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Megaesophagus: Diagnostic and Therapeutic Aspects in the General Surgery Department of Gabriel Toure University Hospital

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Abstract **Original Research Article**

Introduction: Our objectives were to determine the hospital frequency and describe the diagnostic and therapeutic aspects of megaesophagus at Gabriel Touré University Hospital. ***Materials and methods:*** This was a descriptive, retrospective study conducted between January 2010 and June 2025 in the general surgery department of Gabriel Toure University Hospital, including all cases of idiopathic megaesophagus. ***Results:*** Sixty-two cases were identified, representing 0.16% of consultations and 0.46% of hospitalizations. The mean age was 36.96 ± 15.2 years, and the male-to-female ratio was 1:1. All patients presented with dysphagia, associated with regurgitation in 98.4%. Weight loss was a constant finding. Esophagogastroduodenoscopy and barium swallow were performed in 96.8% of cases. Two patients underwent laparoscopic surgery; Heller cardiomyotomy combined with an antireflux valve was performed in 96.8% (Toupet fundoplication in 85%) and gastropexy in 95.2%. The mean myotomy length was 8.27 ± 0.813 cm. The intraoperative complication was mucosal injury in 15 patients, treated by suturing. The immediate outcomes were uneventful in 98.4%, with a mean hospital stay of 9.15 days. At two years post-surgery, 96% of patients were asymptomatic. ***Conclusion:*** Megaesophagus is rare. Surgical outcomes can be improved by the widespread adoption of laparoscopy.

Keywords: Megaesophagus, Cardiomyotomy, Fundoplication, Dysphagia, Gabriel Toure.

INTRODUCTION

Idiopathic megaesophagus, also called achalasia or cardiospasm, is a rare neuromuscular disease of the esophagus. The global incidence of achalasia is estimated at approximately 0.5 per 100,000 inhabitants per year, with a prevalence of 7 to 10 per 100,000 in non-endemic countries [1,2]. In France, Tran et al. reported a prevalence of 7.5 per 100,000 inhabitants in Paris [3]. In West Africa, a study conducted at the Treichville University Hospital (Côte d'Ivoire) reported a hospital frequency of 0.4% of digestive pathologies [4].

Megaesophagus, whose etiology is still poorly understood, affects both sexes and can occur at any age, with a peak incidence between 40 and 70 years [1]. The diagnosis is clinically suspected in the presence of progressive dysphagia, regurgitation, and weight loss, and then confirmed by endoscopic, radiological (upper gastrointestinal series), and especially manometric examinations, considered the gold standard [1,5].

Treatment is palliative, aiming to reduce lower esophageal sphincter (LES) pressure to improve food passage. It relies on medical, endoscopic (dilation, botulinum toxin), or surgical techniques. Heller myotomy, combined with an antireflux valve, remains the standard treatment for advanced cases [5,6].

In Mali, data remain limited, and medical centers lack modern diagnostic (manometry) and therapeutic (endoscopic treatment) resources. Our objectives were to determine the hospitalization frequency and describe the diagnostic and therapeutic aspects of megaesophagus at the Gabriel Toure University Hospital.

Materials and Methods

This was a descriptive, retrospective data collection study conducted between January 1, 2010, and June 30, 2025, in the General Surgery Department of Gabriel Toure University Hospital. Inclusion criteria were all cases of megaesophagus diagnosed and treated in the department during the study period. Exclusion criteria were cases of non-idiopathic megaesophagus and non-consenting patients.

The variables studied included frequency, sociodemographic, clinical, and therapeutic data, as well as postoperative outcomes. Data sources included consultation registers, hospitalization records, surgical reports, and patient medical records.

Data entry and analysis were performed using Word 2016, Excel 2016, and SPSS software.

Results

Over a period of 15 years and 6 months, 62 cases were recorded, representing 0.16% of consultations, 0.46% of hospitalizations, and 3% of esophageal pathologies. The number of cases according to the year of diagnosis is shown in Figure 1. The mean age was 36.96 ± 15.2 years, with a range of 14 to 71 years. Table 1 shows the distribution of patients by age group. There was no sex predominance; the sex ratio was 1. The majority of patients (72.6%) was schooled. Patients were recruited through routine consultations in 98.39% of cases (61) and in the emergency department in one case. Of these patients, only 21% (13 cases) were referred to the department. The medical history included peptic ulcer in 6.5% (4 cases), hypertension in one case, and sickle cell disease in one case; five cases (8.1%) had a history of gastrointestinal surgery.

All patients presented with dysphagia upon admission. It was paradoxical in 51.6% (32 cases), intermittent in 25.8% (16 cases), and constant in 22.6% (14 cases); it manifested with both liquids and solids in 41.9% (26 cases). Functional signs associated with dysphagia were regurgitation in 98.4% (61 cases) and chest pain in 88.7% (55 cases). Weight loss was a constant finding; general symptoms are reported in Table 2. Esophagogastroduodenoscopy was performed in 96.8% (60 cases). It showed retained liquid with a puckered gastroesophageal junction in all cases. A barium esophagram was performed in 96.8% (60 cases); the characteristic finding was a dilated esophagus with distal bird beaking (or radish tail) (Figures 2 and 3). Thoracoabdominal computed tomography was performed in four patients (6.5%). Esophageal manometry was not performed during the study. According to the radiological classification based on esophageal diameter, 3 patients (4.8%) were classified as stage 2 (diameter between 4 and 6 cm) and 49 patients (95.2%) as stage 3 (diameter greater than 6 cm).

All patients underwent surgical treatment. The approach was laparotomy in 60 patients and laparoscopy in two patients. Heller cardiomyotomy combined with an antireflux valve was performed in 96.8% of cases. This technique was performed in two stages, preceded by a feeding gastrostomy in two patients (3.2%). The mean myotomy length was 8.27 ± 0.813 cm; the myotomy measured 8 cm in 50 patients (83.3%), 10 cm in eight patients (13.3%), and 6 and 7 cm in one patient each (1.7%). Fundoplication was of the Toupet type in 85% (51 cases), the Dor type in 8 patients (13.3%), and the Belsey type in one patient (1.7%). Gastropexy was performed in conjunction with cardiomyotomy in 95.2% (59 cases). The intraoperative complication was mucosal injury in 15 patients, treated by suturing. A nasogastric tube was inserted in all patients for 72 hours. Abdominal drainage was performed in 96.8% of cases. The mean duration of surgery was 99.6 ± 22.8 minutes, ranging from 75 to 240 minutes.

The immediate postoperative outcomes were simple in 98.4% (61 patients); one patient (1.6%) developed a wound infection. The mean length of hospital stay was 9.15 ± 4.7 days.

One year postoperatively, outcomes were uneventful in 98.2% (56 out of 57 patients); one patient complained of gastroesophageal reflux disease (GERD). Two years postoperatively, outcomes were uneventful in 48 out of 50 patients (96%); one patient complained of dysphagia and another of GERD.

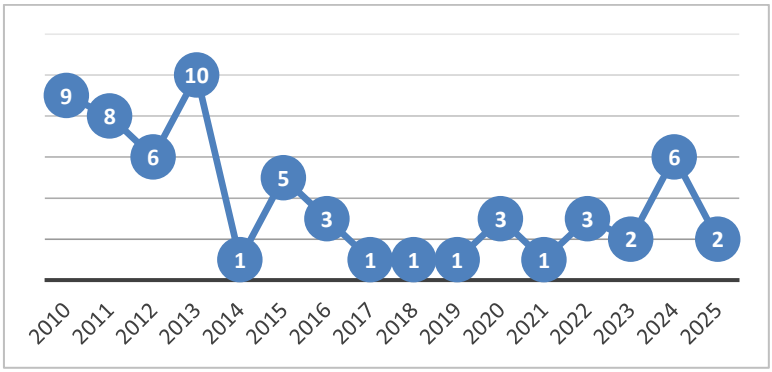

Figure 1: Number of megaesophagus cases according to the year of diagnosis

Table 1: Distribution of patients by age group

Age range	Number	Percentage
]15-30]	**25**	**40,3**
]30-45]	18	29,0
]45-60]	14	22,6
+60	5	8,1
Total	62	100

Table 2: Distribution of patients according to general signs

General signs	Number		Percentage
WHO performance index	WHO 1	45	72.6
	WHO 2	16	25.8
	WHO 4	1	1.6
BMI	<16.5	6	9.7
	[16.5-18.5[	30	48.4
	[18.5-25[	22	35.5
	[25-30[	4	6.5
Weight loss	<5%	16	25.8
	5-10%	35	56.5
	10-15%	7	11.3
	+15%	4	6.5

Figure 2: Barium esophagram images showing spindle-shaped esophageal dilation with distal bird's beak narrowing

Figure 3: Images from upper gastrointestinal series showing significant dilation of the esophagus in a stocking-like pattern with distal narrowing in a bird beaking.

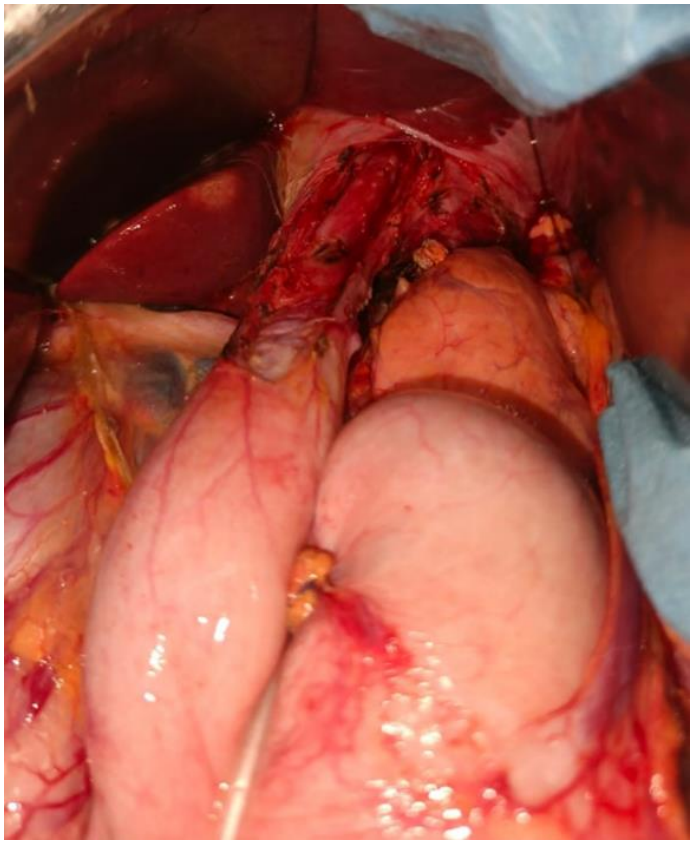

Figure 5: Intraoperative image showing Heller's myotomy

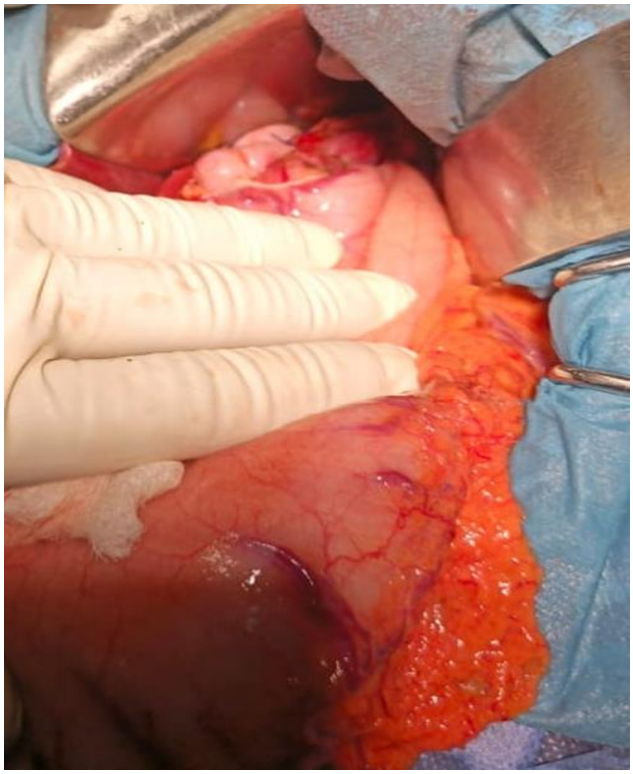

Figure 6: Surgical image showing the Toupet fundoplication

DISCUSSION

Megaesophagus is a rare condition, representing a small proportion of gastroenterology consultations and hospitalizations, but a significant cause of esophageal disease in several series worldwide [7,8]. In our study, 62 cases of megaesophagus were identified over a period of 15 years and six months, representing 0.16% of consultations and 0.46% of hospitalizations. These frequencies are close to those reported by Zhang *et al.*, in China, where megaesophagus accounted for 0.18% of specialist consultations [7]. In the United States, Bishop *et al.*, estimated that 0.5% of hospitalizations for digestive surgery were attributable to this condition [9].

Megaesophagus generally affects young adults, with no significant sex predominance, as shown by several multicenter studies across different continents [10]. In our series, the mean age was 36.9 years, which is comparable to the data reported by Smith *et al.*, in North America (35.4 years) [10] and Lee *et al.*, in Asia (37 years) [11].

We did not observe a sex predominance (male/female ratio = 1), which is similar to the results of Rossi *et al.*, in Europe and Yang in China, who found an equal distribution between men and women [8, 12].

Dysphagia, regurgitation, and weight loss constitute the classic symptomatic triad of megaesophagus, found in the majority of clinical studies [13]. In our study, 100% of patients presented with dysphagia, and 98.4% complained of regurgitation. Weight loss was also steady. These results are similar to those reported by Chavez *et al.*, who found dysphagia in 97%, regurgitation in 94%, and weight loss in 100% [13]. In China, Wang *et al.*, also reported dysphagia in 90% of cases [14].

The diagnosis of megaesophagus relies primarily on endoscopy and radiological examinations such as upper gastrointestinal series (UGI), which remain the gold standard in most countries [15]. The combined upper endoscopy and upper gastrointestinal series enabled diagnosis in 96.8% of patients. Davis *et al.*, in the United States reported a 97% utilization rate for endoscopy and 94% for UGI [15]. Radiology allowed the majority of cases to be classified as stage 3 (95.2%), indicating advanced disease. Similar results were reported by Wang *et al.*, In Asia, 92% of patients were at stage 3 [14].

Currently, high-resolution manometry (HRM) is the gold standard for diagnosing functional esophageal impairment, with better sensitivity for diagnosing achalasia than conventional manometry; it has also allowed for the codification of the Chicago classification and therapeutic indications [2, 17]. However, this examination is not yet feasible in our setting.

Heller cardiomyotomy, combined with a laparoscopic antireflux valve, is the standard treatment for idiopathic megaesophagus, with excellent functional results [16]. In our series, Heller cardiomyotomy, combined with an antireflux valve, was performed in 96.8% of cases. The Toupet valve was used in 85% of

cases, compared to 13.3% for the Dor valve. These practices are consistent with recommendations and data from the literature [9,16]. The two techniques are comparable in terms of outcomes; the choice of partial fundoplication is based primarily on the surgeon's experience [16].

When indicated, megaesophagus surgery offers an excellent short- and medium-term prognosis, with significant improvement in dysphagia in over 90% of cases [17].

In our study, the immediate postoperative outcomes were uneventful in 98.4% of cases, with a mean hospital stay of 9.15 ± 4.7 days. These results are comparable to those reported by Pitt *et al.*, in Europe, who found a mean hospital stay of 9.4 days and uneventful outcomes in 96% of cases [17].

At two years, the postoperative course was uneventful in 96% of patients, with dysphagia and GERD persisting in only one patient, confirming the success of the surgical treatment. In a 2004 study of 20 children treated for megaesophagus at Armand Trousseau Hospital, 72% were asymptomatic at 1 year of age [18].

CONCLUSION

Megaesophagus remains a rare but serious condition, often diagnosed at an advanced stage. Our study confirms that surgical management by Heller cardiomyotomy combined with an antireflux valve is an effective strategy, with good mid-term clinical results. These results could be improved by making laparoscopy more widely available.

Conflict of interest

The authors declare no conflict of interest.

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