

Esophageal Cancer in a Sahelian Country (Chad): Epidemiological, Clinical and Histological Aspects

Nemian Meurde¹, Mayanna Habkreo^{2*}, Mbaiganguem Morbe¹, Mairé Dehainsala², Mahamat Ali Hachim², Adraman Kosso¹, Adama Ahmed Ngare², Ali Mahamat Moussa²

¹Anatomy and Pathological Cytology Unit, Teaching Hospital Reference National, N'Djamena, Chad

²Department of Internal Medicine and Gastroenterology, Teaching Hospital Reference National, N'Djamena, Chad

Email: *mayannahabkreo@yahoo.fr

How to cite this paper: Meurde, N., Habkreo, M., Morbe, M., Dehainsala, M., Hachim, M.A., Kosso, A., Ngare, A.A. and Moussa, A.M. (2024) Esophageal Cancer in a Sahelian Country (Chad): Epidemiological, Clinical and Histological Aspects. *Open Journal of Gastroenterology*, **14**, 431-437. <https://doi.org/10.4236/ojgas.2024.1411044>

Received: September 13, 2024

Accepted: November 26, 2024

Published: November 29, 2024

Copyright © 2024 by author(s) and Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Introduction: Esophageal cancer is a serious pathology with a generally poor prognosis. Diagnosis is histological and based on endoscopic sampling. The aim of our study is to determine the epidemiological, clinical and morphological aspects of esophageal cancers in N'Djamena, Chad. **Methodology:** This is a descriptive, cross-sectional and analytical study from 2014 to 2024, *i.e.* a 10-year period. All cases of esophageal cancer with histological confirmation included histological findings. Biopsies were in all cases per endoscopic and were obtained from the Gastroenterology Department of the National General Reference Teaching Hospital of N'Djamena. **Results:** Thirty-seven cases of esophageal cancer out of a total of 1523 were diagnosed at the CHU RN laboratory of pathology. The cases were predominantly male, with an M/F sex-ratio of 1.6. The predominant age range was between 50 and 70 years, with an average age of 55.2 ± 17.2 years. Dysphagia was the most common clinical symptom, accounting for 56.76% of cases. Macroscopically, ulcerative lesions predominated at 51.35%. The upper two-thirds of the oesophagus was the most frequent site, with 72.97%. In histology study, squamous cell carcinoma was the dominant type with 75.68%, followed by adenocarcinoma. **Conclusion:** Esophageal cancer is a frequent pathology encountered at Reference National Teaching Hospital, affecting mainly men over the age of 50. Diagnosis is histological.

Keywords

Esophageal Cancer, Epidemiology, Histology, Clinical, CHU-RN, N'Djamena

1. Introduction

Esophageal cancer is a highly aggressive tumor pathology, and one of the cancers with the poorest prognosis. According to GLOBOCAN, it ranks 4th among digestive cancers in terms of incidence worldwide. Geographically, 80% of new cases worldwide originated in sub-Saharan Africa [1].

In 2012, studies found more than 27,500 cases of esophageal cancer in Africa [2]. The main risk factors for the occurrence of this cancer are tobacco, alcohol, gastro-oesophageal reflux disease and obesity [3].

In developing countries, a diet low in trace elements, as well as human papillomavirus infestation, appear to be additional risk factors [4]. These factors also influence histological type. Squamous cell carcinoma, the most common type, is associated with alcohol and tobacco consumption, while adenocarcinoma is linked to gastro-oesophageal reflux and Barret's oesophagus [5]. Esophageal cancer ranks 6th among all cancers in terms of deaths, making it one of the most aggressive cancers [2]. The incidence of esophageal cancer has risen over the last thirty years, with a rapid increase in esophageal and junctional adenocarcinoma in Western industrialized countries [6]. Despite continuing improvements in the diagnosis and treatment of this aggressive disease, the overall 5-year survival rate varies from 15 to 20% [7]. The poor prognosis is correlated with late discovery and also with an altered terrain associated with comorbidities. In Chad, according to data from the N'Djamena Cancer Registry, esophageal cancer ranks fifth among cancers in men, and tenth among women.

We undertook this study at the National General Reference Teaching Hospital of N'Djamena. in order to determine the epidemiological, clinical, histological and morphological aspects, which will be compared with the data in the literature.

2. Materials and Methods

We conducted a descriptive and analytical cross-sectional study from 2014 to 2024, a 10-year duration. This study was carried out at the Anatomy and Pathological Cytology Unit and the Gastroenterology Department of the National General Reference Teaching Hospital of N'Djamena.

The National General Reference Hospital is one of the largest hospitals in the Republic of Chad. It acts as a teaching hospital. It receives referrals from regional and district hospitals.

These were esophageal biopsies taken during endoscopy, mostly from the CHU-RN gastroenterology department, but also from other hospitals and clinics in N'Djamena.

All cases of esophageal cancer with histological confirmation and complete epidemiological, clinical and endoscopic data were included. Not included were all cases of secondary esophageal cancer and all cases of otoryngology or esophageal neighborhood cancer.

Data were collected using a pre-established form containing socio-demographic (age, sex), clinical and morphological data (site, endoscopic and histological

appearance of the lesion). This was an exhaustive collection of all esophageal biopsy cases received in the laboratory and diagnosed as cancer. Data entry was performed using Word and Excel, and analysis was performed using SPSS11.0. The statistical test used was the chi2 test to compare our results with a significant value of $p < 0.05$.

To carry out this work, we obtained Clearance study from the heads of the hospital and from School of Medicine. The confidentiality of the data must be respected.

3. Results

Of the 1523 cases of cancer collected during the study period, we recorded 37 cases of oesophageal cancer, representing a percentage of 2.42%. Patient ages ranged from 22 to 80 years, with an average of 54.2 ± 17.2 years. In this study, we noted a male predominance, with a sex ratio of 1.6. The most frequent clinical symptom was dysphagia, with a rate of 56.8. The most common endoscopic lesion was the ulcerating-bourgeoning form, with a rate of 51.4%. Lesion sites were the upper two-thirds of the oesophagus in 73.0% of cases, and the lower third in 27%. The histological study found: squamous cell carcinoma was the most common histological type of cancer, accounting for 75.7%. In our series, poorly differentiated and well-differentiated carcinomas were equally represented, with 40.5% and 37.8% of cases respectively. Female subjects were affected earlier than males ($p = 0.036$) (Table 2). Male subjects were most affected by squamous cell carcinoma, while adenocarcinoma affected both sexes ($p < 0.001$). The upper two-thirds of the oesophagus were the areas of predilection for squamous cell carcinoma, whereas the lower third was the site of adenocarcinoma ($p < 0.001$). Table 1 summarizes the socio-demographic characteristics and mode of discovery and the table distribution of cancer cases by age group and patient gender.

Table 1. Summary of socio-demographic characteristics and mode of discovery.

Sex	N	%
Male	23	62.2
Female	14	37.8
Ages (years)		
<50	08	21.6
50 - 70	18	48.7
>70	11	29.7
Overdraft circumstances		
Dysphagia	21	56.8
Epigastralgia	10	27.0
Hematemesis	06	16.2

Table 2. Distribution of cancer cases by age group and patient gender.

Age	Sex				Statistic	
	Male n %	Female n %	Total	chi ²	P	
<50 years	2 8.7	6 42.8	8	6.65	0.036	
50 - 70 years	12 52.2	6 42.8	18			
>70 years	9 39.1	2 14.4	11			
Total	23 100	14 100	37			

4. Discussion

This study recorded an esophageal cancer incidence rate of 2.42% out of a total of 1523 cancer cases observed. Over a ten-year period, 37 cases of cancer were recorded, *i.e.* 3.7 cases per year. This situation shows that esophageal cancer is a rare pathology in Chad, although far from reflecting reality. These results corroborate the literature, which reports a low prevalence of esophageal cancer in Africa, especially in the West and Central regions [5] [8] [9].

Esophageal cancer is a rare pathology before the age of 40. The 50 - 70 age group is the most common (48.7%). The mean age of patients was 54.2 ± 17.2 years, with extremes of 28 and 80 years. Our results are close to those of Kpoussou R who found respectively 54 ± 14.1 years with age extremes ranging from 16 to 96 years [8]. The risk of developing cancer increases with age. This is especially true for the most common cancers, such as breast cancer in women, prostate cancer in men, and colorectal cancer in both sexes. These phenomena largely linked to the **mechanisms that lead healthy cells to become cancerous**: malignant transformation involves the accumulation of damage in the genetic material (DNA) of healthy cells. The more time passes, the greater the number of lesions caused by prolonged exposure to risk factors that can accumulate in our cells.

In our study, there was a clear male predominance with a sex ratio of 1.6. This result is lower than that of Beloko W from Cameroon and Randrianambina F from Madagascar, who found 2.49 and 2.9 respectively [9] [6].

The observed male predominance of esophageal cancer is common in all geographical regions. However, this result varies from one region to another. Male predominance seems to increase with age, according to a Senegalese study which found a sex ration of 1.1 in the fifties and a sex ration of 4 after the age of 70 [10]. In our country, this predominance is probably linked to the consumption of alcohol and tobacco, which are the main risk factors. Correlating the age groups with the sex of the patients, it emerges that female subjects are affected slightly younger. This may be explained by women's frequent exposure to other factors linked to cancer occurrence, such as stress, hormonal hypersecretion and weight gain. Dysphagia was the main clinical manifestation, with a rate of 56.8%. This result is close to that of Bouglouga O in Togo [11], whose study found dysphagia in 58.33% (n = 14), followed by epigastralgia (20.84%). Our rate is below that of Charfi ME

of Dakar, 87.1% [10]. It is recognized that esophageal cancer is most often manifested by dysphagia, which is a progressive and persistent sensation of discomfort or blockage during swallowing. Generated by the tumor, this is the most frequent symptom, particularly in the advanced stages of the disease. The ulcerating-bourging lesion was the most common, with a rate of 51.4%. This predominance of ulcerating-budding lesions was also found by Dia D in Senegal and Bouglouga O in Togo, in proportions of 42.1% and 75% of cases respectively [5] [11]. Budding lesions are typical of hollow organs. The more space there is, the greater the malignant proliferation, resulting in a mass bulging into the lumen. The ulcerated appearance is linked to the extent of the inflammatory reaction, which is polymorphous. The two aspects are most often associated, especially as the tumor site may communicate with the outside world.

In this study, the preferred location was the upper two-thirds, with 73.0%. This situation is reversed by other authors: Azghari in Morocco and Bekolo W in Cameroon found that the main tumor location was the lower third, with 74%, 55.17% and 44.9% of cases respectively [9] [12]. In contrast to other authors, the presentation of esophageal seats is divided into two classes according to the histological configuration of the esophageal mucosa. The lower 1/3 is similar to a glandular structure, and two tumour histological types are distinguished depending on whether the lesion is located in the upper 2/3 or the lower 1/3 of the oesophagus.

Of the 37 cases of esophageal cancer recorded in our study, squamous cell carcinoma was the most common histological type, with a rate of 75.7%, followed by adenocarcinoma (21.62%). This same result has been reported by other authors. Bekolo W in Cameroun, Alassani F in Togo and Savom P reported a predominance of squamous cell carcinoma over 50% [9] [13] [14]. According to the literature, squamous cell carcinoma remains the most frequent histological type of esophageal cancer, although the situation tends to reverse in northern countries. These two entities differ according to the risk factors for occurrence and location. For the first, which is located in the upper 2/3 of the esophagus, the risk factors are smoking, alcohol consumption and HPV infection. Adenocarcinoma in the lower oesophagus, which develops in the cells that produce and release mucus and other fluids, is associated with gastro-oesophageal reflux leading to glandular metaplasia, and obesity. In African's studies south of the Sahara, although there is a high frequency of gastroesophageal reflux disease, there are few lesions of the severe esophagitis type, with the risk of Barrett's esophagus progressing to adenocarcinoma.

Despite the size of our sample, there was an association between the histological type of lesion and the sex of the patient ($p < 0.001$). As mentioned above, the predominance of squamous cell carcinoma in men can be explained by the fact that exposure to factors such as excessive alcohol consumption and smoking is more common in men than in women. Similarly, the correlation between the histological type of cancer and the site of the lesion ($p = 0.00$) is due to the histological structure of the organ. The lining is epidermoid, but the lower esophagus is much

more glandular and also the site of cylindrical metaplasia. In terms of tumour differentiation, poorly differentiated carcinomas account for the majority, with a rate of 40.5%, followed by well-differentiated carcinomas (37.8%). This tumor differentiation indicates the aggressive nature of the cancer. The more well-differentiated the tumour, the less aggressive it is. In our study, 40.54% of tumor cases could have an unfavorable prognosis. This is in line with the literature, which characterizes esophageal cancer as having a poor prognosis [1].

5. Conclusion

Esophageal cancer is a low-frequency pathology encountered in Chadian context. Endoscopy and histology are essential for diagnosis. However, the sites and differentiations observed do not promise patients a favorable prognosis. Further study is needed to provide further information.

Conflicts of Interest

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

References

- [1] Ferlay, J., Soerjomataram, I., Dikshit, R., Eser, S., Mathers, C., Rebelo, M., *et al.* (2014) Cancer Incidence and Mortality Worldwide: Sources, Methods and Major Patterns in GLOBOCAN 2012. *International Journal of Cancer*, **136**, 359-386. <https://doi.org/10.1002/ijc.29210>
- [2] Veziat, J., Bouché, O., Aparicio, T., Barret, M., El hajbi, F., Lepilliez, V., *et al.* (2023) Esophageal Cancer—French Intergroup Clinical Practice Guidelines for Diagnosis, Treatments and Follow-Up (TNCD, SNFGE, FFCD, GERCOR, UNICANCER, SFCD, SFED, SFRO, ACHBT, SFP, RENAPE, SNFCP, AFEF, SFR). *Digestive and Liver Disease*, **55**, 1583-1601. <https://doi.org/10.1016/j.dld.2023.07.015>
- [3] Zhang, Y. (2013) Epidemiology of Esophageal Cancer. *World Journal of Gastroenterology*, **19**, 5598-5606. <https://doi.org/10.3748/wjg.v19.i34.5598>
- [4] Ludmir, E.B., Stephens, S.J., Palta, M., Willet, C.G. and Czito, B.G. (2015) Human Papillomavirus Tumor Infection in Esophageal Squamous Cell Carcinoma. *Journal of Gastrointestinal Oncology*, **6**, 287-295.
- [5] Dia, D., Bassène, M.L., Ndiaye-Bâ, N., Halim, A., Diallo, S., Fall, S., *et al.* (2011) Endoscopic Aspects of Esophageal Cancer in Dakar (Senegal): A Study of 76 Observations. *Medecine Tropicale*, **71**, 286-288.
- [6] Randrianambinina, F., Randrianambinina, H., Razafimanjato, N., Randriamanalina, H. and Rakotova, H. (2020) Difficulties in the Management of Esophageal Cancers in Madagascar. *Revue Tropicale de Chirurgie*, **13**, 17-21.
- [7] Christian, A.S., *et al.* (2015) Esophageal Cancer from a Surgical Perspective. *Swiss Medical Forum*, **15**, 82-85.
- [8] Kpossou, A. (2020) Épidémiologie des cancers digestifs primitifs de l'adulte dans trois centres sanitaires spécialisés de Cotonou (République du Bénin). *Bulletin de la société de pathologie exotique*, **113**, 254-257. <https://doi.org/10.3166/bspe-2020-0152>
- [9] Bekolo, W., Bagnaka, E., Ndamba, E., Mbassi, D., Mayeh, A., Atenguena, E., *et al.* (2019) Prognostic Factors for Esophageal Cancer in Cameroon: A Multicenter Study. *Pan African Medical Journal*, **33**, Article 73.

- [10] Charfi, M.E., Bagué, A.H., Ahmed Awaleh, A., Ka, S. and Dem, A. (2021) Profil épidémiologique des cancers de l'œsophage à l'Institut Joliot Curie de Dakar en 2018. *African Journal of Oncology*, **1**, 25-26. <https://doi.org/10.54266/ajo.1.1.24.24>
- [11] Lawson-Ananissah, L.M., Bouglouga, O., Bagny, A., Kaaga, L. and Redah, D. (2014) La fibroscopie digestive haute chez 2795 patients au centre hospitalier universitaire-campus de Lomé: les particularités selon le sexe. *Pan African Medical Journal*, **19**, Article 262. <https://doi.org/10.11604/pamj.2014.19.262.4512>
- [12] Azghari, I., Boukir, A., Errabih, I., Benzoubeir, N., Ouazzani, L. and Ouazzani, H. (2016) Cancer de l'œsophage: Profil épidémiologique, caractéristiques endoscopiques et thérapeutiques dans un centre hospitalier marocain, étude sur 10 ans. *Journal Africain d'Hépatogastroentérologie*, **10**, 129-131. <https://doi.org/10.1007/s12157-016-0662-8>
- [13] Alassani, F., Sakiye, A.K., Tchangai, B., Amouzou, B., AmaviK, A.K. and dabra, E.D. (2021) Cancers of the Esophagus at the Chu Sylvanus Olympio de Lome: Diagnostic and Therapeutic Aspects. *Journal de la Recherche Scientifique de l'Université de Lomé*, **23**, 1-3.
- [14] Savom, P., Bang, G., Biwole, D., Djopseu, K., Sosso, M., Boukar, Y., et al. (2022) Epidemiological, Clinicopathological and Evolutionary Characteristics of Oesophageal Cancer Surgery Patients in Cameroon. *Revue de Médecine et de Pharmacie*, **11**, 1-5.