

## Research Article

Open Access, Volume 2

# What is the place of surgery in the management of digestive cancers in Cameroon (Central Africa)? A study of a national cohort of 582 patients

Guy Aristide Bang<sup>1,2</sup>; Georges Bwelle Moto<sup>1,3</sup>; Joseph Cyrille Tchopkeng Ngoumfe<sup>3</sup>; Daniel Biwole<sup>1,3</sup>; Eric Patrick Savom<sup>1,4</sup>; Yannick Mahamat Ekani Boukar<sup>5</sup>; Pierre René Binyom<sup>6</sup>; Amanda Marlène Missi<sup>7</sup>; Arthur Essomba<sup>1,2</sup>

<sup>1</sup>Department of Surgery and Specialities, Faculty of Medicine and Biomedical Sciences of the University of Yaoundé I, Cameroon.

<sup>2</sup>Yaoundé' University Teaching Hospital, Cameroon.

<sup>3</sup>Yaoundé' Central Hospital, Cameroon.

<sup>4</sup>Yaoundé' General Hospital, Cameroon.

<sup>5</sup>Department of Surgery, Faculty of Health Sciences of the University of Buea, Cameroon.

<sup>6</sup>Higher Institute of Medical Technology, Cameroon.

<sup>7</sup>Department of radiology, Yaoundé University Teaching Hospital, Cameroon.

### \*Corresponding Author: Bang Guy Aristide

Yaoundé University Teaching Hospital, Cameroon.

P.O.Box: 1364, Yaoundé, Cameroon.

Email: guyaristidebang@yahoo.fr

### Abstract

**Background:** Digestive cancers are frequent in Africa but little studied. The aim of this report was to determine the place of surgery in the management of patients with digestive cancer through a national Cameroonian (central Africa region) cohort.

**Methods:** We conducted a cross sectional study over a 12 months' period in 15 reference hospitals over the 10 regions of Cameroon. We collected files of patients aged 15 and above with a diagnosis of primary digestive cancer. The main studied variables were: the indication or not of surgery at diagnosis, the type of surgery indicated (curative/palliative) and the reasons for not performing this surgery if any.

**Results:** We recorded 582 patients with a mean age of  $53.11 \pm 17.26$  years. There was a male predominance (280 cases, 58.1%). The most frequent cancers localizations were hepatic (n=250, 42.9%), colorectal (n=145, 24.9%) and gastric (n=83, 14.2%). At diagnosis the cancer was metastatic for 415 patients (71.3%). An indication for surgery was done for 304 patients (52.2%) with a palliative goal in 34.9% of cases. Finally, surgery was implemented in only 189 cases (32.5%). The main reasons for not performing surgery were: non-indication for 278 patients (70.7%), patient' financial limitations in 47 cases (11.9%) and the choice to be treated by traditional healers (n= 32, 8.2%).

**Conclusion:** In Cameroon, a little more than one third of the patients with a diagnosis of a digestive cancer are operated, mainly because of delayed diagnosis, financial limitations and bad beliefs on illness. This marginal place of digestive surgical oncology in our setting need to be improved by the setting up of an efficient national cancer plan.

Received: Dec 21, 2021

Accepted: Feb 09, 2022

Published: Feb 16, 2022

Archived: www.jjgastro.com

Copyright: © Bang GA (2022).

**Keywords:** digestive cancer; surgical oncology; clinical epidemiology; low income setting; africa.

**Citation:** Bang GA, Moto GB, Ngoumfe JCT, Biwole D, Savom EP, et al. What is the place of surgery in the management of digestive cancers in Cameroon (Central Africa)? A study of a national cohort of 582 patients. *Japanese J Gastroenterol Res.* 2022; 2(3): 1060.

## Background

Cancer is a major public health issue worldwide. The global cancer incidence in 2020 was 19.3 million with 10 million deaths [1]. A tenth of deaths worldwide is associated with cancer related causes [2,3]. Digestive cancers are among the most frequent and lethal cancers. Colorectal cancer, for example, is the third most common cancer in the world after breast and lung cancer; it's also the second leading cause of cancer-related death in the world [1]. In Africa, the incidence of cancers is of 847,000 new cases and 591,000 deaths (7.2% of the total worldwide) related to tumors [4]. Digestive cancer are also frequent in Africa [5] some authors believe that these numbers are underestimated, due to the lack of national cancer registers [6]. In Cameroon, our country, the annual incidence is of 15,000 cases [7]. Surgery remains a major means in cancer therapy worldwide. However, in Africa, the majority of digestive tumors are managed with a palliative surgery due to late diagnosis with a high prevalence of metastatic forms [8-10]. In our country, dedicated studies are limited to two cities in the country [11-13], and seem to indicate the same trend. We therefore undertook this work in all the ten regions of our country, with the aim to participate in updating data on digestive cancers in our environment in general and more specifically to study the place of surgery in the management of these patients.

## Patients and Methods

This was a cross sectional study, with a retrospective data collection, conducted over a period of 12 months from May 1st 2014 to April 30th 2015 in 15 health structures over the 10 national regions of Cameroon:

- Central region: Yaoundé central hospital, university teaching hospital Yaoundé, Yaoundé general hospital, Essos hospital centre,
- Littoral: Douala general Hospital, Laquintinie hospital
- South west : Buea regional hospital,
- West: Bafoussam regional hospital,
- East: Bertoua regional hospital,
- North: Garoua regional hospital,
- Adamawa: Ngaoundere regional hospital
- South: Ebolowa regional hospital,
- Far North: Maroua regional hospital,
- Northwest: Bamenda regional Hospital and Mbingo Baptist hospital

These hospitals are national reference health structures, located at the top of the health pyramid in their geographical area and even in the central African region for some of them. We included patients aged 15 years and above, with a histologically confirmed diagnosis of primitive digestive cancers. These patients were identified from consultation/hospitalization registers and operating reports. Their files were consulted

to complete the standardized data collection form. Duplicates, unusable files, tumors of the oral cavity, tongue and oropharynx were excluded. Gynecological, urological and retroperitoneal cancers were not included. Studied variables were: patients' age and sex, cancer risk factors, delay from symptoms onset to consultation, tumors localization and histology, the indication or not of surgery (at diagnosis), the type (curative or palliative) of surgery indicated and the reasons for not performing this surgery if any. Data was analysed using SPSS version 20.0. Continuous variables with a normal distribution were described using means  $\pm$  standard deviations and categorical variables were reported as counts and percentages. Administrative authorisations were obtained from the various health facility review boards and ethical clearance from the University of Douala institutional review board.

## Results

We collected a total of 582 patients out of 37,780 consultations /admissions during the study period, giving a prevalence of 1.5%. There was a male predominance with 280 cases (58.1%). The mean age was  $53.11 \pm 17.26$  years (range, 15-99 years); 33.8% of patients were below 45 years, the age group 55-65 years being the most represented. Table 1 presents the repartition of patients according to age group. HIV serology was positive in 10.9% of patients (n=64). The following cancers risks factors were found: regular consumption of smoked foods (66.2%), hepatitis B (35.5%), hepatitis C (35.1%), alcoholism (15.5%) and smoking (10.1%). The mean duration between onset of symptoms and consultation was 5.99 months (range, 1-60 months). The most frequent cancers localizations were hepatic (n=250, 42.9%), colorectal (n=145, 24.9%) and gastric (n=83, 14.2%). Table 2 summarises the cancers localization. Histologic types registered were: carcinoma (n=315, 54.1%), adenocarcinoma (n=259, 44.5%), lymphoma (n=6, 1.1%), leiomyosarcoma (n=1, 0.1%) and angiosarcoma (n=1, 0.1%). At diagnosis the cancer was metastatic for 415 patients (71.3%). An indication for surgery was done for 304 patients (52.2%); it was a palliative surgery in 106 cases (34.9%) and a curative one for 198 patients (65.1%). When indicated, surgery was performed for only 189 patients (62.2%); Thereby, only 32.5% of the patients diagnosed of a digestive cancer were operated.

Among the 393 patients who were not operated, the main reasons for not performing surgery were (Table 3): non-indication for 278 patients (70.7%), financial inability to support the costs of surgical intervention in 47 cases (11.9%) and the choice to be treated by traditional healers (n= 32, 8.2%).

## Discussion

We conducted this study with the aim of determine the place of surgery in the management of digestive cancers in a national cohort of a low-income country, Cameroon. With 582 cases over a 1-year period, this study has one of the largest samples on digestive cancers in our country. The strength of this study lies in the fact that it covered all 10 regions of our country. We therefore think that it gives us a vision close to reality on this topic in our country. Digestive cancers, even with a low hospital incidence (1.5% in this report) are a reality in our context; this

**Table 1:** Repartition of patients according to age.

Age	Effective n=582	Percentage (%)
[15-25]	33	5.6
[25-35]	66	11.3
[35-45]	98	16.8
[45-55]	85	14.6
[55-65]	133	22.8
[65-75]	108	18.5
≥75	59	10.1

**Table 2:** Cancer localizations.

Localization	Number	Percentage (%)
Liver	250	42.9
Colorectal	145	24.9
Stomach	87	14.2
Oesophagus	14	2.4
Pancreas	58	9.9
Anus	17	2.9
Small intestine	6	1.2
Bile ducts	8	1.3
Mesenteric	2	0.3

**Table 3:** Reasons for non-operation of patients diagnosed with digestive cancer.

Reason	Number	Percentage (%)
Non-indication of surgery	278	70.7
Financial limitations	47	11.9
Choice of traditional healers	32	8.2
Choice of treatment through prayers	18	4.6
Fear of surgery	11	2.8
Unspecified	7	1.8

prevalence is lower than that of other African studies which reports rates varying from 12.7 to 37% [14].

This study confirms that digestive cancer in Africa affects more male than female [14-19] and most often young adults with a mean age under 50 years [20,21]. In western studies digestive cancers occur later, the 60-70 years' age group being the most affected [22-25]. A hereditary component to digestive cancers has already been advocated in our environment [26]. However, the low availability of immunohistochemical analyzes and the absence of oncogenetic consultation does not allow us to support this hypothesis to date. Liver cancer was the most common digestive cancer (43.5%) in our series as in another reports in our country [27,28]. This prevalence of liver cancer can be related to the high proportion of hepatitis B and C observed in our patients. Indeed, chronic hepatitis B and C infection are the most important causes of hepatocellular carcinoma, accounting for 80% of hepatocellular carcinoma cases globally [29,30]. Special attention should therefore be placed on the fight against viral hepatitis in Africa, especially when it's known

that almost 85% of liver cancer cases are estimated to occur in low-resource or middle-resource countries, particularly in Eastern Asia and sub-Saharan Africa [29,31]. Colorectal cancer was the 2nd commonest tumour in our study. It is one of the most widespread and frequent cancers worldwide and one of the most fatal; Approximately 1,235,108 cases are diagnosed each year and approximately 609,051 annual death cases, relating thereto, are recorded [32]. As in others series [33-38], gastric tumors were in the top three most frequent digestive tumors.

This study shows the marginal place of surgery in the management of patients with digestive cancers in our setting, only 32.5% of them being operated. Previous work carried out in our context found a great variability in the rate of patients operated, depending on the tumor location; this was 40% for gastric tumors [12], 50.5% for pancreatic tumors [11] and 79.6% for colonic tumors [39]. These relatively high ratios could be explained by the fact that these studies took place in the two main cities of the country; in this national cohort study, this rate is therefore lower. The main reason for non-operation highlighted in this work, as in previous work [11,12,39], is delayed consultation, with predominance of metastatic forms at diagnosis. The mean duration from symptom onset to consultation was about 6 months in this report and 71.3% of the cancers were already metastatic at diagnosis. The fight against the risk factors for digestive cancers clearly identified in this series and the setting up of an early detection cancer program is therefore imperative. Organization of education campaigns of the population on digestive cancers is also important. In fact, after the diagnosis of digestive cancer, 8.2% of our patients left the hospital to be treated by traditional healers and 4.6% by prayers. The socio-cultural interpretation of the disease in Africa is most often related with witchcraft or bad luck; patient's first reflex is then to visit a traditional healer who will ward off this bad luck through ritual sacrifices and indigenous treatments [40-42].

Health financing is another limitation to the implementation of digestive surgical oncology identified in this study. In fact, 11.9% of patients did not have an operation due to financial limitations. In a country where the mean salary is 36,000 F CFA (55 euros) and universal health insurance is absent, it is not surprising that a patient cannot support the multiple expenses linked to surgery and its related therapies (chemotherapy, radiotherapy). Health financing is another limitation to the implementation of digestive surgical oncology identified in this study. In fact, 11.9% of patients did not have an operation due to financial limitations. In a country where the mean salary is 36,000 F CFA (55 euros) and universal health insurance is absent, it is not surprising that a patient cannot support the multiple expenses linked to surgery and its related therapies (chemotherapy, radiotherapy).

### Conclusion

Digestive cancers are quite common in Cameroon, representing 1.5% of hospitals consultation/admission. They affects mostly young male adults and liver cancer is the most frequent localisation. A little more than one third of the patients with a diagnosis of a digestive cancer are operated due mainly to a delayed diagnosis, financial limitations and bad beliefs on illness. Setting up of an efficient national cancer plan that will response to all these obstacles is urgent to improve the prognosis of such patients.

## Declarations

**Conflicts of interests:** The authors declare no conflict of interests.

**Funding sources:** None, authors' support.

## References

1. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin.* 2021; 71: 209-249.
2. OMS, Centre International de Recherche sur le Cancer. Dernières statistiques mondiales sur le cancer. Communiqué de presse N°223, 12 décembre. 2013; 1-3.
3. OMS. Principales causes de mortalité dans le monde. Aide-mémoire N° 310, Mai. 2014; 1-5.
4. Parkin DM, Bray F, Ferlay J, Jemal A. Cancer in Africa 2012. *Cancer Epidemiol Biomarkers Prev.* 2014; 23: 953-66.
5. Ferlay J, Steliarova-Foucher E, Lortet-Tieulent J, Rosso S, Coebergh JWW, Comber H, et al. Cancer incidence and mortality patterns in Europe: Estimates for 40 countries in 2012. *Eur J Cancer.* 2013; 49: 1374-403.
6. Crocker-Buque T, Pollock AM. Appraising the quality of sub-Saharan African cancer registration systems that contributed to GLOBOCAN 2008: a review of the literature and critical appraisal. *J R Soc Med.* 2015; 108: 57-67.
7. E Orock GE Enow, Paul Ndom, As Doh. Current cancer incidence and trends in Yaounde, Cameroon. *OGH Rep.* 2012; 1: 58-63.
8. Karayuba R, Armstrong O, Bigirimana V, Ndarugirire F, Ngendahayo L, Marerwa G et al. Le traitement chirurgical des cancers gastriques au chu de Kamenge (bujumbura). A propos de 53 cas. *Med Afr Noire.* 1993; 40: 605-608.
9. Ouedraogo S, Kambire JL, Zoungrana SL, Ouattara DZ, Bambara B et al. Profil épidémiologique, clinique, histologique et thérapeutique des cancers digestifs primitifs dans les régions nord et est du Burkina Faso. *Bull Cancer.* 2018; 105: 1119-1125.
10. Konaté I, Sridi A, Ba PA, Cissé M, Gaye M, Ka I et al. Étude descriptive des cancers colorectaux à la clinique chirurgicale du CHU Aristide Le Dantec de Dakar. *J Afr Cancer.* 2012; 4: 233-237.
11. Bang GA, Savom EP, Bwelle Moto G, Nana Oumarou B, Ekani Boukar YM, Madoum Kamte DD et al. Pancreatic head cancer in Cameroon: clinical epidemiology and survival. A retrospective study of 105 cases. *Surg Chron.* 2021; 26: 274-278.
12. Bang GA, Savom EP, Oumarou BN, Mboupda Ngamy CK, Bwelle Moto G, Ekani Boukar YM et al. Clinical epidemiology and mortality risk factors of gastric cancer in a sub-Saharan African setting: a retrospective analysis of 120 cases in Yaoundé (Cameroon). *Pan Afr Med J.* 2020; 37: 104.
13. Savom EP, Bang GA, Biwole Biwole D, Djopseu LK, Ekani Boukar YM, Etobe CMT. Caractéristiques épidémiologiques, clinico-pathologiques et évolutives des patients opérés de cancer de l'œsophage au Cameroun. *Rev Med Pharm.* 2021; 11: 1232-1236.
14. Ayite AE, Dosseh E, Senah K, Etey K, Napo-Koura G, James K. Épidémiologie descriptive des cancers digestifs au Togo. *Journal Africain de Chirurgie Digestive.* 2001; 1: 10-6.
15. Guemne TA, Ndjitoyap Ndam EC, Mbakop A, Michel G, Njoya O, Abondo A et al. Les cancers digestifs au Cameroun. Résultats préliminaires. *Méd Chir Dig.* 1990; 19: 301.
16. Diarra Cheick A. Épidémiologie des cancers digestifs en milieu hospitalier. Thèse De Doctorat En Médecine. Université De Bamako. 2009; 113.
17. Mamoudou G, Hami Hinde, Soulaymani, Abdelmadjid, Quyou Ali. Les cancers digestifs au Niger. Fréquence relative sur une étude rétrospective de 1992 A 2009. *European Scientific Journal.* 2014; 10:39-49.
18. Segol PH, Verwaerde JC, Fournir JL. Notions fondamentales et diagnostiques. *Encycl Med Chir (Paris) Gastroenterol* 1994; 10: 9-027.
19. El Housse H, Ajbara W, Amsaguine S, El Amrani N, Drissi H, Ahalat M et al. Profils épidémiologique et anatomoclinique d'une population marocaine atteinte de cancer colorectal. *J Afr Cancer.* 2015; 7: 95-99.
20. Ngo-Nonga B, Mouafo Tambo F, Farikou I, Fouda JP, Ngowe Ngowe M, et al. Problématique du traitement du cancer rectal localement invasif dans un pays avec des ressources médicales limitées. *Louvain Med.* 2011; 130: 349-352
21. L. Hama Y, Rabiou S, Efares B, Sani R, Harouna YD, Nouhou H. Cancer du rectum et pauvreté : «une fracture médicale»! *J Afr Hépatol Gastroentérol.* 2017; 11: 164-167.
22. Babaei M, Jansen L, Balavarca Y, Sjövall A, Bos A, Van de Velde T. Neoadjuvant Therapy in Rectal Cancer Patients With Clinical Stage II to III Across European Countries: Variations and Outcomes. *Clin Colorectal Cancer.* 2018; 17: e129-e142.
23. Siegel RL, Fedewa SA, Anderson WF, Miller KD, Ma J, Rosenberg PS et al. Colorectal Cancer Incidence Patterns in the United States, 1974–2013. *J Natl Cancer Inst.* 2017; 109: djw322.
24. Chbani L, Hafid I, Berraho M, Mesbahi O, Nejari C et Amarti A. Aspects épidémiologiques et anatomopathologiques des cancers dans la région de Fès- Boulemane. (Maroc) *EMHJ.* 2013; 19: 263.
25. Peghini M, Rajaonarison P, Pecadesse JL, Razafidramboa H, Richard J, Morin D. Épidémiologie des cancers du tube digestif à Madagascar ; Apport de 14 000 endoscopies effectuées au Centre Hospitalier de Soanviandriana à Antananarivo. *Med Afr Noire.* 1997; 44: 518–21.
26. Bang GA, Savom EP, Oumarou BN, Ngamy CKM, Moto GB, Boukar YME et al. Clinical epidemiology and mortality risk factors of gastric cancer in a sub-Saharan African setting: a retrospective analysis of 120 cases in Yaoundé (Cameroon). *Pan Afr Med J.* 2020; 30: 104.
27. Takongmo S, Essame-Oyono JI, Binam F, Sadou, Malonga EE. Les cancers colorectaux du sujet de moins de 40 Ans à Yaoundé: des particularités anatomocliniques. *Med Afr Noire.* 2000; 47: 56-9.
28. OMS. Cameroun. 2014. Available from: URL: [https://www.who.int/cancer/country-profiles/cmr\\_fr.pdf?ua=1](https://www.who.int/cancer/country-profiles/cmr_fr.pdf?ua=1). Accessed 10 February 2021.
29. El-Serag HB Epidemiology of viral hepatitis and hepatocellular carcinoma. *Gastroenterology.* 2012; 142: 1264-1273.
30. Yang JD & Roberts LR Hepatocellular carcinoma: a global view. *Nat. Rev. Gastroenterol Hepatol.* 2010; 7: 448-458.
31. Tang A, Hallouch O, Chernyak V, Kamaya A, Sirlin CB. Epidemiology of hepatocellular carcinoma: target population for surveillance and diagnosis. *Abdom Radiol (NY).* 2018; 43: 13-25.
32. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, et al. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int J Cancer.* 2010; 127: 2893-917.

- 
33. Djeumi TW, Guifo ML, Bang A, Ngo Nonga B, Essomba A, et al. Statistical View of Malignant and Suspected Malignant Tumors in the Surgical Ward of the Yaounde University Teaching Hospital. *J Carcinog Mutagen*. 2019; 10: 339.
  34. Garba SM, Zaki HM, Arfaoui A, Hami H, Soulaymani A, et al. Épidémiologie des cancers au Niger, 1992 à 2009. *Bull Cancer*. 2013; 100: 127-33.
  35. Ndahindwa V, Ngendahayo L, Vyankandondera J. Aspects épidémiologiques et anatomopathologiques des cancers dans les centres hospitaliers universitaires (chu) du Rwanda. *Rwanda Med J*. 2012; 69: 40-9.
  36. Kadende P, Engels D, Ndoricimpa J, Ndabaneze E, Habonimana D, et al. Les cancers digestifs au burundi : Premiers résultats d'une enquête menée à Bujumbura. *Med Afr Noire*. 1990; 37: 552-61.
  37. Chbani L, Hafid I, Berraho M, Nejjari C, Amarti A. Digestive cancers in Morocco: Fez-Boulemane region. *Pan Afr Med J*. 2012; 13: 46.
  38. Lepage C, Remontet L, Launoy G, Trétarre B, Grosclaude P, et al. Trends in incidence of digestive cancers in France. *Eur J Cancer Prev*. 2008; 17: 13-7
  39. Bang GA, Atenguena Okobalemba E, Savom EP, Biwole Biwole D, Ekani Boukar YM, Dong A Zok F. Épidémiologie descriptive et prise en charge du cancer colorectal au Cameroun. Série rétrospective de 103 cas à l'hôpital général de Yaoundé. *Rev Med Pharm*. 2021; 11: 1193-1197.
  40. Hebga MP. Sorcellerie et prières de délivrance. *Présence Africaine*, 1998; 73.
  41. Mbassa Menick D. La religiosité thérapeutique en Afrique noire. Une piste pour une nouvelle forme d'assistance médicale et psychiatrique ? *Perspectives Psy*. 2010; 49: 339-56.
  42. Mboussou M, Ngabolo G, Mbadinga S. Concept de maladie et facteurs socioculturels. *Synapse*. 2002; 188: 35-7.