

Epidemiological and Histological Profile of Salivary Gland Tumors in Senegal

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Abstract

Introduction: Salivary gland disorders are varied. Among them, tumors are rare, varied and can have serious consequences. The anatomo-pathological examination occupies an essential place in diagnosis, assessment of prognosis and treatment. In the Senegalese context, these tumors have mainly been studied clinically and therapeutically. We therefore conducted a study aimed at studying the epidemiological profile and histological forms of primary salivary gland tumors in the PCR laboratories of Dakar hospitals. **Materials and methods:** This is a retrospective, descriptive, multicenter study, over a period of 5 years (January 2014 to December 2018). We based our findings on the registers, archives of results and CAP examination reports. The parameters studied were age, sex, consultation time, nature of the sample, site of the lesion and histological type. **Results:** 145 cases of salivary gland tumors were collected. The average age was 44.5 ± 18.7 years. Patients aged 60 and over were the most represented. The sex ratio (F/M) was 1.23. The average duration of progression was 5.6 ± 6 years with a median of 3 years and extremes of 0.25 and 30 years. The main salivary glands (**MSG**) were the most frequently affected (89.65%), particularly the parotid gland (74.5%). Tumors of the accessory salivary glands were located preferentially on the palate (53.33%). Surgical specimens constituted the main type of sample (80%). The tumors were mainly epithelial in nature (97.2%) and were malignant in 60% cases. Patients with malignant tumors were on average older than those with benign tumors (52.2 and 39.4 years, respectively), with a p-value < 0.001. The proportion of malignant tumors was higher in male subjects (43.8%) than in female subjects (38%), with a p-value of 0.484. Pleomorphic adenoma (PA) constituted the

most frequent histological type (55.8%) followed by mucoepidermoid carcinoma (MEC) and adenoid cystic carcinoma (ACC) with 10.3% and 6.9% respectively. **Conclusion:** Primary salivary gland tumors are relatively rare in Senegal and are often diagnosed late. Older people, men, and people with lesions of the accessory salivary glands are more likely to develop cancer in our context. The strengthening of primary prevention, the study of risk factors and molecular alterations, would make it possible to improve the treatment of these pathologies.

Keywords

Tumor, Salivary Gland, Senegal, Epidemiology, Histology

1. Introduction

Salivary gland disorders are varied. Among them, tumors are rare, varied and can have serious consequences. These neoplasms account for 3 to 5% of all head and neck tumors, with an overall annual incidence ranging from 0.4 to 13.5 cases per 100,000 inhabitants [1]-[3]. Primary tumors of the salivary glands correspond to all primary benign or malignant cell proliferations developed at the expense of salivary tissues. They are largely dominated by epithelial tumors. Approximately two-thirds of salivary gland tumors (SGTs) are benign, compared to one-third that are malignant [1] [2]. In developing countries, this condition remains a reality. In Senegal, the proportion of deaths due to salivary gland cancer (0.52% of all cancer deaths) is twice as high as the global average, which is 0.2% according to Globocan 2018 [4]. In our context, these tumors have been little studied in terms of anatomical-pathology. The anatomo-pathological examination occupies an essential place in the diagnosis, evaluation of the prognosis and treatment of salivary tumors.

In Senegal, these tumors have mainly been studied from a clinical and therapeutic perspective, focusing exclusively on the major salivary glands. We therefore conducted a study aimed at studying the epidemiological profile and histological forms of primary salivary gland tumors, as a whole, diagnosed in the pathological anatomy and cytology (PAC) laboratories of Dakar hospitals.

In our context, these tumors have mainly been studied clinically and therapeutically. We therefore conducted a study aimed at studying the epidemiological profile and histological forms of primary salivary gland tumors, as a whole, diagnosed in the pathological anatomy and cytology (PAC) laboratories of Dakar hospitals.

2. Materials and Methods

This is a retrospective, descriptive, multicenter study, over a period of 5 years (January 2014 to December 2018), at the level of all the pathological anatomy and cytology laboratories of the four University Hospital Centers (UHC) of Dakar. We based findings on the registers, archives of results and CAP examination reports.

The parameters studied were age, sex, time of consultation, nature of the sample, location of the lesion, and histological type. We included all documented cases with a diagnosis of primary salivary gland tumor, confirmed on the basis of histological examination. We included all histological reports of patients diagnosed with primary salivary gland tumors, confirmed by histological examination, during the study period. These tumors were diagnosed and then classified or reclassified according to the 2017 WHO classification criteria for salivary gland tumors. [2] The selection was exhaustive. The data collected were entered using Excel software and analyzed with Epi info 3.5.4 software. The tables and figures were produced using Microsoft Excel 2016 and Word 2016 software. In the descriptive analysis, qualitative variables were described using frequency tables, bar charts, or pie charts. The quantitative variables were described by their position parameters (average, median and mode) and dispersion (Standard deviation, extremes).

3. Results

During the study period, 145 cases of salivary gland tumors were recorded. The average age was 44.5 ± 18.7 years with extremes of 1 and 85 years. The mode and median were 52 and 45 years, respectively. Patients aged over 60 were the most represented (**Figure 1**).

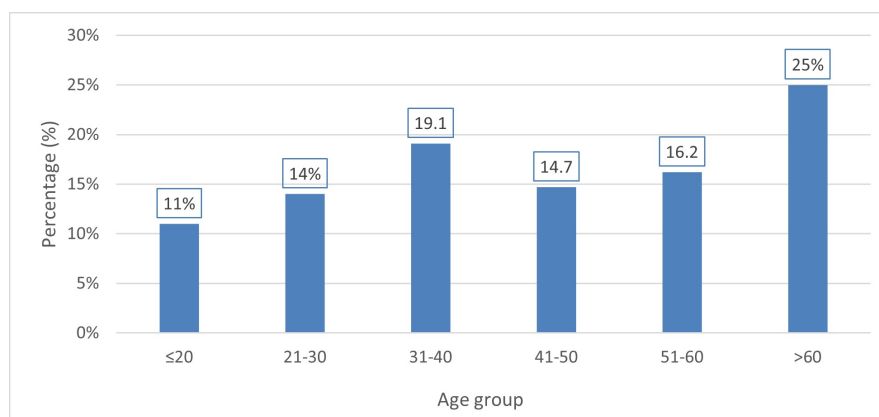


Figure 1. Distribution of patients according to age groups.

The sex ratio (F/M) was 1.23. The duration of progression of the pathology was recorded in almost a third of the patients (N = 45). The average duration of progression was 5.6 ± 6 years with extremes of 0.25 and 30 years. The median was 3 years.

A large majority of patients, *i.e.* 89.65% (N = 130), had a tumor of the main salivary glands (MSG), compared to 10.34% (15 cases) of tumor of the accessory salivary gland (ASG). These tumors were mainly located in the parotid with 108 cases (74.5%), followed by the submandibular glands (SMG), *i.e.* 21 cases (14.5%) (**Figure 2**).

Tumors of the accessory salivary glands were located preferentially on the palate 53.33% (N = 8) and the cheek 26.6% (N = 4) (**Table 1**).

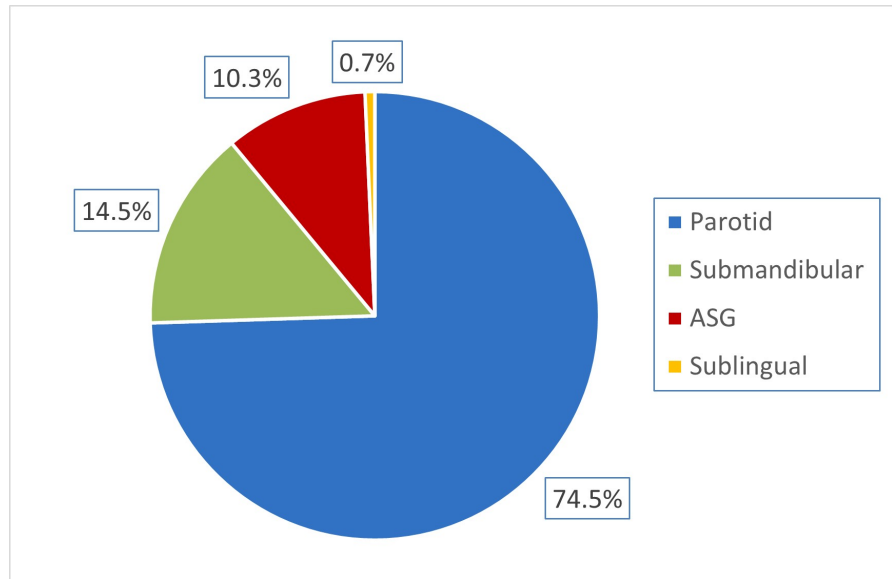
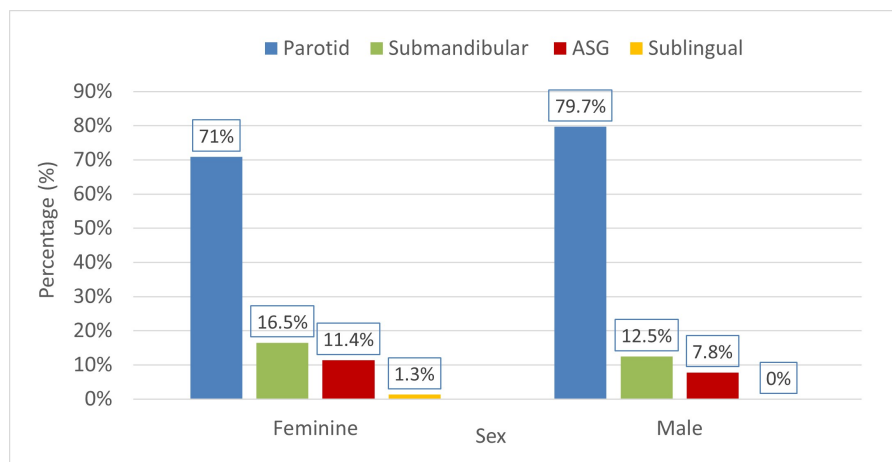


Figure 2. Distribution of patients according to site.

Table 1. Distribution of patients according to **ASG** site.

Affected ASG area	Workforce	Percentage
Palace	8	53.33
Cheek	4	26.66
Lower lip	1	6.66
Upper lip	1	6.66
Oropharynx	1	6.66
Total	15	100

The distribution of the site of the **SGT** was almost similar according to the sex of the patients with a p value of 0.569 (**Figure 3**).



p-value = 0.569.

Figure 3. Distribution of the site according to the sex of the patients.

Surgical specimens constituted the main type of sample, *i.e.* 80% (N = 116). Biopsies represented 20% of cases (N = 29). The tumor was epithelial in nature in almost all patients (141 cases) or 97.2% of cases. The percentage of epithelial tumors was almost similar depending on the sex of the patients with a p value of 0.671 (**Table 2**).

Table 2. Distribution of the epithelial or non-epithelial nature of the tumor according to the sex of the patients.

Sex	Epithelial nature				Total	P value
	Yes		No			
	N	%	N	%		
Feminine	74	93.7	5	6.3	79	0.671
Male	61	95.3	3	4.7	64	

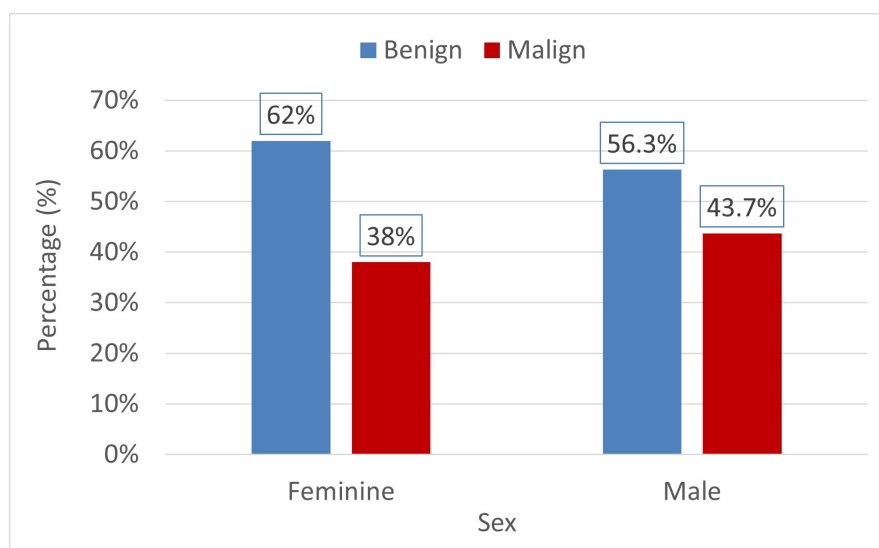
More than half of the patients 60% (N = 87) had benign tumors and 40% (N = 58) malignant tumors.

Patients with malignant tumors were on average older than those with benign tumors (52.2 and 39.4 years, respectively). The difference was statistically significant with a p-value < 0.001 (**Table 3**).

Table 3. Distribution of malignant and benign tumors according to the average age of patients.

Tumor	N	Age of patients				
		Minimum	Average	Standard deviation	Median	Maximum
Benign	82	1	39.4	16.8	38.5	85
Malign	55	2	52.2	19.0	54	81

p-value < 0.001.



p-value = 0.484.

Figure 4. Benignity or malignancy according to the sex of the patients.

The proportion of benign tumors was higher in female subjects than in male subjects (62% and 56.3%). The opposite was observed for malignant tumors, with 38% for women and 43.7% for men. However, the difference was not statistically significant with a p value = 0.484 (Figure 4).

Tumors of the parotid (61.1%) and submandibular salivary glands (76.2%) were mainly benign, while those of the accessory salivary glands were mainly malignant (66.6%) (Table 4).

Table 4. Distribution of benignity or malignancy according to site.

Benign or malignant	Site							
	Parotid		SMG		SLG		ASG	
	N	%	N	%	N	%	N	%
Benign	66	61.1	16	76.2	0	0	5	33.3%
Malign	42	38.9	5	23.8	1	100	10	66.6

Pleomorphic adenoma (PA) constituted the most frequent histological type in the series with 81 cases, or 55.8%, followed by mucoepidermoid carcinomas (MEC) and cystic adenoids (ACC) with 10.3 and 6.9% respectively (Table 5).

Table 5. Distribution of patients according to histological type.

Histological type	Workforce	Percentage
Pleomorphic adenoma	81	55.8
Mucoepidermoid carcinoma	15	10.3
Adenoid cystic carcinoma	10	6.9
Acinar cell adenocarcinoma	6	4.1
Epithelial-myoepithelial carcinoma (EMC)	5	3.4
Pleomorphic ex-adenoma carcinoma	4	2.8
Polymorphous adenocarcinoma	3	2.1
SAI adenoma	3	2.1
Warthin tumour	2	1.4
Adenocarcinoma, NOS	2	1.4
Clear cell carcinoma (CCC)	2	1.4
Squamous cell carcinoma	2	1.4
Hemangioma	2	1.4
Lymphoma	2	1.4
Myoepithelioma	2	1.4
Undifferentiated malignant tumour	2	1.4
Large cell carcinoma	1	0.7
Carcinoma SAI	1	0.7
Carcinosarcoma	1	0.7
Total	145	100

NOS: Not otherwise stated/NOS: Not specific.

In our study, adenomas constituted the majority of benign epithelial tumors. The PA was the main benign epithelial tumor, accounting for 93.1%. MEC and ACC were respectively the second and third most frequent tumors, likewise they were the most common malignant tumors, respectively 25.8% and 17.24%.

The other most common malignancies were acinar cell adenocarcinoma, epithelial–myoepithelial carcinoma, carcinoma ex-pleomorphic adenoma, and polymorphic adenocarcinoma (**Table 6**).

Table 6. Distribution of the proportion of benign or malignant tumors according to histological type.

Nature	Type	Tumor	N	% Benign or malignant
Epithelial tumors	Benign	PA	81	93.1
		Adenoma SAI	3	3.7
		Myoepithelioma	2	2.3
		TW	2	2.3
		MEC	15	25.86
		ACC	10	17.24
	Malignant	Acinar cell adenocarcinoma	6	10.3
		acinar cell adenocarcinoma		
		CEM	5	8.6
		Carcinoma ex PA	4	6.9
		Polymorphous adenocarcinoma	3	5.17
		CCC	2	3.44
		NOS adenocarcinoma	2	3.44
		Squamous cell carcinoma	2	3.44
Non-epithelial tumors	Large cell carcinoma	1	1.7	
	Carcinoma SAI	1	1.7	
	Carcinosarcoma	1	1.7	
	Hemangioma	2	2.3	
	Lymphoma	2	3.44	

Average age and sex ratio varied considerably depending on histological type. Parotid localization dominated for all types (**Table 7**).

Table 7. Distribution of average age of patients, sex ratio and main site according to histological type of tumor.

Histological type	Age (year)	Sex-ratio F/H	Principal localization
Pleomorphic adenoma	39.1	1,3	Parotid/SMG
Mucoepidermoid carcinoma	40.7	0.36	Parotid
Adenoid cystic carcinoma	51.5	9	Parotid

Continued

Acinar cell adenocarcinoma	52.4	2	Parotid
Epithelial-myoepithelial carcinoma	56.2	5	Parotid/GSA
Pleomorphic ex-adenoma carcinoma	68.5	0.33	Parotid
Polymorphous adenocarcinoma	62	0.5	Parotid
SAI adenoma	45.7	3/0	Parotid
Warthin tumor	46	1	Parotid
NOS adenocarcinoma	61.5	0/3	Parotid
Clear cell carcinoma	58.5	1	Parotid
Squamous cell carcinoma	73	1	Parotid
Hemangioma	43	1	Parotid
Lymphoma	59	1	Parotid
Myoepithelioma	24	2	Parotid/SMG
Undifferentiated malignant tumor	69	1	Parotid
Large cell carcinoma	63	0/1	Parotid
Carcinoma SAI	63	0/1	Parotid/GSA
Carcinosarcoma	54	0/1	Parotid

4. Discussion

According to literature data, **SGT** can occur at any age with a peak in the sixth and seventh decade, as shown in our study [1] [2]. In Africa, several series, including ours, show an average age between the third and fifth decade. Very often the sex ratio varies considerably depending on the studies, in favor of the female sex. According to WHO 2005 [1], women are more frequently affected but there are variations depending on the histological type [1]. This female predominance could be due to the fact that women are more numerous in the general population but also in our context, they consult more often than men due to the aesthetic changes caused by the expression of these tumors (**Table 8**).

The consultation period is generally long, as evidenced by our series and several studies, notably those of Diouf K [17], in Senegal and Diom ES *et al.* [18], in Brazil that of Takahama *et al.* [19], in Tunisia, that of Brahim *et al.* [20], which showed an average duration varying between 2 and 6 years.

This long delay that is generally observed is related to the asymptomatic nature, especially painless, with a latent evolution of these pathologies. In addition, in Senegal there is poverty, the lack of health infrastructure contrasting with easy access to care from traditional practitioners.

SGT are more frequently of interest to **MSGs**. The parotid is the most common location, followed by SMG and ASG, as evidenced by the literature. (**Table 9**) **GSLs** are rarely affected. The majority of **ASG** are located in the palate [1] [21], this may explain the preponderance of palatal **ASG** tumors.

Table 8. Comparison of the average age and sex ratio of TGS according to various series.

Study	Country	Year	Number of cases	Average age (years)	Ratio F/H
Satko I [5]	Slovakia	2000	1021	53	1.1
Moatemri R [6]	Tunisia	2008	156	43	1.05
Fassih M. [7]	Morocco	2014	148	51	1.4
Oukabli [8]	Morocco	2012	105	42	1.02
Ouedraogo AS [9]	Burkina Faso	1999	93	43	1.24
Traoré SI [10]	Mali	2013	61	36.2	1.5
Traoré AB [11]	Mali	2011	116	40.54	1.1
Diombana [12]	Mali	1996	60	37.87	1.06
Ben Gamra [13]	Tunisia	2013	208	42	1
Darré [14]	Togo	2015	180	36	1
Amana B [15]	Togo	2014	96	39	1.38
Fall I. [16]	Senegal	2015	76	37	1.23
Diouf K [17]	Senegal	2016	26	38	1.09
Notre étude	Senegal	2020	145	55.2	1.23

Table 9. Comparison of the location of TGS according to various series.

Study	Country	Parotid (%)	SMG (%)	SLG (%)	ASG (%)
OMS 2005 [1]		80	7-11	1	9-23
Bonfils P [3]	France	80	10-15	rare	5-10
Satko I [5]	Slovakia	83	10.8	3.2	3
Ben Gamra [13]	Tunisia	88.5	7.7	0	3.8
Moatemri [6]	Tunisia	60	16	0	24
Fassih M. [7]	Morocco	80	11	0	9
Oukabli [8]	Morocco	60	22	0	18
Ouedraogo AS [9]	Burkina Faso	55.91	32.26	1.08	8.60
Traoré AB [11]	Mali	40.54	20.66	12.93	25.87
Diombana ML [12]	Mali	65	20	0	11.67
Darré T [14]	Togo	55.56	31.67	3.88	8.89
Fall.I [16]	Senegal	59.37	28.12	9.37	3.12
Diouf K [17]	Senegal	65	31	4	
Notre étude	Senegal	74	14.4	0.7	11

The tumors are often epithelial in nature and predominantly benign, this fact being corroborated by different series (**Table 10**).

Table 10. Proportions of benign and malignant tumors according to the authors.

Authors	Country	T malignant (%)	T benign (%)
Diombana ML [12]	Mali	33	67
Sarradin, V [2]	France	30	70
Ah-Pine [22]	France	30	70
Darré T [14]	Togo	28	72
Amana B [15]	Togo	32	68
Satko I [5]	Slovakia	26	74
Fall. I [16]	Senegal	25	75
Fassih M. [7]	Morocco	24	76
Ben Gamra [13]	Tunisia	10	90
Traoré BA [11]	Mali	10	90
Notre Série	Senegal	40	60

Patients with malignant tumors are on average older than those with benign tumors, as noted by Ouedraogo AS [9], Oukabli *et al.* [8], Setti K *et al.* [23], who found an average age between 52.42 and 60 years for malignant tumors relatively higher than for benign tumors whose average age is between 34.05 and 43 years. Similarly, malignant tumors affect men more than women (43.8% vs 38%), corroborated by several studies. [6] [15] [23] The proportion of cancers is often much greater in the accessory salivary glands than in the main ones, as confirmed by our study. (Table 11) The frequency of malignant tumors would be inversely proportional to the size of the gland. It would be 20% - 30% in the parotid gland, 45% - 60% in the submandibular gland, 70% - 85% in the sublingual gland (SLG) and 49% - 80% in the accessory salivary glands [7].

Table 11. Proportions of malignant tumors according to location and authors.

Study	Pays	Parotid (%)	SMG (%)	SLG (%)	GSA (%)
Barnes <i>et al.</i> [1]	-	15 - 32	41 - 45	70 - 90	50
Bonfils P [3]	France	20	34	80 - 90	50
Satko I [5]	Slovakia	10	35		52
Moatemri R [6]	Tunisia	12	30	-	34
Fassih M [7]	Morocco	7	55	-	59
Oukabli [8]	Morocco	10	12	-	57
Notre étude	Senegal	38	23	100 (1cas/1)	66.6

PA is the most frequently encountered histological type, representing more than half of TGS, the first benign tumor, preferentially localized in the parotid and with a female predominance. These results are shared by several authors such as Bonfils P *et al.* [3], Archour I *et al.* [24]; Ouedraogo AS. [9]; Moartemri R *et al.* [6]; Illé S *et al.* [25] and El-Naggar *et al.* [26] who found a proportion of pleo-

morphic adenoma between 60% and 63% of all salivary tumors, associated with a female predominance.

MEC is the second most frequently found tumor, the first malignant tumor, preferentially localized in the parotid, with a large male predominance. This is consistent with several studies [1] [6] [18] [26] [27].

ACC is the third most frequently found tumor, the second malignant tumor, preferentially localized in the parotid, with a large male predominance. This is consistent with studies by El-Naggar *et al.* [26] and Badoual C *et al.* [27], in which ACCs account for just under 10% of SGTs and occur at all ages, with a peak frequency between 40 and 60 years of age. Other studies show that this histological type is the most common malignant tumor, with a female predominance, notably that of Setti K [23].

5. Limitations of the Study

This work could present limits which we were able to identify as follows.

- Was a retrospective descriptive study.
- Parameters such as address, contacts, medical history, smoking, alcohol consumption, radiation exposure, occupation, and family history were often missing, preventing a search for risk factors through multivariate analysis.
- Our study was limited to determining the epidemiological and anatomopathological profile of salivary gland tumors in Senegal by comparing malignant tumors with benign ones.
- We were unable to carry out the immunohistochemistry and molecular biology techniques which would have allowed respectively better diagnostic accuracy, and molecular typing.
- We were unable to have the necessary hindsight to assess the prognosis and precisely the survival of our patients given the duration of the study and missing information. Nevertheless, our study presents positive points.
- This is a multicenter study and the first to take into account both tumors of the major and minor salivary glands and benign or malignant tumors, to our knowledge in Senegal, hence its originality.

6. Conclusion

Primary salivary gland tumors are relatively rare in Senegal and are often diagnosed late. Older people, men, and people with lesions of the accessory salivary glands are more prone to developing cancer in our context. In perspective, a prospective study including the risk factor analysis, molecular alterations, and assessment of patient survival based on histological type and treatment protocols will enable better prevention and optimized care, respectively.

Conflicts of Interest

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

References

- [1] Barnes, L., Eveson, J., Reichart, P. and Sidransky, D. (2005) Pathology and Genetics of Head and Neck Tumors. In: Barnes, L., Eveson, J., Reichart, P. and Sidransky, D., Eds., *WHO Classification of Tumors, Flight 5*, CIRC Press, 209-281.
- [2] Sarradin, V., Siegfried, A., Uro-Coste, E. and Delord, J. (2018) WHO Classification of Head and Neck Tumors 2017: Main Novelties and Update of Diagnostic Methods. *Bulletin du Cancer*, **105**, 596-602. <https://doi.org/10.1016/j.bulcan.2018.04.004>
- [3] Bonfils, P. (2007) Salivary Gland Tumors. *EMC-Oto-Rhino-Laryngologie*, **20**, 628-640.
- [4] Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R.L., Torre, L.A. and Jemal, A. (2018) Global Cancer Statistics 2018: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA: A Cancer Journal for Clinicians*, **68**, 394-424. <https://doi.org/10.3322/caac.21492>
- [5] Satko, I., Stanko, P. and Longauerová, I. (2000) Salivary Gland Tumours Treated in the Stomatological Clinics in Bratislava. *Journal of Cranio-Maxillofacial Surgery*, **28**, 56-61. <https://doi.org/10.1054/jcms.1999.0092>
- [6] Moatemri, R., Belajouza, H., Farroukh, U., Ommezzine, M., Slama, A., Ayachi, S., *et al.* (2008) Epidemiological Profile of Salivary-Gland Tumors in a Tunisian Teaching Hospital. *Revue de Stomatologie et de Chirurgie Maxillo-Faciale*, **109**, 148-152. <https://doi.org/10.1016/j.stomax.2008.04.001>
- [7] Fassih, M., Abada, R., Rouadi, S., Mahtar, M., Roubal, M., Essaadi, M., *et al.* (2014) Salivary Gland Tumors, Epidemiological-Clinical Study and Anatomoradiological Correlation: Retrospective Study of 148 Cases. *Pan African Medical Journal*, **19**, Article 187. <https://doi.org/10.11604/pamj.2014.19.187.820>
- [8] Oukabli, M., Boudhas, A., Setti, K., Touri, S., Mouanis, M., Haddane, A., *et al.* (2012) Salivary Gland Tumors: Pathological Study of 105 Cases. *Journal Africain du Cancer*, **4**, 30-36. <https://doi.org/10.1007/s12558-012-0200-y>
- [9] Ouadraogo, A. (1999) Salivary Gland Tumors at the Yalgado Ouedraogo National Hospital Center. Doctoral Medicine Thesis, University of Ouagadougou.
- [10] Traoré, S. (2013) Retrospective Study on Salivary Gland Tumors in the Stomatology and Maxillofacial Surgery Department of the University Hospital of Dentist Stomatology (UHC-OS) of Bamako. Doctoral Medicine Thesis, University of Bamako.
- [11] Traoré, B.A. (2011) Retrospective Study on Salivary Gland Tumors in the Odon-to-Stomatology University Hospital Center of Bamako: About 116 Cases. Doctoral Medicine Thesis, University of Bamako.
- [12] Diombana, M.L., Mohamed, A., Kussner, H., Soumare, S., Pichard, E. and Penneau, M. (1996) Salivary Gland Tumors in the Stomatology Department of Kati Hospital (About 60 Cases). *Black Afrique Medicine*, **2**, No. 43.
- [13] Ben gamra, O., Hachicha, H., Béji, E., Hariga, I., Abid, W., Zribi, S., *et al.* (2013) Salivary Gland Tumors. About 208 Cases. *Annales Françaises d'Oto-Rhino-Laryngologie et de Pathologie Cervico-Faciale*, **130**, A149. <https://doi.org/10.1016/j.aforl.2013.06.466>
- [14] Darré, T., Amégbor, K., Boko, N., Bissa, N., Bagny, A. and Napo-Koura, G. (2009) His-to-Epidemiological Profile of Salivary Gland Tumors in Togo: About 180 Cases. *African Journal of Pathology*, **8**, 19-23.
- [15] Amana, B., Pegbessou, E., Boko, E., Agoda, P., Darre, T., Kpemissi, E., *et al.* (2014) Malignant Parotid Tumors: Epidemiology in Togo. *Revue de Stomatologie, de Chirurgie Maxillo-Faciale et de Chirurgie Orale*, **115**, 15-16.

- <https://doi.org/10.1016/j.revsto.2013.09.006>
- [16] Fall, I. (2015) Salivary Gland Surgery for Tumor or Inflammatory Pathology: 10-Year Review at the Ouakam Military Hospital. Doctoral Medicine Thesis, Cheikh Anta Diop University.
- [17] Diouf, K. (2017) Primary Tumors of the Main Salivary Glands. Experience of the ENT Department of the Regional Hospital Center of Ziguinchor from 2011 to 2016. Doctoral Medicine Thesis, UCAD.
- [18] Diom, E.-S., Thiam, A., Tall, A., Ndiaye, M., Toure, S. and Diouf, R. (2015) Profile of Parotid Gland Tumours: Experience of 93 Cases over a Period of 16 Years. *European Annals of Otorhinolaryngology, Head and Neck Diseases*, **132**, 9-12.
<https://doi.org/10.1016/j.anorl.2014.01.010>
- [19] Takahama Junior, A., Almeida, O.P.D. and Kowalski, L.P. (2009) Parotid Neoplasms: Analysis of 600 Patients Attended at a Single Institution. *Brazilian Journal of Otorhinolaryngology*, **75**, 497-501. <https://doi.org/10.1590/s1808-86942009000400005>
- [20] Brahim, E.B., Ferchou, M., Khayat, O., Zribi, S., Mbarek, C., Labbene, N., et al. (2010) Salivary Gland Tumors: Anatomico-Clinical and Epidemiological Study of a Series of 180 Cases. *Tunis Medical*, **88**, 240-244.
- [21] Gauzeran, D. (2011) Tumor Pathologies of the Accessory Salivary Glands. *Revue d'Odonto-Stomatologie*, **40**, 53-69.
- [22] Ah-Pine, F., Denize, T., Rousseau, A. and Badoual, C. (2017) IV-Salivary Glands. In: Adem, C. and Petit, T., Eds., *Memento de Pathology*, 5th Edition, Vernazobres-Grego, 69-82.
- [23] Setti, K., Mouanis, M., Moumni, A., Maher, M. and Harmouch, A. (2014) Epidemiological Profile of Primary Malignant Tumors of the Salivary Glands: About 154 Cases. *Pan African Medical Journal*, **17**, Article 117.
<https://doi.org/10.11604/pamj.2014.17.117.2939>
- [24] Achour, I., Chakroun, A., Ben Rhaiem, Z., Charfeddine, I., Hammami, B. and Ghorbel, A. (2015) Surgery for Pleomorphic Adenoma of the Parotid. *Revue de Stomatologie, de Chirurgie Maxillo-Faciale et de Chirurgie Orale*, **116**, 129-131.
<https://doi.org/10.1016/j.revsto.2015.04.005>
- [25] Illé, S., Timi, N., Moussa Mahamane, R., Kadre Alio, K. and Nouhou, H. (2016) Tumors of the Parotid Gland in Niger: Epidemiological, Clinical, and Histological Characteristics. *Health Sciences and Disease*, **17**, 63-66.
- [26] El-Naggar, A., Chan, J., Grandis, J., Takata, T. and Slootweg, P. (2017) WHO Classification of Head and Neck Tumors. 4th Edition, IARC Press, 159-202.
- [27] Badoual, C., Cros, J., Roussel, H., Wassef, M. and Cucherousset, J. (2013) Carcinomas of the Salivary Glands: Histological Description of the Major Histologic Subtypes. *Revue Francophone des Laboratoires*, **2013**, 55-61.
[https://doi.org/10.1016/S1773-035X\(13\)71890-2](https://doi.org/10.1016/S1773-035X(13)71890-2)