

# Gastrointestinal endoscopy in a Mexican rural community

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## RESUMEN

**Antecedentes.** Las enfermedades gastrointestinales son una causa importante de morbilidad y mortalidad en nuestro país. La demanda de procedimientos endoscópicos rebasa por mucho los recursos disponibles. Este problema es mayor en zonas rurales. **Objetivo.** Realizar endoscopias en pacientes con síntomas e indicaciones de este estudio para diagnosticar enfermedades gastrointestinales en una zona rural. **Material y métodos.** Se llevó a cabo una jornada de endoscopia, con un equipo integrado por el jefe de la Clínica de Gastroenterología del Hospital Médica Sur, cinco residentes de gastroenterología y un anestesiólogo. Mediante un cuestionario se identificaron pacientes con síntomas gastrointestinales e indicación de estudio de endoscopia. **Resultados.** Los síntomas más frecuentes fueron relacionados con enfermedad por reflujo gastroesofágico. El hallazgo más común mediante endoscopia fue gastritis eritematosa. Se diagnosticó un caso de carcinoma gástrico avanzado. Se establecieron los tratamientos de acuerdo con los diagnósticos. **Conclusión.** Todos los pacientes con indicación de realizar endoscopia presentaron hallazgos patológicos, lo que demuestra la necesidad de tener acceso a procedimientos endoscópicos en el país.

**Palabras clave.** Signos y síntomas digestivos. Dispepsia. Reflujo gastroesofágico. *Helicobacter pylori*. Endoscopia. Gastrointestinal.

## ABSTRACT

**Background.** Gastrointestinal diseases are a major cause of morbidity and mortality in Mexico. Endoscopic procedures demand far exceeds available resources. This problem is greater in rural communities. **Objective.** The main objective of this study was to perform endoscopies in patients with symptoms and indication of this study to diagnose gastrointestinal diseases in a rural area. **Material and methods.** We performed a cross-sectional study. We identified patients with gastrointestinal symptoms and they were scheduled to an endoscopy procedure. **Results.** The most common symptoms were related to gastroesophageal reflux disease. The most common finding was erythematous gastritis. A case of advanced gastric carcinoma was diagnosed. **Conclusion.** All patients with indication for endoscopy showed pathological findings, demonstrating the need for access to endoscopic procedures in our country.

**Key words.** Digestive signs and symptoms. Dyspepsia. Gastroesophageal reflux. *Helicobacter pylori*. Barrett esophagus. Gastrointestinal endoscopy.

## INTRODUCTION

In Mexico, economic, environmental, sanitation and sociocultural factors, make gastrointestinal diseases a major cause of morbidity and a motive for high demand of services to the healthcare system. Endoscopy is a tool that has proven to be useful in the evaluation and management of multiple digestive disorders. However, in Mexico, demand of services overcomes availability of the established health-

care system, leaving a large proportion of patients with no chance of diagnosis and treatment. National Mexican Health and Nutrition Survey (Encuesta Nacional de Salud y Nutrición, ENSANUT) reported in 2012, that 25% of the Mexican population has no affiliation to any source of healthcare system, which limits the availability of specialized care and resources such as endoscopic procedures, especially in rural areas. Gastrointestinal (GI) diseases and symptoms, are the fourth leading cause of medical

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consultation in the age group between 20 and 49 years and ranks second among 50 and 69 years.<sup>1</sup> Among upper GI tract symptoms, dyspepsia is one of the most frequent causes of search for medical attention, recent epidemiological studies estimate that this symptom has a prevalence of 7% to 45% in the general population.<sup>2</sup> The organic causes to rule out in patients with dyspepsia are peptic disease, gastroesophageal reflux disease, *Helicobacter pylori* infection and functional dyspepsia, upper endoscopy is required in all cases.<sup>3</sup> In Mexico, there is only a few epidemiological information about the frequency of gastrointestinal diseases. One study reported that the most common symptoms in Mexican adults are bloating, epigastric pain and regurgitation, and these increase along with body mass index.<sup>4</sup>

Tlapa de Comonfort is the municipal seat of the Mountain region of the Mexican State of Guerrero with a population of 46,975 persons in the last population survey. This region has been classified as one of the parts of Mexico with extreme poverty and high index of margination, inhabited mostly by indigenous population of various ethnic groups such as Mixtecs and Tlapanecs. Although Tlapa is the main town of the Mountain region, with access to basic educational services, primary healthcare centers and communication to important cities in the state of Guerrero, it also is the economic and political center of the region, and plays an important role in the development of the municipalities that surround it, however at least 10 of the 19 municipalities in this region have a Human Development Index below 0.6, with the most deprived municipality in all of Mexico in this region. Human Development Index qualifies three parameters:

- General health, according to life expectancy at birth.
- Education, measured by alphabetization rate.
- Prosperity, measured by *per capita* income.

The main objective of this study was to perform endoscopies in patients with GI symptoms and indications of this study, to diagnose GI diseases in a rural area of Mexico. As secondary objective, frequency of GI symptoms and digestive diseases, were analyzed.

## MATERIAL AND METHODS

A cross-sectional study was performed from February 2nd - 5th 2014, by the Gastroenterology Department of Medica Sur Clinic and Foundation in the MAS Foundation Clinic in Tlapa de Comonfort, Mexico.

A GI symptoms questionnaire was performed during GI specialized consultation to identify patients with indication of an endoscopic procedure. The questionnaire included upper and lower GI tract symptoms such as heartburn, regurgitation, epigastric pain, dysphagia, weight loss, melena, hematemesis, rectal bleeding, as well as risk factors such as alcohol consumption and prior knowledge of liver disease and comorbidities. After clinical evaluation and review of the questionnaire, patients with indication of upper endoscopy and/or colonoscopy were informed of the need of the procedure and informed consents were collected. The study was approved by the ethics committee of our Institution.

Upper endoscopy was performed under local anesthesia. Patients with indication of colonoscopy, were given oral and written information about colonic preparation for the procedure according to the current guidelines.<sup>5</sup> Colonoscopies were performed under general sedation with continuous cardio-respiratory monitoring by an Anesthesiologist, according to established guidelines.<sup>6</sup> Monitoring of vital signs continued until 2 h after the procedure was finished.

Biopsies were taken when endoscopic or clinical findings required them to be performed, according to current guidelines.<sup>7,8</sup> Tissue samples were included in formalin and sent for histopathological analysis.

All patients received oral information about potential complications of the procedure before it was performed. Each patient received detailed information of their diagnosis, and they received treatment according to clinical, endoscopic and histopathological findings.

## Statistical analysis

A descriptive analysis was performed. Results are presented as percentages, means or medians.

## RESULTS

The questionnaire was applied to 100 patients and found that 71 patients had indication of endoscopic study: upper endoscopy, colonoscopy or both. Sixty-eight upper endoscopies and 8 colonoscopies were performed during the time of the study. General characteristics of the population are shown in table 1. The most common symptoms were heartburn, regurgitation, early satiety and weight loss (Figure 1).

One hundred and ninety endoscopic diagnoses were made in 76 endoscopic studies performed during the endoscopy campaign. The most frequent endoscopic findings

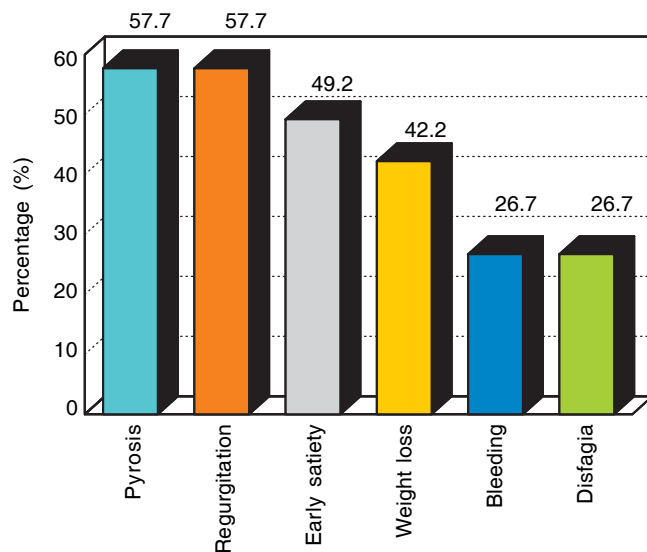
were erythematous gastropathy, erosive gastropathy, esophagitis and hiatal hernia. Among the patients with typical gastroesophageal reflux symptoms, only 36.5% had esophagitis. One patient had a malignant lesion in upper endoscopy, and one patient had a tubulovillous adenoma greater than 1 cm without dysplasia that was completely resected in colonoscopy (Table 2). There were no complications.

Because of the limited economic and material resources for this work, we only obtained 25 biopsies of lesions in 16 patients. Histopathological findings were as follows: advanced gastric carcinoma (n = 1) (Figure 2), chronic gastritis (n = 12), Barrett's esophagus (n = 1), *Helicobacter pylori* (n = 8), benign gastric polyps (n = 3), tubulovillous polyp in rectum (n = 1) and infectious colitis (n = 3).

The most common treatment prescribed was proton-pump inhibitor for gastroesophageal reflux disease and peptic ulcer disease, as well as *Helicobacter pylori* eradication treatment.

**Table 1.** Population characteristics.

| Parameter                  | Frequency, n (%) |
|----------------------------|------------------|
| Gender                     |                  |
| Male                       | 42 (59%)         |
| Female                     | 29 (41%)         |
| Age (mean years)           | 49.6             |
| Risk factors               |                  |
| Significant alcohol intake | 6 (8.4%)         |
| Alcoholic liver disease    | 3 (4.2%)         |



**Figure 1.** Frequency of gastrointestinal symptoms.

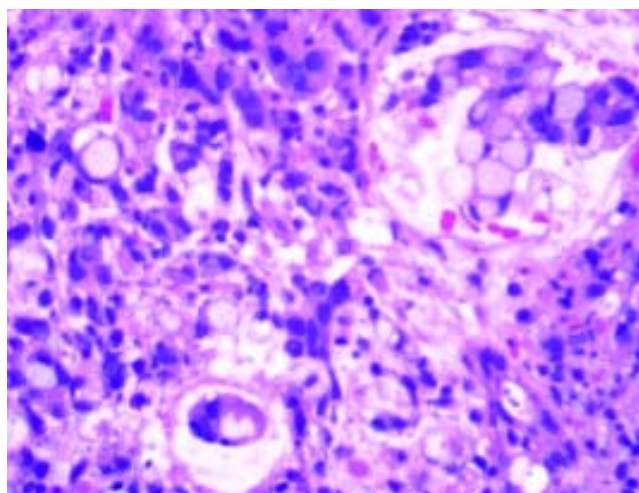
## DISCUSSION

In this work, we performed upper endoscopy and/or colonoscopy in patients with gastrointestinal symptoms in a Mexican rural area. Seventy-one uncomplicated procedures were performed. The most frequent disease was gastroesophageal reflux disease. The most frequent

**Table 2.** Endoscopy findings.

| Endoscopy diagnosis                    | ICD-10* | Absolute frequency (%), n = 71 |
|--|---------|--------------------------------|
| Erythematous gastropathy               | K29.7   | 27 (38)                        |
| Erosive gastropathy                    | K29     | 15 (21)                        |
| Esophagitis                            | K20     | 15 (21)                        |
| Gastric ulcer                          | K25     | 15 (21)                        |
| Hiatal hernia                          | K44     | 13 (18)                        |
| Biliar reflux                          | K21     | 9 (13)                         |
| Nodular gastropathy                    | K29.5   | 9 (13)                         |
| Duodenitis                             | K29.8   | 6 (8)                          |
| Lower esophageal sphincter incompetent | K22.9   | 6 (8)                          |
| Esophageal varices                     | I85     | 5 (7)                          |
| Gastric varices                        | I86.4   | 3 (4)                          |
| Gastric adenocarcinoma                 | C16     | 1 (1)                          |
| Barret's esophagus                     | K22.7   | 2 (3)                          |
| External hemorrhoids                   | I84.5   | 1 (1)                          |
| Espastic colon                         | K58     | 1 (1)                          |
| Gastric angiodysplasias                | K55.8   | 2 (3)                          |
| Non-specific colitis                   | K52     | 2 (3)                          |
| Tubulovillous polyp in rectum          | D12.8   | 1 (1)                          |
| Schatzky ring                          | K22.2   | 1 (1)                          |

\*International statistical classification of diseases and related health problems.



**Figure 2.** Poorly differentiated diffuse gastric carcinoma with signet ring cells, ulcerated in antral mucosa type.

symptoms were heartburn and regurgitation; thirty-seven percent of these patients had esophagitis; however, information of proton pump inhibitor intake is not available. Esophagitis frequency our study is similar with the reported in literature.<sup>9</sup>

We found abnormalities in all endoscopic studies. The most common endoscopic finding was erythematous gastropathy, followed by erosive gastropathy, esophagitis and peptic ulcer. Only one patient with the diagnosis of invasive gastric carcinoma was found. Patients with gastric varices were referred to a second level hospital for treatment. In colonoscopy procedures, the most common finding was nonspecific abnormalities and infectious colitis, the patient with the resected adenoma was referred to a third level center for further studies and following.

In Mexico, in spite of Universal healthcare system, most of the population do not have access to endoscopic studies. Data of this study shows that the prognosis of patients can change with endoscopy procedures to obtain a proper diagnosis and treatment. However, the most important limitations of our study are the small population and the short extent of the endoscopy campaign, so that the findings cannot be generalized.

In conclusion, all of the patients selected through symptoms questionnaire and specialist consultation for endoscopic approach showed pathological findings. Despite the small population described in this study, these outcomes suggest that more available resources for the diagnosis of GI tract pathologies should be available for rural areas in Mexico.

## HIGHLIGHTS

- Mexican rural communities frequently do not have the opportunity of endoscopy procedures.
- Patients underwent to endoscopy showed pathological findings.
- Prognosis of patients can change with endoscopic procedures.

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