

## UPPER DIGESTIVE ENDOSCOPY FINDINGS IN A TERTIARY HOSPITAL IN THE BRAZILIAN AMAZON



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### ABSTRACT

**INTRODUCTION:** Upper gastrointestinal endoscopy is considered the essential diagnostic method to investigate gastrointestinal symptoms, allowing mucosal visualization, biopsies and therapeutic interventions. **OBJECTIVE:** To evaluate the results of upper gastrointestinal endoscopies performed at the Regional Hospital of Baixo Amazonas (HRBA) between 2020 and 2023. **METHODOLOGY:** This is a quantitative, documentary, and exploratory approach with retrospective data collection from reports and medical records. Data analysis was performed using descriptive statistics. **RESULTS AND DISCUSSIONS:** The study showed 151 endoscopy reports, with a predominance of women (54.3%) and age group between 60 and 69 years, with a majority of brown and single women. Endoscopies detected esophageal alterations in 46.3% (esophagitis), gastric alterations in 92.7% (pangastritis), and duodenal alterations in 26.5% (bulboduodenitis). Findings corroborate the literature, highlighting the impact of aging and multifactorial factors. **CONCLUSION:** The study revealed a predominance of women, elderly and brown race among patients undergoing UGI, with gastritis being the most common endoscopic

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finding, reinforcing the importance of individualized clinical management and future studies for better care practices.

**Keywords:** Medicine. Gastroenterology. Gastrointestinal endoscopy. *Helicobacter pylori*.

## INTRODUCTION

Also known as esophagogastroduodenoscopy, upper digestive endoscopy (UDE) consists of a flexible fiberoptic device, the endoscope, which is introduced from the oral cavity, then allowing the visualization of the esophagus, stomach to the second portion of the duodenum. This tool is essential to investigate gastrointestinal symptoms, as it allows the visualization of the gastrointestinal mucosa, biopsies, and elective or urgent procedures (SAKAE, 2012).

The number of EDA performed has consistently increased, with approximately 2.5 million endoscopic procedures being performed annually in the UK alone. The importance of this test is also linked to the growing concern about gastrointestinal neoplasms, being vital for the diagnosis of cancers in the esophagus and stomach (SIDHU *et al.*, 2024).

In addition to being used as a diagnostic tool, there is a range of endoscopic procedures that can be performed in the context of emergencies or electively from UDE. Cases of upper gastrointestinal bleeding and accidental or intentional ingestion of foreign bodies or caustic substances emerge as the main indications for urgent UDE, being a diagnostic and often therapeutic procedure (BARKUN *et al.*, 2029)

With regard to elective endoscopic procedures, percutaneous endoscopic gastrostomy (PEG) stands out, which is presented as a feeding route for those patients with prolonged use of nutrition through the nasoenteral tube. It is known that the direct contact of this tube with the nasal, oropharyngeal, and esophageal mucosa can generate inflammation, ischemic lesions, and even strictures. In these contexts, the performance of the GEP can be considered superior to open surgical gastrostomy because it is less invasive and has a lower cost for its performance (CUKIER, 2000).

Despite all its importance, accessibility to upper gastrointestinal endoscopy is not fully guaranteed in Brazil. In the country's capital, in 2022, it was found by the Court of Auditors of the Federal District that more than 20,000 people were waiting in the Unified Health System waiting for an EDA and more than a quarter of these were waiting for more than 2 years (MORAES, 2023). In a nation of continental territory and where there is a large concentration of specialist doctors and resources in certain regions, it can be inferred that in the Amazon the waiting time for this exam is even longer. It is even more regrettable when this scenario is associated with the fact that UGIDE is the main test for screening and diagnosing stomach cancer, which is the second most frequent neoplasm in the North Region and the third in the Northeast Region (INCA, 2023).

The Regional Hospital of the Lower Amazon (HRBA), located in Santarém, is recognized for offering a high standard of care to the population, being one of the ten health units in the country to receive the highest score from the National Accreditation Organization. The HRBA serves more than 1.3 million people residing in 30 municipalities in western Pará, Baixo Amazonas and Xingu, being a reference in Oncology, Neurosurgery, Orthopedics, Traumatology and Renal Replacement Therapy (PRO-SAÚDE, 2020).

The interest in addressing this theme arose from the daily experience during the Internal Medicine Residency program, when on several occasions patients affected by gastrointestinal pathologies are dealt with who suffer from a lack of speed in the performance of diagnostic and therapeutic endoscopic procedures. Such experience aroused curiosity to obtain information about the endoscopic procedures performed, in order to contribute to the advancement of technical-scientific knowledge, as well as to the identification of possible opportunities for improvement in the care protocols in force in this region.

The study is essential to increase knowledge about the health conditions of patients treated at HRBA and contribute to the quality of care provided to patients in Santarém, providing a more effective and personalized approach to gastrointestinal health care. Thus, the following research question arises: how is the clinical and epidemiological scenario of patients undergoing upper digestive endoscopy at the Regional Hospital of the Lower Amazon? Finally, the objective of this study is to evaluate the epidemiological profile and results of upper digestive endoscopies between the years 2020 and 2023 at the Regional Hospital of Baixo Amazonas.

## **METHODOLOGY**

In order to meet the objective of this study, a quantitative and documentary approach was chosen, with the presentation of data obtained through a retrospective of UGIE reports from the patients' medical records. This is a retrospective study, as it is based on historical records. Finally, research is exploratory, as it seeks to identify the context, explore alternatives, or reveal new ideas to clarify and define the nature of a given situation, providing valuable information that can be used in conclusive future research (MINAYO, 2014).

The research was carried out in the region of Santarém at the Regional Hospital of the Lower Amazon of Pará - Dr. Waldemar Penna (HRBA), Av: Sérgio Henn, 1364 - Diamantino in the year 2024 in the sector responsible for information regarding information on EDA. The sample consisted of all medical records of patients who underwent the endoscopic examination during hospitalization at HRBA from January 2020 to December 2023 and who met the inclusion criteria established in the research protocol.

Exam reports from patients who underwent UGI while hospitalized at the HRBA from 2020-2023 were included in the research, and reports filled out incompletely or outside the period stipulated in the research were excluded from the research, in addition to those belonging to patients under 18 years of age.

Subsequently, data collection was carried out through a semi-structured questionnaire, covering the following variables: gender, race, age at examination, education, origin, marital status, biopsy, main endoscope finding of the esophagus, main endoscope finding of the stomach, main endoscope finding of the duodenum, performance of H. pylori research and performance of procedure. The information was tabulated in Microsoft Excel 2010 spreadsheets, and presented in the form of tables, graphs and contextualization, based on the determination of mean and median values, being complemented by values in percentages and analyzed by descriptive statistics.

The study project was submitted to Plataforma Brasil and sent to the Research Ethics Committee (CEP) of the State University of Pará (UEPA), campus XII - Santarém, in order to meet the recommendations of resolution No. 466/2012 of the National Health Council. It has approval with CAAE 82146824.9.0000.5168.

## RESULTS AND DISCUSSION

Of the total universe of 190 medical records, 39 were not included, due to lack of report, so 151 medical records and UGIE reports performed on patients hospitalized at HRBA from January 2020 to December 2023 were analyzed. In order to characterize the profile of the patients submitted to the examination in this period, Table 1 lists gender, age group, color/race, marital status, and education.

Table 1 - Distribution of patients undergoing upper gastrointestinal endoscopy at the Regional Hospital of the Lower Amazon according to sex, age group, color/race, marital status, and education between 2020 and 2023.

Variable	N	%
Sex		

Male	69	45,70%
Female	82	54,30%
Age group		
20-29	14	9,27%
30-39	14	9,27%
40-49	22	14,57%
50-59	24	15,89%
60-69	47	31,13%
70-79	22	14,57%
80-99	8	5,30%
Color/Race		
White	13	8,61%
Indigenous	1	0,66%
Black	2	1,32%
Brown	131	86,75%
Not informed	4	2,65%
Marital status		
Married	14	9,27%
Divorced	14	9,27%
Separate	24	15,89%
Single	47	31,13%
Stable union	22	14,57%
Widower	8	5,30%
Not informed	22	14,57%
Schooling		
Illiterate	9	5,96%
First degree	34	22,52%
Incomplete primary school	30	19,87%
High school	28	18,54%
Incomplete high school	14	9,27%
Complete Superior	7	4,64%
Incomplete Superior	2	1,32%
Not informed	27	17,88%
Total	151	100%

Source: Survey Data (2024).

Thus, it is noted that in terms of the gender variable, women were the ones who underwent the most UDE, corresponding to 54.3% of the sample. The average age calculated was 56 years, with a higher occurrence in the 60-69 age group. The predominant race/color was brown, with 131 representatives, and UGI was performed in single individuals with a primary level of education.

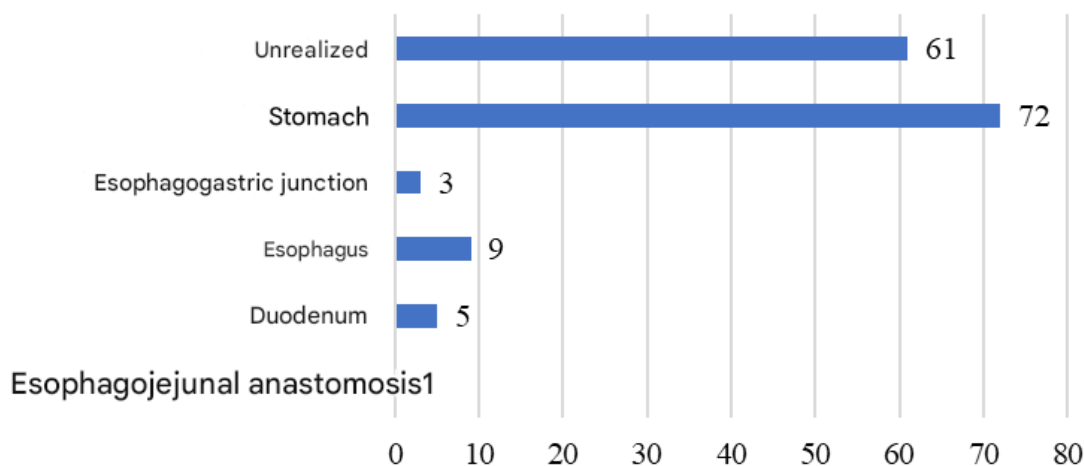
These findings are in line with the research by Coelho *et al* (2017), where of the total of 974 patients studied, 608 (64.42%) of the reports belonged to women and 366 (35.58%) to men, evidencing the recurrent female profile in the performance of this type of exam. The authors also discuss the age group, corroborating what was observed in this study, in the study by Coelho *et al* (2017) the performance of UGIE in patients over 60 years of age predominated, evidencing the increase in this population portion in diagnostic procedures, a direct reflection of population aging in Brazil.

Thus, the need for special attention to elderly patients during endoscopic procedures is reinforced, with emphasis on the individualization of pharmacological management, reduction of sedative doses, and rigorous monitoring of cardiorespiratory functions. The growing demand for procedures of this type among the elderly population highlights the importance of clinical protocols adjusted to this group, ensuring greater safety and efficacy (SAKAE; SAKAE; RUZON, 2012; COELHO *et al.*, 2017).

Regarding the schooling variable, most of them had completed primary school (22.52%). Unfortunately, it is necessary to emphasize that the amount of uninformed data regarding education (17.88%) may make the reliability of this study variable fragile. It is necessary to correct this type of inconsistency in the capture of patient data in electronic medical record systems (ESPÍRITO SANTO, 2019; FERREIRA *et al.*, 2011).

It was analyzed whether biopsies were performed in the UGIs performed, in this sense, most patients underwent biopsy, with 90 (59.6%) representatives, while 61 (40.3%) were not submitted.

Graph 1 – Biopsies performed on patients undergoing upper digestive endoscopy at the Baixo Amazonas Regional Hospital between 2020 and 2023.



Source: Survey Data (2024).

This predominance of gastric biopsies is in line with the clinical relevance of this site, considering the high incidence of conditions such as gastritis, ulcers, and detection of *Helicobacter pylori* (PH), which are frequently investigated in endoscopies. In addition, stomach evaluation is a routine practice in UGI due to its accessibility during the procedure

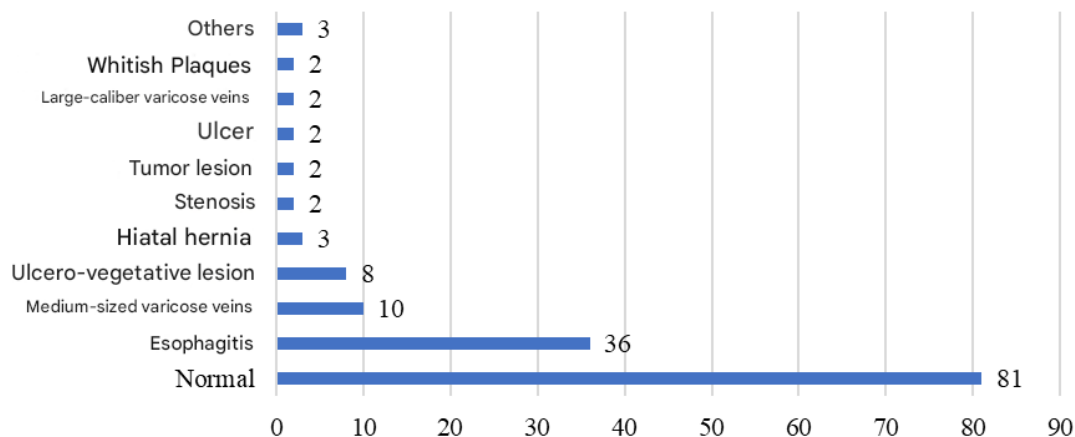
and the importance of early diagnosis, especially in gastric neoplasms (CARBONARI; ASSEF; MARIONI, 2012).

The variation in the prevalence of PH infection in different regions of the world is closely linked to socioeconomic conditions, and the difference between developed and developing countries is remarkable. This disparity reflects unequal access to fundamental factors such as basic sanitation, quality food, hygiene practices, and health care, including dental care and preventive actions (FRUGIS *et al.*, 2016). In this sense, the sample analyzed which UDE was performed by PH, where 102 (67.5%) were not tested and another 49 (32.4%) were investigated for infection. However, during the data collection of these studies, there was no access to the results of the anatomopathological analyses and the search for *H. pylori* from the endoscopies performed.

The data from the study proposed by Frugis *et al.* (2016) on the population studied in São Paulo in a private service show a significant drop in the prevalence of PH over a decade, accompanied by a reduction in its incidence in patients with diseases diagnosed by endoscopy. These findings suggest that improvements in health determinants, such as increased awareness of healthy eating, adherence to preventive care, and expanded access to information, play a central role in reducing the prevalence of infection.

In turn, about the parts that make up the gastrointestinal system, the main alterations found in the esophagus, stomach and duodenum were investigated, so graph 2 says about the esophageal alterations.

Graph 2 – Occurrence of esophageal alterations found in patients undergoing upper gastrointestinal endoscopy at the Regional Hospital of Baixo Amazonas between the years 2020 and 2023.



Source: Survey Data (2024).

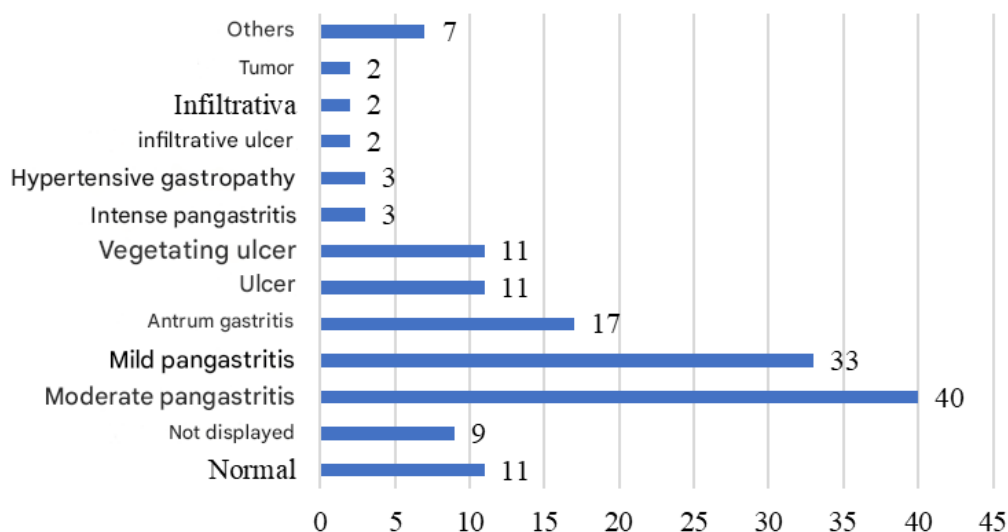


Regarding esophageal alterations, 81 (53.6%) of the patients submitted to UGIE had no alterations found in the examination, while 70 (46.3%) presented alterations, 36 (51.4%) with esophagitis, 10 (14.2%) with medium-caliber varicose veins, 8 (11.4%) ulcer-vegetating lesions, 3 (4.2%) hiatal hernia, and 2 (2.8%) had stenosis or tumor lesion or ulcer or large-caliber varicose veins or whitish plaques.

Domingues *et al.* (2023), showed in their study that 36.2% of the exams revealed alterations in the esophagus, with erosive esophagitis being the most predominant, present in 90.8% of the cases with alterations, which corroborates the finding in this study. Gondim *et al.* (2022) also corroborates the finding in this study, concluding in its analyses that the most recurrent finding in UGI in the esophagus was esophagitis.

Next, regarding gastric alterations, it is noted that only 11 (7.2%) had an unaltered UGI, while the majority, with 140 (92.7%) patients, had gastric alterations. Among them, the occurrence of moderate pangastritis was observed in 40 (28.5%) of the patients, mild pangastritis in 33 (23.5%), antrum gastritis in 17 (12.1%), vegetative ulcer or ulcer in 11 (7.8%), hypertensive gastropathy or severe pangastritis in 3 (2.1%), and tumor or infiltrative findings or infiltrative ulcer in 2 (1.4%) of the patients, as shown in Graph 3.

Graph 3 – Occurrence of gastric alterations found in patients undergoing upper digestive endoscopy at the Baixo Amazonas Regional Hospital between 2020 and 2023.



Source: Survey Data (2024).

The gastric findings of this study highlight the significant occurrence of gastritis, corroborating other studies, Bertges *et al.* (2018) reported a recurrence of 81.52% of diagnosed gastritis, predominantly located in the gastric antrum. Similarly, Furtado and

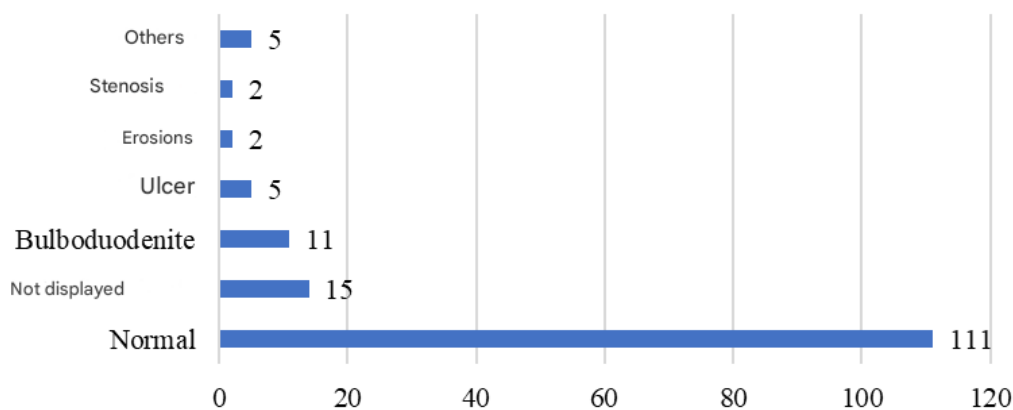
Debiasi (2018) also identified gastritis as the predominant finding in their analyses. These results are supported by the data presented in the present study, where gastritis was also the most frequently diagnosed condition.

The high occurrence of gastritis, observed in different studies, can be attributed to multifactorial factors, including poor dietary habits, *Helicobacter pylori* infection, long-term use of nonsteroidal anti-inflammatory drugs (NSAIDs), and stress-related factors. In addition, the predominant location in the gastric antrum may be associated with the local impact of acidic pH and the presence of *H. pylori*, which frequently colonizes this region (Carbonari; Assef; Marioni, 2012).

The use of NSAIDs is associated with adverse effects on the gastrointestinal tract, especially due to the inhibition of the enzyme cyclooxygenase (COX) and the consequent reduction in prostaglandin production. These prostaglandins play a protective role in the gastrointestinal mucosa by promoting mucus production, bicarbonate secretion, epithelial renewal, and adequate mucosal blood supply. The reduction of these protective functions explains the sensitivity of the gastrointestinal tract to these drugs and the prevalence of lesions such as gastritis, ulcers, and erosions in patients using NSAIDs (Haro; Fey, 2010).

Regarding duodenal alterations, 111 (74%) did not present any alteration in UDE, while 40 (26.5%) presented alterations, among them, 11 (27.5%) presented bulboduodenitis, 5 (12.5%) presented ulcers and 2 (5%) presented stenosis or erosions, as shown in graph 4.

Graph 4 – Occurrence of duodenal alterations found in patients undergoing upper digestive endoscopy at the Regional Hospital of Baixo Amazonas between the years 2020 and 2023.



Source: Survey Data (2024).

When comparing the findings of the present study with the results reported in the literature, it is clear that there is partial convergence in relation to the duodenal alterations identified. In the present study, 74% of the patients did not present changes in the duodenum during UGI, while 26.5% had changes. Among these alterations, bulboduodenitis was the most recurrent, occurring in 11 patients (27.5%), followed by duodenal ulcers (12.5%), stenosis and erosions (5%).

In the literature, Rolim Júnior *et al.* (2021) reported idiopathic lymphangiectasia and then duodenitis as the most frequent findings in the duodenum. Viana (2019) highlights the greater predominance of duodenitis, which is partly in line with the data from the present study, where bulboduodenitis was the most common alteration among positive cases. In addition, as observed in the present study, other studies also show the presence of duodenal ulcers as relevant findings.

This similarity between the studies highlights the importance of duodenitis and ulcers as prevalent conditions in the context of duodenal alterations detected by UDE. The differences observed, such as the higher occurrence of idiopathic lymphangiectasia in other studies, may reflect variations in the population sample, in the patient selection criteria, or even in the regional and socioeconomic characteristics that influence the profile of gastrointestinal pathologies (Haro; Fey, 2010).

In addition to the investigations discussed, it is noteworthy that it is possible to perform other procedures based on UGI, in the sample, this fact was analyzed, and it was found that 27 (17.8%) patients underwent some procedure with UGI, while 124 (82.1%) did not undergo any procedure. Of the procedures performed, post-pyloric nasoenteric tube insertion was mentioned in 11 (40.7%) of the patients, followed by varicose vein ligation in 6 (22.2%), gastrostomy in 4 (14.8%), sclerotherapy in 3 (11.1%) and clipping, clipping, and sclerotherapy and nasoenteric tube replacement in 1 (3.7%) patient.

These data reflect the versatility of UDE as a tool that is not only diagnostic, but also therapeutic, especially in contexts that require urgent interventions or that can be performed in a minimally invasive way. The predominance of nasoenteric tube passage highlights the relevance of this procedure in the management of patients in need of advanced nutritional support, especially in situations where the oral route is compromised. Both postpyloric nasoenteric tube passage and gastrostomy are essential interventions to ensure the continuity of enteral nutrition, either temporarily or permanently, depending on the underlying clinical condition.

Varicose vein ligation and sclerotherapy, procedures performed in patients with portal hypertension or active bleeding, are fundamental in the management of severe conditions, such as esophageal varices or hemorrhagic gastric varices, evidencing the crucial role of UGIE in the control of potentially fatal complications (Haro; Fey, 2010).

These findings also emphasize the importance of adequate planning of the endoscopic procedure, with the availability of resources and a team trained to perform therapeutic interventions, when necessary. The possibility of addressing varied conditions in a single procedure makes EDA a valuable resource for modern medicine, contributing to the reduction of risks and costs associated with separate interventions (Monutti, 2023).

## **CONCLUSION**

This study corroborates the literature, which shows the predominance of females, elderly individuals, and brown individuals among patients undergoing upper gastrointestinal endoscopy (UGI). Gastric biopsies were the most frequently performed, standing out for their clinical relevance in the detection of gastritis, especially in the gastric antrum, reaffirming the multifactorial factors involved, such as inadequate eating habits, prolonged use of nonsteroidal anti-inflammatory drugs (NSAIDs), and PH infection.

The study showed a predominant profile of female patients (54.3%), with a mean age of 56 years and a greater predominance in the age group between 60 and 69 years. Brown race/color was the most frequent, and most individuals were single and had up to elementary school.

Regarding the biopsies performed, 59.6% of the patients underwent the procedure, with the stomach being the most analyzed site (80%), followed by the esophagus (10%) and duodenum (10%). This predominance of gastric biopsies is related to the high incidence of gastritis, ulcers, and the detection of PH, which are frequently investigated during the examination. PH testing was performed in 32.4% of the patients, reflecting its clinical relevance, although the prevalence of infection has been decreasing due to improvements in public health conditions and eating habits.

Esophageal alterations were identified in 46.3% of the cases, with esophagitis as the most common condition (51.4%), while in the stomach, 92.7% of the patients presented alterations, especially moderate (28.5%) and mild (23.5%) pangastritis. These findings reinforce the importance of factors such as PH infection, use of NSAIDs, and stress in the genesis of gastric conditions. In the duodenum, 26.5% of the examinations revealed

alterations, with bulboduodenitis (27.5%) and ulcers (12.5%) being the most frequent findings.

Finally, the need for individualization in the clinical management of elderly patients during UGI is emphasized, with special attention to the choice and adjustment of sedative doses, due to the physiological changes of aging and the associated risks. Adapted clinical protocols and rigorous monitoring are essential to ensure greater safety and efficacy in the diagnostic procedures of this population. The lack of access to the results of the biopsy reports performed and data on the use or not of NSAIDs by patients submitted to UGIE examination were the main limiting factors of the study. The continuity of research in this field will contribute to the improvement of care practices and to a better understanding of the conditions that affect the gastrointestinal system of the population of the Amazon.

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