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Esophageal Cancer in Hospital Setting in Ouahigouya: Epidemiological and Diagnostic Aspects (about 42 Cases)

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ABSTRACT

Objectives: *The aim of this study, conducted in a hospital in Ouahigouya, was to describe the epidemiological, clinical, endoscopic, and histological characteristics of esophageal cancer.*

Methodology: *This was a retrospective, cross-sectional, descriptive study covering the period from March1, 2014, to February 29, 2024, i.e., 10 years. The study included patients in whom esophageal cancer was suspected on upper gastrointestinal endoscopy and confirmed by histology. Patient data were collected using a data collection form in three digestive endoscopy units in private and public healthcare facilities in the city of Ouahigouya in Burkina Faso.*

Results: *Of 60 endoscopic biopsies of cancers, 42 were confirmed by histology (70%). The sex ratio was 1.21, with 54.76% men (23) and 45.24% women (19). The average age was 60, with extremes of 25 and 91. The most affected age group was 60 to 79 years old. Farmers and housewives were the most affected, accounting for 45.23% and 40.47% of cases, respectively. The indications for endoscopy were dominated by dysphagia in 38.09% of cases. Macroscopically, ulcerative-budding forms were the most common in 76.19% of cases. The lower third of the esophagus was the most affected segment in 95.23% of cases. Histologically, adenocarcinoma predominated in 66.67% of cases.*

Conclusion: *Dysphagia remains the most common manifestation of esophageal cancer, which is mainly located in the lower third of the organ. Adenocarcinoma is the predominant histological type, suggesting a high prevalence of GERD complications, namely EBO.*

Keywords

Cancers, Esophagus, Endoscopy, Ouahigouya.

Introduction

Esophageal cancer is a malignant tumor that develops in the lining of the esophagus. Although considered rare in Africa, it remains a public health problem worldwide. Despite its apparent rarity, several studies in Africa show an increase in its incidence since the increasing availability of upper gastrointestinal endoscopy [1,2]. According to the Globocan 2022 report [3], esophageal cancer

ranked sixth among digestive cancers in Burkina Faso in terms of frequency. The age-standardized mortality rate was 1.17 deaths per 10,000 inhabitants [4].

The prognosis for esophageal cancer remains poor due to delayed diagnosis and limited therapeutic management. Lifestyle factors such as chronic alcohol and tobacco abuse and infectious factors may be implicated [5]. A study of three medium-sized towns in Burkina Faso, including Ouahigouya, reported 20 cases of esophageal cancer in nine years, an annual frequency of 2.2 [1]. Ouahigouya, a medium-sized town in Burkina Faso with limited resources, has a population that faces difficulties in accessing specialized care, such as that required for esophageal cancer. After ten years of practicing digestive endoscopy in this city, we felt it was appropriate to conduct this study in order to gather information that could improve our practices. Our objective through this study was to describe the epidemiological and diagnostic aspects of esophageal cancer in hospitals in Ouahigouya, Burkina Faso.

Methodology

Type, setting, and duration of the study

This was a retrospective, cross-sectional, descriptive study covering the period from March1, 2014, to February 28, 2024, i.e., 10 years. It was conducted in the digestive endoscopy units of three private healthcare facilities in the city of Ouahigouya and the Ouahigouya University Hospital Center (CHUR).

Study Population

Origin

The patients in our study came from the city of Ouahigouya and the surrounding provinces. Ouahigouya is the capital of the northern region of Burkina Faso. Its population is estimated at 124,587 inhabitants, including 61,451 men and 63,136 women, according to the 5th general census of the population and housing in Burkina Faso, which took place in 2022 [6].

Inclusion criteria

The study included patients aged 15 years and older, of both sexes, of all origins and socio-professional categories, who underwent upper digestive endoscopy and in whom esophageal cancer was suspected, and biopsies were performed for pathological examination. These cancers were described and classified according to their location (lower third, middle third, upper third) and macroscopic appearance (budding, ulcerated-budding, ulcerated).

Exclusion criteria

Patients whose reports were unusable, i.e., lacking information on the main study variables, were not included in the study.

Equipment

The endoscopy equipment consisted of a FUJINON EG 200 FP video endoscope, another FUJINON EG 201 FP video endoscope, and an EVE EPX 201 processor in the three private healthcare facilities. A KARLSTORZ gastroscope was used at the Ouahigouya University Hospital Center.

Method

Preparation and conduct of the examination

As the quality of the endoscopic examination could only be optimized through thorough preparation, this was carried out rigorously.

The patient had to fast, with the last meal being no later than 8 p.m. the night before, allowing for at least 8 hours of gastric emptiness.

The endoscope was disinfected in accordance with the procedures in force at the French Society of Digestive Endoscopy (SFED) [7]. After cleaning and brushing the operating channel in a soap solution containing HEXANIOS® or CYTEAL®, depending on market availability, high-level disinfection was ensured by immersion in a 5% glutaraldehyde solution (STERANIOS®) for at least 10 minutes. The patient was placed in the left lateral decubitus position and a mouth prop was inserted into their mouth after removing any dentures. The endoscopist examined the upper digestive tract using axial vision and then retrovision when removing the endoscope.

Variables studied

The variables studied were:

- sociodemographic: age, gender, occupation;
- clinical (indications for upper gastrointestinal endoscopy);
- endoscopic (results of upper gastrointestinal endoscopy);
- histological: results of the pathological examination of biopsies.

Data collection and statistical analysis

Data were collected using a survey form specifying the patient's personal details, sociodemographic characteristics, indications for the examination, endoscopic report, and pathological results. The endoscopic results were recorded by three hepatogastroenterologists. The data collected were analyzed on a microcomputer using Epi-info 7 software, version 7.2.5.0.

Ethical Considerations

The study was approved by the head of the Hepatology and Gastroenterology Department at the Ouahigouya University Hospital Center, in accordance with the facility's research plan. The data collected was anonymous and used solely for the purposes of this study.

Results

Epidemiological aspects

a. Frequency

Figure 1 shows the patient selection flow, from suspected cancer to confirmed esophageal cancer

During the period of our study, 89 cases of malignant tumors of the esophagus were suspected during upper gastrointestinal endoscopy, representing 2.18% of esophageal pathologies and 48.63% of all cancers of the upper digestive tract suspected during upper gastrointestinal endoscopy. Biopsies were performed in 85

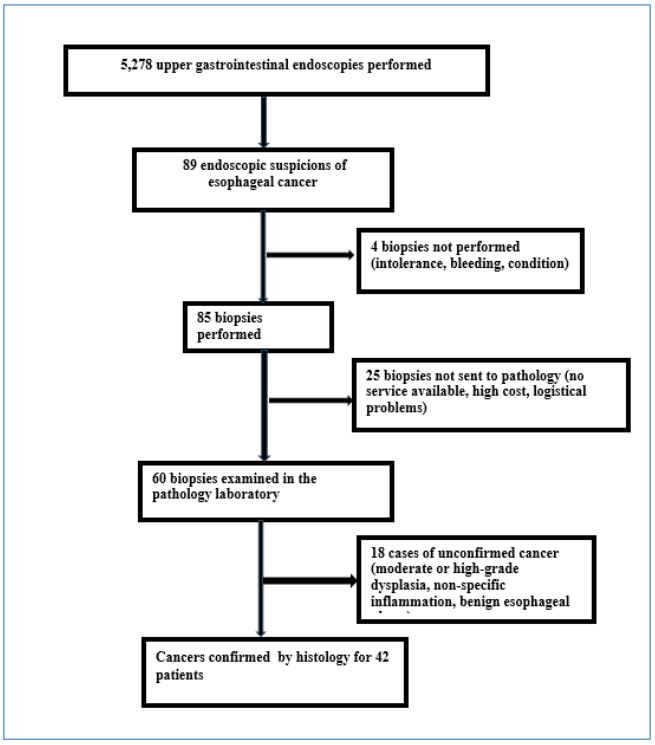

Figure 1: Flow chart of patient selection for esophageal cancer.

patients, representing a completion rate of 95.51%. Finally, of the 60 biopsies sent to the pathology laboratory, the histological diagnosis of esophageal cancer was confirmed in 42 cases, representing a histo-endoscopic concordance rate of 70%. The annual incidence of histologically confirmed esophageal cancers was 4.2 cases.

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b. Socio-demographic characteristics

The *sex ratio* was 1.21, with 54.76% men (23) and 45.24% women (19).

The average age was 60, with extremes ranging from 25 to 91. The age group most affected was 60 to 79. Men were most affected between the ages of 40 and 59.

The distribution of patients by age group and gender is shown in Figure 2.

Farmers and housewives were the most affected, accounting for 45.23% and 40.47% of cases, respectively (Figure 3).

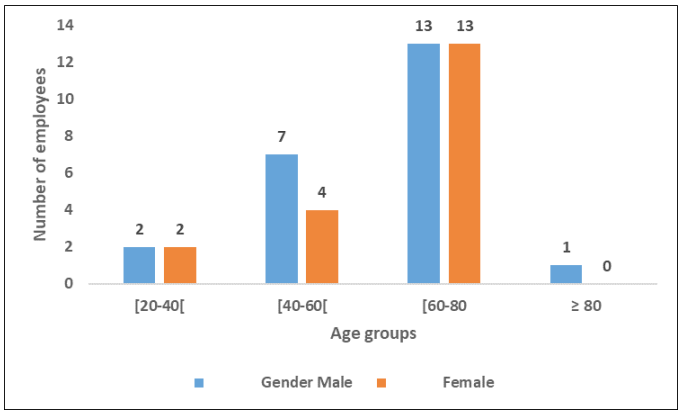

Figure 2: Distribution of patients with esophageal cancer by age and gender.

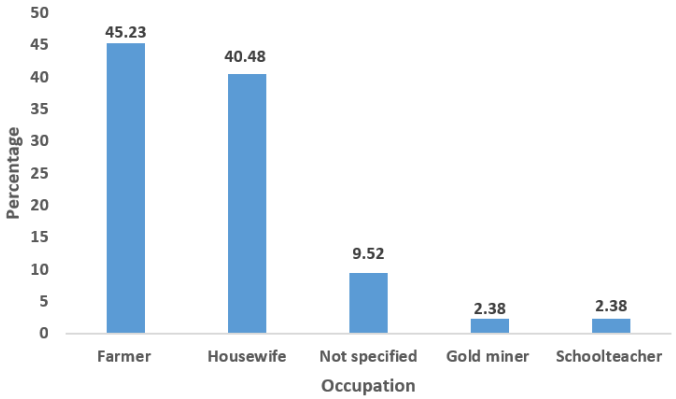

Figure 3: Distribution of patients by occupation.

Clinical aspects

The indications for endoscopy were dominated by dysphagia in 38.09% of cases, followed by epigastric pain in 21.42% of cases, as shown in Table 1.

Table 1: Distribution of patients according to the indication for upper gastrointestinal endoscopy.

Indications	Number	Percentage (%)
Dysphagia	16	38.09
Epigastric pain	9	21.42
Incoercible vomiting	8	19.04
Heartburn, regurgitation	3	7.14
Not specified	3	7.14
Odynophagia	1	2.38
Gastrointestinal bleeding	1	2.38
Pyloroduodenal syndrome	1	2.38
Total	42	100

Endoscopic findings

Macroscopically, ulcerative-budding forms were the most common in 76.19% of cases, as shown in Figure 4. The lower third of the esophagus was the most affected segment in 95.23% of cases, followed by the upper and middle thirds in 2.38% each.

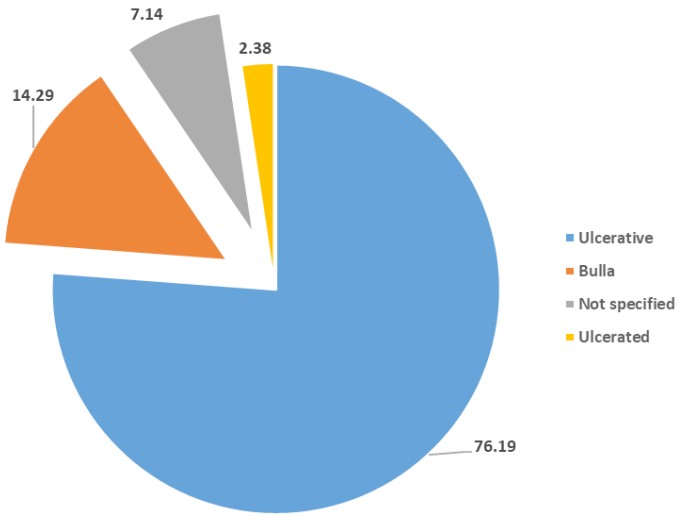

Figure 4: Macroscopic distribution of esophageal cancers.

Histological aspects

Biopsies were performed in 85 patients out of a total of 89, representing a completion rate of 95.51%. Ultimately, 42 cases of malignant tumors were confirmed. Adenocarcinoma was the predominant histological type in 66.67% of cases (see Table 2).

Table 2: Distribution of malignant tumors by histological type.

Histological type	Number	Frequency (%)
Adenocarcinoma	**28**	**66.67**
Squamous cell carcinoma	13	30.95
Nature not specified	1	2.38
Total	**42**	**100**

Discussion

Epidemiological aspects

The limitations of this study were those usually encountered in retrospective studies. These included the lack of certain data, mainly anatomopathological data. This examination has only been available at the Ouahigouya University Hospital Center since 2021 and remains expensive. Prior to this date, samples were sent to Ouagadougou, the capital. Another limitation of the study was that we did not have information on the dietary habits of the patients included in the study, nor did we have data on the time taken to reach a diagnosis. We mainly used upper gastrointestinal endoscopy reports, which did not include this data.

Of the 89 cases of suspected esophageal cancer in our series, 85 underwent biopsies and 4 did not, for clinical and endoscopic reasons. These cases involved patient intolerance to the examination, respiratory distress, lesions that were highly hemorrhagic on contact and friable with a risk of massive hemorrhage after biopsy, extensive necrosis with thick fibrin, and severe stenosis making biopsy difficult. Ultimately, 60 biopsies were analyzed by anatomical pathology, resulting in histological confirmation of 42 cases. This progressive loss can be explained mainly by structural and socioeconomic constraints. At the time of the study, there was no pathology department in Ouahigouya, forcing patients to transport their samples to the capital themselves, often at a high financial cost that was not covered. The pathology department only became operational in 2021. These constraints led some patients to decide not to have their samples analyzed. Furthermore, among the biopsies that were analyzed but not confirmed as cancerous, the results corresponded to precancerous lesions (moderate or high-grade dysplasia) or severe non-specific inflammatory lesions that could mimic a carcinomatous appearance on endoscopy, non-contributive biopsies, or non-tumoral ulcerations. This discrepancy between endoscopic appearance and histology is well described in the literature [1,8].

The factors described above constitute a limitation of our study and may lead to an underestimation of the actual number of esophageal cancers. However, this situation reflects the reality of clinical practice in resource-limited regions and highlights the need to improve access to pathology services in order to improve the early diagnosis of these cancers.

During the study period, 42 cases of esophageal cancer confirmed by histology were collected. The average annual frequency was 4.2 cases. The low frequency of these cancers is reported in the literature. Zoungrana et al. [1] in a previous study in medium-sized cities in Burkina Faso, including Ouahigouya, reported 20 cases in 9 years, while Bougouma [8] reported 14 cases in 10 years, and Soudré/Héma [9] reported 28 cases in 9 years and 6 months, also in Burkina Faso. These data reveal a trend toward an increase in the frequency of esophageal cancer in Burkina Faso. Elsewhere in Africa, Diarra et al. in Mali [10] reported 4 cases in 10 months and Mamoudou et al. [11] in Niger reported 40 cases in 18 years. In North Africa, the incidence of this cancer is higher than in sub-Saharan Africa. In Morocco, El Marini [12] reported 67 cases in 8

years. In developed countries, the incidence of this cancer is even higher than in Africa. In France, there were 4,700 new cases per year according to Liedo et al. [13]. The increase in the incidence of esophageal cancer could be explained by increasing alcohol consumption and smoking [9,14,15] (adulterated alcohol), and a diet low in dietary fiber, which is known to have a protective role [1].

We found a male predominance with 54.76% men (23) and 45.24% women (19), giving a *sex ratio* of 1.21. Several authors in Burkina Faso made the same observation [8,9,14]. However, our results differ from those of Zoungrana [1] in Burkina Faso, who reported a female predominance, as did Rahmouni [16] in Senegal. Bouglouga [15] in Togo found the same proportion of men and women among 24 patients. This male predominance in these studies could be explained by higher rates of alcohol consumption and smoking among men [14,15]. Bouglouga et al. [15] in Togo noted that all of his patients had corn as their staple food, which, when contaminated with mycotoxins and fumonisins, is a risk factor for cancer in Africa.

The average age of our patients was 60, with extremes of 25 and 91. The most affected age group was 60 to 79. Our results are higher than those of other authors in Burkina Faso and elsewhere in sub-Saharan Africa. Zoungrana et al. [1] in medium-sized towns in Burkina Faso reported an average age of 55, ranging from 30 to 76, and Koura et al. [14] in Bobo Dioulasso reported an average age of 58.34. For Harouna et al. [17] in Niger, the average age was 54 years, while Bouglouga et al. [15] in Togo reported an average age of 57.08 years with extremes of 32 and 82 years. However, they are close to the average age reported in North Africa and Europe, where it is around 60 years. This increase in the average age in our country could paradoxically be explained by an increase in life expectancy in a medium-sized city such as Ouahigouya with limited resources. Further investigation is needed to better understand this trend.

Farmers and housewives were the most affected, accounting for 45.23% and 40.47% of cases, respectively. Low socioeconomic status is known to be a risk factor for this cancer and has been reported in several studies [1,9,14,15].

Clinical aspects

The indications for endoscopy were dominated by dysphagia in 38.09% of cases, followed by epigastric pain in 21.42% of cases. Dysphagia, the main symptom of this cancer, is also reported by the majority of authors [1,9,11,14,15]. The onset of dysphagia is indicative of advanced cancer, most often stenotic.

Endoscopic findings

In upper digestive endoscopy, macroscopically, ulcerative-budding forms were the most common in 76.19% of cases. Zoungrana et al. [1] also reported a predominance of ulcerative-budding forms (72%), followed by budding forms (28%). For Soudré/Héma [9], budding forms (21.43%) and budding and stenotic forms (17.86%) were the most common. The budding (28.57%), ulcerated (25.71%), and ulcerative-budding (17.14%) forms were the most common in Ouattara et al. [18]. Koura et al. [14] in Bobo Dioulasso reported a predominance of the budding form (56.3%). In Bouglouga et al. [15] in Togo, the ulcerative-budding and hemorrhagic form was predominant, accounting for 50% of cases.

The lower third of the esophagus was the most affected segment in 95.23% of cases. This location of the cancer is reported by the majority of authors [1,9,14]. However, Rahmouni [16] in Senegal reported a predominance of localization in the middle third.

Histological aspects

Histologically, adenocarcinoma was predominant (66.67%), contrary to most authors who reported a predominance of squamous cell carcinoma [1,8,9,11,14,15].

Conclusion

Dysphagia remains the most common manifestation of esophageal cancer, which is mainly located in the lower third of the organ. The average age for this cancer is 60, which is higher than what is generally reported in the literature in Black Africa. Adenocarcinoma is the predominant histological type, suggesting a high prevalence of gastroesophageal reflux disease (GERD) complications, namely endobrachyoesophagus. Increased monitoring of this precancerous lesion is necessary, as is raising public awareness of the need to seek medical advice for GERD, especially chronic GERD.

Lifestyle changes, including the promotion of a healthy diet rich in fruits and vegetables, as well as the fight against chronic alcoholism and smoking, must be a goal to be achieved.

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