Research Article ISSN 2835-3587

Radiology & Imaging Journal

Contribution of Thoraco-Abdomino-Pelvic CT Tomography in the Assessment of Extension of Gastric Cancer at the "Marie Curie" Medical Clinic

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Received: 05 May 2024; **Accepted:** 13 Jun 2024; **Published:** 21 Jun 2024

Citation: Traore Ousmane, Diakité Siaka, Sidibe Mansa, et al. Contribution of Thoraco-Abdomino-Pelvic CT Tomography in the Assessment of Extension of Gastric Cancer at the "Marie Curie" Medical Clinic. Radiol Imaging J. 2024; 3(2): 1-5.

ABSTRACT

Introduction: *Gastric cancer is a common oncological pathology with a poor prognosis. It ranks 4th among cancers in the world and remains the 3rd cause of cancer-related mortality. The aim of our study was to study the contribution of the thoraco-abdomino-pelvic scanner in the assessment of the spread of gastric cancer in the "Marie Curie" and "Les Etoiles" medical clinics.*

Methodology: *This was a prospective study with a descriptive aim on reports of scannographic examinations, which took place over a period of 18 months at the "Marie Curie" medical clinic and the Etoiles clinic. The parameters studied were: sociodemographic data, clinical data, scan data and anatomopathological data.*

Results: *We collected 70 patients with gastric cancer out of a total of 1404 with a thoraco-abdominopelvic scan, i.e. 5% of cases. The male sex predominated with 68.6%. The age group of 60-70 years was the most common. The extension assessment for gastric tumor, epigastralgia with vomiting constituted the most frequent clinical information. The histological type found was adenocarcinoma in 100% of cases. CT revealed an irregular nodular thickening creating a pseudo-mass appearance in the antropyloric region of the stomach in the majority of cases (62.9% of cases). Liver damage alone represented 31.4%, lung damage alone 2.9%.*

Conclusion: *Gastric cancer is a significant tumor with a poor prognosis for which thoraco-abdominopelvic CT remains the reference and most accessible examination in Mali for extension assessment.*

Keywords

Gastric tumor, Thoraco-abdomino-pelvic scan, Marie Curie medical clinics, "Les Etoiles" medical clinic.

Introduction

Gastric cancer is a common oncological pathology with a poor prognosis. It ranks 4th among cancers in the world and remains the 3rd cause of cancer-related mortality [1]. Adenocarcinoma is the most common histological form affecting more than 90% of patients [2]. It is approximately twice as common in men as in women. It is most often diagnosed between the ages of 60 and 80. In Europe, around 150,000 people developed stomach cancer in 2008 [3]. According to estimates from the World Health Organization (WHO) in 2020, there were more than 1.09 million cases of stomach cancer with 769,000 deaths worldwide. In Africa, several recent studies have found an increasingly high hospital frequency of gastric cancer [4,5]. The diagnosis of stomach cancer is based on performing an upper digestive endoscopy with biopsies for the histological type [6]. Thoraco-abdomino-Pelvic computed tomography or CT scan is used as part of the initial assessment

and monitoring but also to look for metastases, and constitutes the radiological reference examination [7]. The increase in the frequency of stomach cancer and the lack of recent studies on the contribution of CT in the management of gastric CT prompted us to carry out this study, the aim of which was to study the contribution of the thoraco-abdominal-pelvic scanner in the assessment of the spread of gastric cancer in the "Marie Curie" and "Les Etoiles" medical clinics.

Methodology

This was a descriptive study, with prospective and retrospective collection, which took place over a period of 18 months from March 2022 to October 2023 in the radiology and medical imaging departments. Medical clinics: "Marie-Curie" and "Les ETOILES" in the BAMAKO district of Mali. We used reports from the scans. The equipment used was the multi-strip scanner (16 strips) of the OPTIMA and Bright speed type, commissioned in 2010. The parameters studied were: sociodemographic data, clinical data, scan data and anatomopathological data.

Results

During our study period, we recorded 70 cases of gastric cancer out of a total of 1404 thoraco-abdominopelvic scans performed, i.e. 5% of cases (Figure 1).

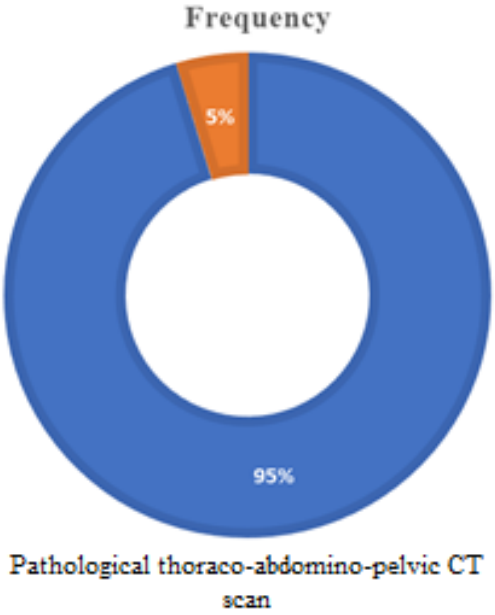

Figure 1: Distribution of patients according to frequency.

Socio-Demographic Aspect

The most common age group was [61-70 years] or 28.6% of cases. The average age was 44.9 years, a standard deviation of 1.58 with extremes of 24 years and 99 years (Figure 2).

Males were the most frequent cases with 68.6% compared to 31.4% females, i.e. a sex ratio of 2.18. Housewives and farmers were the most common with 30% and 28.6% respectively (Table 1).

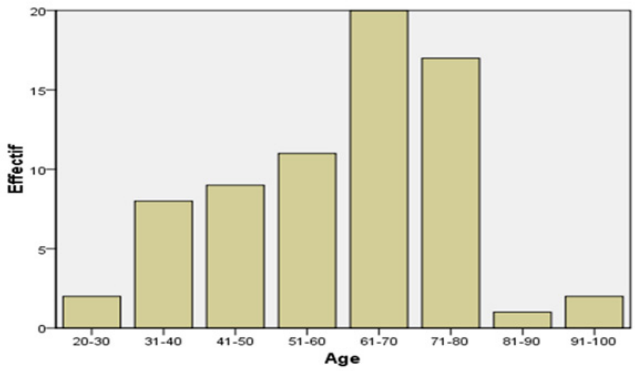

Figure 2: Distribution of patients according to age group.

	Effective (n)	Percentage (%)
Farmer	20	28,6
Household	**21**	**30,0**
Commercial Employer	15	21,4
Official	1	1,4
Worker	13	18,6
Total	70	100,0

Table 1: Distribution of patients according to socio-professional activity.

Clinical and Pathological Aspect

At endoscopy the most frequent macroscopic appearance was the ulcerative-budding type which represented 35 cases or 50% of cases followed by the ulcerative type (27 cases or 38.6% of cases) then the vegetative type (8 cases or 11.4 cases). The histological type found in all our patients was adenocarcinoma in 100% of cases. The pathological analysis made it possible to specify the degree of differentiation of adenocarcinomas in our patients. We noted that the most common type was moderately differentiated adenocarcinoma with 36 cases or 51.4% (Table 2).

Histological subtype	Effective (n)	Percentage (%)
Well differentiated	21	30,0
Moderately differentiated	**36**	**51,4**
Little differentiated	11	15,7
Undifferentiated	2	2,9
Total	70	100,0
Total	70	100,0

Table 2: Distribution of patients according to histological type.

Scanographic Appearance of the Lesions

On CT scan, we found irregular thickening of the stomach wall with infiltration of fat all around in 97.2% of our patients including: 64.3% had irregular gastric wall thickening alone; 22.9% of cases had irregular thickening of the gastric wall with stenosing; 8.6% of cases had budding irregular gastric wall thickenings and 1.4% of cases had budding and stenosing irregular gastric wall thickenings. The antro-pyloric region was the most affected with 44 cases or 62.9% of cases followed by the lesser curvature in 8.6% of cases then the greater curvature of the stomach in 5.7% of cases and the fundal region in 4.3% of cases; the cardia in 29% of cases (Figures 3).

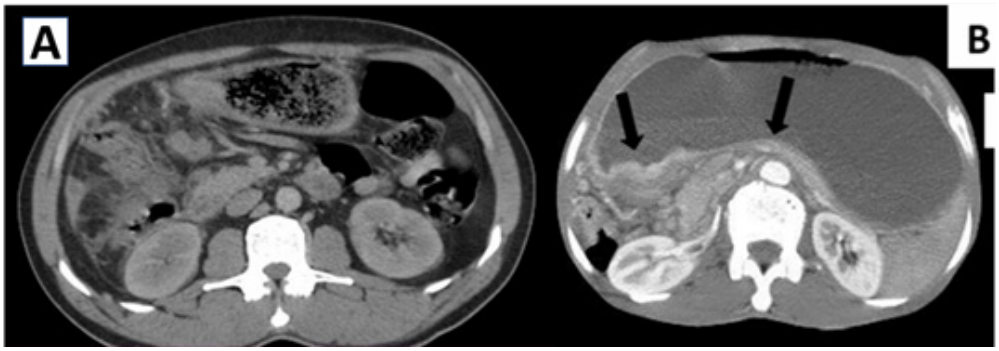

Figure 3 (A and B): Irregular nodular thickening of the antropyloric region of the stomach related to gastric tumors.

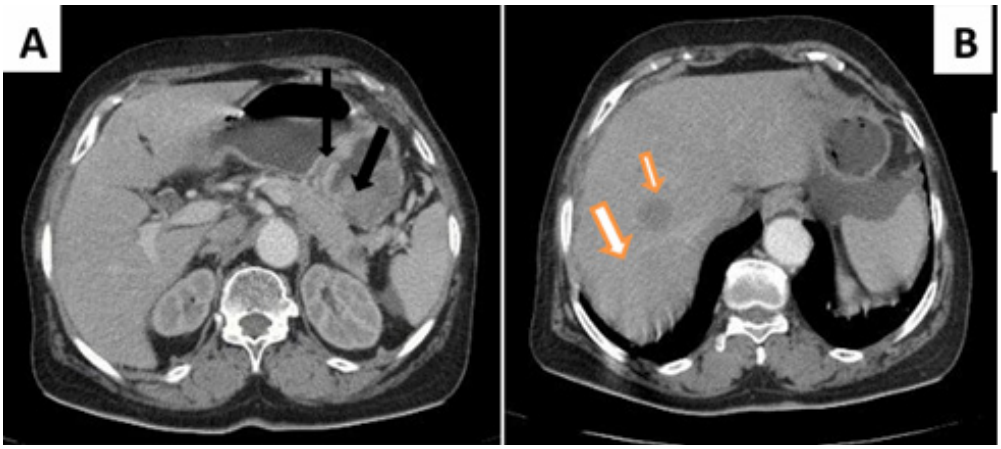

Figure 4: Irregular thickening of the gastric wall of the lesser curvature of the stomach (A) related to its tumor with secondary liver lesions (B).

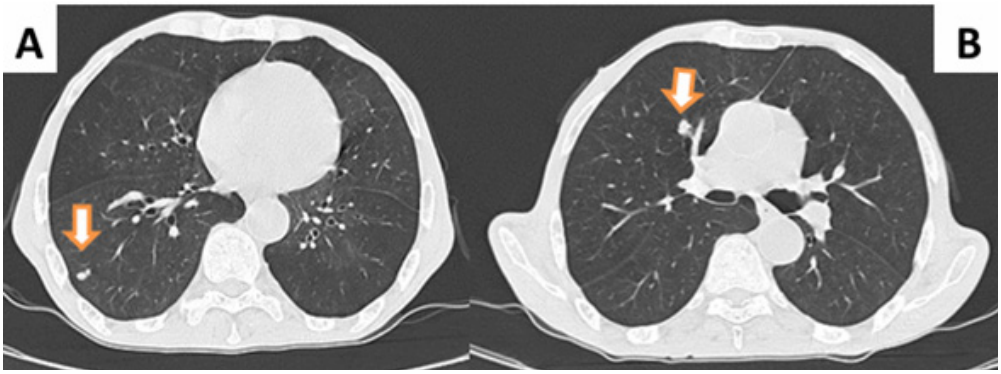

Figure 5 (A and B): Pulmonary nodules (white arrow) related to secondary lesions of stomach cancer.

In our series, 50% of our patients had developed metastases with a frequency of liver metastases in 22 cases or 31.4% of cases followed by lung lesions in 2.9%; bone in 1.4% of cases and lymph node in 10% of cases. The associations of secondary lesions were hepatic and pulmonary in 10% of cases followed by hepatic and peritoneal lesions in 4.3% of cases. The peritoneal lesions were ascites and peritoneal carcinoma. The lymph node involvement was more at the perigastric level followed by the hepatic hilar region and the celio-mesenteric region.

In our study, 50% of cases had no secondary locations (Figures 4 and 5).

Discussion

In our study, stomach cancer represented 5% of cases. This result is lower than those of Kouriba and Konaté who obtained 40.1% of cases and 36.78% of cases respectively [5,8]. This result could be explained by the period, sample size and type of study.

Socio-demographic Aspect

Housewives and farmers were the most common in our study with respectively 30% and 28.6% of cases. This frequency of social strata with a low standard of living has been reported in other studies [9,10]. This fact could be due to infection by *H. pylori*, which is linked to the low level of hygiene, associated

with unfavorable nutritional factors (method of preservation and quality of food). The average age in our study was 44.9 years with a standard deviation of 1.58 and extremes of 24 years and 99 years. The most represented age group was that of 60 - 70 years old with 28.6% of cases. This average age was lower than that of Togo A, but close to that of Amegbor K who had an average age of 42.5 years in 2005 in Togo [11,12]. This result can be explained by the youth of the Malian population in particular and that of Africa in general. We found a male predominance with a sex ratio of 2.18. This result is comparable to several African studies [12-14] where gastric cancer affects men more than women. This male predominance could be due to alcohol and tobacco consumption being more common among men.

Clinical and Pathological Data

The histological type found in all our patients was adenocarcinoma (100%) with a predominance of the moderately differentiated adenocarcinoma subtype 51.4%. Our data are consistent with the literature according to which adenocarcinoma represents the most common histological type [15]. The ulcero-budding appearance predominated in our study with a rate of 50% of cases. This result does not differ significantly from that of the national and African literature [11,16].

CT Appearance of the Lesions

Irregular thickening of the gastric wall with enhancement was more common in our series, i.e. 64.3% of cases. This result is comparable to those of other African studies which also found irregular thickening of the gastric wall on CT [17,18]. We found 62.9% of cases located in the antropyloric region of the stomach in our study. This result does not differ significantly from that of Check A. TRAORE with 97.1% in 2019 in Mali and MAHI A with 63.63% in 2014 in Morocco [19,16]. Liver metastases were the most frequent in our study 31.4% cases. This result was different from that of Kouriba with 17.39% of cases of liver metastases in 2021 in Mali and that of MAHI with 18.3% of liver metastases in 2014 in Morocco [5]; Ascites was present in 14 patients or 20% of cases and deep abdominal lymphadenopathy in 13 patients or 18.6% of cases in our study. This result is comparable to that of ALAARABIOU A in whom 41.6% of cases of lymphadenopathy were found and that of Mahi in whom ascites was present in 13 cases or 11.92% [16,20]. The perigastric location of lymphadenopathy was the most frequent in our case, i.e. 12.9% of cases. These results were different from those of ALAARABIOU A who found a celio-mesenteric location, i.e. 53% of cases [20]. These results could confirm the importance of CT in monitoring gastric cancer and the ability of CT to identify lesions in different areas.

Conclusion

Stomach cancer is a common malignant tumor in Mali. The extent of the tumor at the time of diagnosis is one of the determining criteria in the choice of a treatment adapted to the situation, of which cross-sectional imaging (computed tomography) complements endoscopy. This thoraco-abdomino-pelvic CT scan allows you to see the tumor and the invasion of neighboring organs; distant lymph node and bone locations.

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