades. Men have a more than 5-fold higher incidence (4.64 versus 0.86 per 100,000 population) [2]. This male predominance was also noted in our study. The mean age of the patients was 58.01 years with extremes of 07 and 94 years. It was 59.7 years for men and 48 years for women. The most represented age group was between 51 and 60 years (33.95%), regardless of gender. Ondzotto *et al.* found a mean age of 61 years [3]. The Chinese study reported that the incidence of laryngeal malignancies peaked after 65 years of age in both sexes [2]. The risk factors in this study had only been identified in 23 patients, (10.70%) of the cohort. Smoking was the predominant factor noted in 14 patients, while the alcohol-tobacco association concerned only 6 patients. For Amana *et al.*, alcohol smoking predominated in laryngeal cancer [8]. The Cameroon series by Njimah *et al.* [9] showed alcohol (59.35%) as the most common risk factor ahead of tobacco (44.72%). Hemmaoui *et al.* in Morocco [10] had reported 90% tobacco-related poisoning. Malignant lesions of the larynx of epithelial origin are associated with tobacco and predominate in men [11]. Otouana D *et al.* had reported that for some authors, infection with the Human papilloma virus (HPV) is the risk factor to be discussed apart from alcohol and tobacco [7]. The main risk factors for squamous cell carcinoma, more frequent cancers of the aero-digestive tract, are alcohol consumption, tobacco and infection with Human Papilloma virus [12]. The small number of cases reported on the presence or absence of risk factors does not allow us to evaluate the real role of alcohol, tobacco and HPV infection in the pathogenesis of laryngeal cancers. It would also be interesting to look for other carcinogenic factors

such as genetic and dietary factors.

Dysphonia, the predominant symptom in our series, concerned 26.51% of our patients (22 out of 83 patients), was associated with dyspnea in 17 patients (20.48%), with dysphagia in 3 patients (3.61%) and dyspnea and dysphagia in 4 patients (4.82%). The most frequent mode of revelation in the Congolese cohort was represented by the association chronic dysphonia—laryngeal dyspnea [3], as for our series. The mixed budding ulcer character was the most frequent in our study. The pure budding type constituted 85% of the Congolese series [3] and Njimah *et al.* on a set of oto-rhinolaryngology tumors had reported 48% budding appearance [9]. Squamous cell carcinoma was the most frequent histological type in this series, and represented 95.34% (205/215) laryngeal cancers of the series. This result is close to that of the cohort of Ciolofan *et al.* who also reported 95% (462/490) squamous cell carcinoma of laryngeal cancers [13].

In the Congolese series [7], squamous cell carcinoma was the only histological type diagnosed. This histological type is the most frequent of the upper aerodigestive tract in several countries [12] [13]. The other histological types in our series were represented by carcinoma variants: adenoid cystic carcinoma (2 cases), spindle cell carcinoma (2 cases), verrucous carcinoma (1 case) and mucosquamous cell carcinoma (1 case). Ciolofan *et al.* [13] had found alongside other forms of carcinoma (6 basaloid carcinomas, 4 verrucous) other histological types such as leiomyosarcoma (1 case), chondrosarcoma (1 case), and melanoma (1 case). This series of 490 patients comprised a majority of patients diagnosed at an advanced stage (75% for stage IV and 23% for stage III) [13]. These findings are quite similar to those noted in our study where stage IV involved 60% of patients, stage III 33.60%. Otouana Dzon *et al.* in their series noted 85% of patients diagnosed at stage IV [7]. Laryngeal cancers are diagnosed at a late stage in our regions. This diagnostic delay will influence and make difficult the management of this scourge, which raises the need for effective radiotherapy.

Our work was limited by the lack of information especially regarding risk factors, tumor size and clinical signs. Indeed, the pathologists only see the sample and the information sheet. The latter must be well filled out in order to have all the necessary elements for an exhaustive analysis of the results.

5. Conclusion

The diagnosis of laryngeal cancer is histological and it conditions the therapeutic choice. The quality of the histological report of laryngectomy specimens is linked to that of the sample sent to the laboratory. The management of laryngeal cancers requires close collaboration between clinicians, ENT surgeons, pathologists and oncologists.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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