

REAL TIME OPTICAL DIAGNOSIS IN PREMALIGNANT GASTRIC PATHOLOGY

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Gastric cancer remains a major cause of morbidity and mortality worldwide, although in some industrialized countries its incidence is steadily decreasing. The 5-year postoperative survival rate for early cancers is 90-95%, while only 20-40% of patients with advanced gastric cancer will survive 5 years. In addition, due to recent advances in mucosal endoscopic resection techniques, surgery is no longer necessary in most patients diagnosed with early gastric cancer. Therefore, early detection of gastric cancer through vigilant surveillance of high-risk patients is currently the best strategy to increase survival and quality of life for these patients.

The development of gastric cancer is a multistep process, consisting in inflammatory changes of gastric mucosa, which may progress to atrophic and metaplastic transformation, followed by dysplasia and gastric adenocarcinoma. Thus, atrophic gastritis, intestinal metaplasia and dysplasia are considered premalignant gastric lesions. Diagnosis of these lesions indicates the need for subsequent endoscopic surveillance to detect gastric cancer in an early stage with the possibility of endoscopic resection and a very good prognosis.

In recent years, numerous studies have analyzed the prevalence of gastric premalignant lesions, demographic, clinical and endoscopic characteristics of patients, as well as diagnostic methods that allow patients to be identified and trace the lesions at a premalignant stage. In Romania, the studies addressing the aforementioned topics are few, therefore, the present research aims to evaluate the characteristics of patients with premalignant gastric lesions within our country, as well as the newest methods of diagnosis of this disease.

The general part of our study presents the actual stage of the knowledge regarding the importance and controversies related to the diagnosis and surveillance of premalignant gastric lesions. This chapter is based on the laborious analysis of 229 bibliographic titles and presents the definition, epidemiology, relationship with *Helicobacter pylori* and other risk factors, diagnosis, monitoring and treatment of premalignant gastric lesions.

The personal research included 2 studies conducted in the Clinic of Gastroenterology of Mureş County Clinical Hospital, structured in such a manner as to achieve the proposed objectives.

The aim of the first study was to assess the prevalence, clinical, endoscopic and histological features of premalignant gastric lesions in a group of 482 patients investigated by upper digestive endoscopy for various digestive symptoms.

We demonstrated a prevalence of 28.4% for intestinal metaplasia, 15.56% for atrophic gastritis and 1.65% for dysplasia, respectively. A similar gender distribution and a significant increase in the prevalence of premalignant gastric lesions with age were observed. Clinically, the presentation symptom was dominated by dyspepsia, but association with the alarm symptoms did not have the value of a valid diagnostic test. *Helicobacter pylori* infection was evaluated only by histopathological examination of gastric biopsy specimens and the prevalence was 28,8%. Our findings showed a significant correlation between *Helicobacter pylori* infection and histologic evidence of atrophic gastritis ($p=0,0181$), this association being even stronger between infection and atrophic gastritis at endoscopic examination ($p=0,0008$). This data emphasizes the role of *Helicobacter pylori* infection as initiator or promoter of gastric carcinogenesis. We did not find the same association between *Helicobacter pylori* infection and gastric intestinal metaplasia ($p=1.000$). The main explanation is that at the final stage of the disease, gastric atrophy with intestinal metaplasia were very serious and determine an unfavorable environment for *Helicobacter pylori*, leading to reduction or disappearance of the organism.

The most common endoscopic appearance was erythematous gastritis, which occurred in 31.9% of patients. Premalignant gastric lesions have been associated with various endoscopic aspects from mucosal erythema to atrophy. Regarding the endoscopic findings, we found a positive correlation between erythematous gastritis and the histological evidence of gastric intestinal metaplasia ($p=0.066$), and also an even stronger association between atrophic gastritis and gastric intestinal metaplasia ($p=0.0001$) emphasizing that the malignant transformation of gastric mucosa involves a temporary sequence starting with the acquisition of *Helicobacter pylori* infection.

The primary aim of the second study was to evaluate the clinical usefulness of NBI-magnifying endoscopy in the detection and characterization of premalignant gastric lesions based on specific endoscopic criteria previously validated in numerous reference studies. A total of 59 patients with dyspeptic symptoms were prospectively included in the study for endoscopic evaluation. One hundred and seventy-seven distinct areas were examined by applying magnifying high-definition NBI and targeted biopsies.

The use of specific mucosal and vascular patterns allowed detection of intestinal metaplasia and dysplasia with a diagnostic accuracy of 80.2% and 91.1%, respectively, compared with the histopathological examination considered "gold standard". Optical diagnostic also allowed the evaluation of the topography and extension of premalignant gastric lesions with the identification of 29 patients with extensive lesions with increased risk of developing gastric cancer which subsequently benefit from endoscopic surveillance.

