

Chronic Gastritis at Helicobacter Pylori: Relevance of Classifications OLGA and OLGIM

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Abstract: *Introduction:* Chronic gastritis with *Helicobacter pylori* is a common condition that progresses in 1-3% of cases to gastric adenocarcinoma. The purpose of this work was to identify high-risk patients in the OLGA and OLGIM classifications. *Methods:* This was a 4-year and 8-month descriptive retrospective study in N'Djamena. Included were all gastric biopsies for histological analysis in the Department of Pathological Anatomy and Cytology. *Results:* one hundred and fifty-two gastric biopsies were analyzed, including 79 cases of chronic gastritis. The average age of patients was 46.53 years with extremities of 11 and 80 years. Males account for 54.3% compared to 45.7% for females. The sex ratio was 1.2. High-risk cases vary 28.6% according to OLGA and 4.3% according to OLGIM. A statistically significant correlation was found between the OLGA and OLGIM stages and age over 55 ($p = 0.0088$). OLGIM underestimates 85% of high-risk cases according to OLGA. The level of risk increases with age. Eight cases of dysplasia were identified, including 5 cases (62.5%) associated with high-risk OLGA stages and 1 case (12.5%) with high-risk OLGIM stages. Seven cases of dysplasia (87.5%) were associated with low-risk OLGIM and 3 cases (37.5%) were associated with low-risk OLGA stages. *Conclusion:* OLGA and OLGIM systems in addition to the Sydney system allow the identification of chronic gastritis with high-risk *Helicobacter pylori* that evolves towards gastric adenocarcinoma.

Keywords: Chronic Gastritis, *H. pylori*, OLGA and OLGIM, Chad

1. Introduction

Chronic gastritis is an inflammatory and persistent disease of the gastric mucosa characterized by inflammatory infiltrate rich in lymphocyte cells [1]. It has several etiologies, the main one being *Helicobacter pylori* (*H. p*) infection. This bacterium is a gram-negative bacterium with essentially oro-oral and oro-fecal transmission [2]. It has a variable prevalence: 40% in Eastern Europe, 80% in Asia, 72% in South America and of the order of 70% in sub-Saharan Africa [2] and 60.82% in N'Djamena-Chad [3]. Chronic *H. p* gastritis progresses in 1-3% of cases to gastric adenocarcinoma via glandular atrophy, intestinal metaplasia and dysplasia [4].

In practice, the Sydney classification [5] is commonly used to stadify chronic gastritis to *H. pylori* but it does not clearly identify patients at high risk for gastric adenocarcinoma.

Thus, Rugge and Capelle respectively proposed the histoprostic classifications called OLGA (Operative link for Gastritis Assessment) and OLGIM (Operative link on Gastric Intestinal Metaplasia Assessment), which make it possible to identify high-risk cases [6, 7]. These classifications are rarely used in Africa.

In Chad, despite the high prevalence of Hp infection, no work has been done on this subject to our knowledge. Hence the interest of this work which aims to evaluate the OLGA and OLGIM classification and thus identify high-risk cases of chronic gastritis.

2. Methodology

It was a retrospective, descriptive study of 4 years and 8 months (January 2016 to August 2020) at the Pathological Anatomy and Cytology Department of the National Reference Hospital of N'Djamena, Chad. Included were patients of all sexes, aged 18 years or older, who had 5 gastric biopsies taken for histological study (2 at the gastric anterior, one at the angle of the small gastric curvature and 2 others at the gastric body). The biopsies were fixed to formalin 10% and then treated according to the technique described by the association of Pathology Cytology Development (PCD, 2014).

2.1. OLGA Classification

It is based on the semi-quantitative evaluation of the intensity of atrophic lesions of the fundic and antral mucosa with stages ranging from 0 to IV [6].

2.2. OLGIM Classification

It consists of subdividing the cases into five stages (from 0 to IV) and according to the site of intestinal metaplasia (antral and fundic) thus defining the overall score of intestinal metaplasia [7]. For these two types of

classifications, stages 0, I and II represent stages of low evolutionary risk. Stages III and IV define stages of evolutionary high risk.

2.3. Statistical Analysis

Statistical analyzes were performed using SPSS V18 software. To study the relationship between two variables, the Chi² test was used. The differences were considered significant when p was less than 0.05.

3. Results

A total of 152 gastric biopsies were analyzed, including 70 cases of chronic gastritis with *H. pylori*, a prevalence of 46.05%.

The average age of patients was 46.53 years with extremes of 18 and 80 years. The age group most affected was 35-54 years. Male predominance was found in 54.3% of cases (n=38). The sex ratio was 1.2.

According to the OLGA classification, high-risk cases accounted for 28.6% (Stage III=15.7% and Stage IV=12.9%). The rate of high-risk cases increased with age.

There was a very significant relationship (p=0.0001) between OLGA stages and the age group 55 years and older.

Table 1. Distribution of cases by age group and OLGA stages.

Aging (year)	OLGA stages					Total	p
	Stade 0	stade I	stade II	stade III	stade IV		
<15	0	0	1	0	0	1	0,497
15-34	4	6	3	1	1	15	0,0032
35-54	6	11	8	4	3	32	0,0319
55-74	0	8	1	5	4	18	0,000
> 74	0	1	1	1	1	4	0,053
Total	10	26	14	11	9	70	

The high-risk cases according to OLGIM were 4.3% (Stage III = 1.4% and IV = 2.9%).

A statistically significant relationship was also found between OLGIM stages and age (p=0.021). High-risk cases occur from age 55.

Table 2. Distribution of cases by age group and OLGIM stages.

Aging (year)	OLGIM stage					Total	p
	stade 0	stade I	stade II	stade III	stade IV		
<15	1	0	0	0	0	1	1,000
15-34	15	0	0	0	0	15	0,0000
35-54	30	0	2	0	0	32	0,0000
55-74	15	0	1	0	2	18	0,0000
> 74	3	0	0	1	0	4	0,0000
Total	64	0	3	1	2	70	

Eight cases of dysplasia were found. There was no significant binding between the OLGA stages and dysplasia (p=0.233). Of the 8 cases of dysplasia, 62.5% are associated with high-risk OLGA stages and 37.5% with low-risk OLGA stages. There was no correlation between OLGIM and dysplasia (p=0.251). However, 12.5% of dysplasia cases were associated with high-risk OLGIM stages and 87.5% of cases are associated with low-risk OLGIM stages.

On the other hand, a significant link between the OLGA and OLGIM stages was observed (p=0.0088).

4. Discussion

The purpose of this study was to demonstrate the need to monitor high-risk chronic gastritis cases with scientific justification. It confirmed the existence of pre-cancerous lesions in patients with chronic gastritis at *Helicobacter pylori*.

The frequency of *H. pylori* chronic gastritis in this series is 46.05%. This frequency is below that of other African

authors who reported 56.7% in Cameroon, 53.4% in Togo, 57.8% in Côte d'Ivoire and 60% in Algeria [8-11]. However, it is consistent with literature data showing a decline in H. pylori infection in Africa. This decrease may be explained by antibiotic self-medication and proton pump inhibitors in our context. This self-medication would help to mask H. pylori during histological analysis [12]. On the other hand, the urbanization of our African cities, thus contributing to the improvement of the health of our populations, could also explain this decrease in the prevalence of infection.

The average age of patients is 46.53 years with extremes of 18 and 80 years. The age group most affected is youth (35-54 years). This finding is related to literature data [13-15]. Male predominance with a sex ratio of 1.2 was found in this study. This male predominance observed by several authors is linked to other factors in addition to Helicobacter pylori infection which could equally affect both men and women [7, 9, 14].

High-risk cases account for 28.6% according to the OLGA classification. This is higher than in Tunisia, the Netherlands, Portugal, Colombia and Turkey [13, 7, 16-18]. The delay in diagnosis due to the difficulties of proper care would explain this difference in our environment. Digestive endoscopy and histological analysis of biopsies have so far been inaccessible to a large part of the population, both in terms of cost and availability. Therefore, failure to perform biopsies in normal gastroscopy would help explain this situation when the absence of endoscopic lesions does not preclude chronic gastritis in histology [19]. However, our result is lower than that of China [20]. This confirms the literature data regarding the Asian zone as an area with high prevalence of chronic H. pylori gastritis and stomach cancer [2].

There is a very significant link between OLGA stages and the age group of 55 years and over. Thus, we can say that high age is correlated with a high risk of chronic gastric disease. There was also a significant relationship between OLGIM stages and age. These findings were also made by the Tunisian and Croatian authors [13, 21]. These data support the literature which states that glandular atrophy and intestinal metaplasia take place as a function of the time taken by H. pylori infection; therefore, a link with age [22].

Eight cases of dysplasia were found in this study. Of these, 37.5% are associated with low-risk OLGA stages. According to OLGIM, 87.5% of dysplasias are associated with stage 0. These results are in line with literature data which say that diffuse gastric adenocarcinoma can occur in the absence of atrophy and/or metaplasia. Because it does not always respect the natural history of chronic gastritis at H. pylori [23].

A statistically significant relationship between the OLGA and OLGIM stages ($p=0.0088$) was found in this study. OLGIM underestimates 85% of high-risk cases according to OLGA. This discrepancy between these two systems can be explained by the literature that there is a poor inter-observer agreement on precancerous lesion with a type of glandular atrophy [24].

5. Conclusion

Chronic H. pylori gastritis at high risk of gastric

adenocarcinoma is common in our environment according to the OLGA classification. However, the OLGIM classification underestimates some high-risk cases according to OLGA. Thus, a combination of these two classifications for staging chronic gastritis at H. pylori is useful in order to avoid depriving some high-risk patients of rigorous monitoring. It is important to note that chronic low-risk gastritis in OLGA and OLGIM systems associated with epithelial dysplasia are high-risk cases. Because diffuse adenocarcinoma does not always respect the natural history of chronic gastritis at H. pylori. In perspective, a broader study on the follow-up of high-risk patients after eradication of Helicobacter pylori could reveal the effectiveness of this monitoring in preventing gastric adenocarcinomas.

Conflicts of Interest

All the authors do not have any possible conflicts of interest.

References

- [1] Paré P, Shaffer EA, Thomson ABR, Menard DB, Boivin M. Principes fondamentaux de gastro-entérologie. 5^e ed. Canada: Janssen-ortho; 2005. [Fundamentals of Gastroenterology].
- [2] World Gastroenterology Organisation Global Guidelines. Helicobacter pylori dans les pays en voie de développement. WGO Global Guideline. Août 2010: 1-16. [Helicobacter pylori in developing countries. WGO Global Guideline].
- [3] Bessimbaye N, Moussa AM, Habkreo M, Moukhtar AS, Ouchemi C. Biochemical and resistance profil of Helicobacter pylori isolated in N'Djamena in Chad. Journal of Drug Delivery and Therapeutics. 2021; 11 (5-S): 33-41.
- [4] DE Korwin J. D. cancers gastriques et Helicobacter pylori. POST'U. 2003: 1-10. [gastric cancers and Helicobacter pylori].
- [5] Price AB. The Sydney system: histological division. J Gastroenterol Hepatol. 1991; 6: 209-22.
- [6] Rugge M, Correa P, Di Mario F, El-Omar E, Fiocca R, Geboes K, et al. OLGA staging for gastritis: a tutorial. Dig Liver Dis. 2008 Aug; 40 (8): 650-8.
- [7] Capelle LG, de Vries AC, Haringsma J, Ter Borg F, de Vries RA, Bruno MJ, et al. The staging of gastritis with the OLGA system by using intestinal metaplasia as an accurate alternative for atrophic gastritis. Gastrointest Endosc. 2010 Jun; 71 (7): 1150-8.
- [8] Noah DN, Andoulo FA, Bagnaka SE, Antangana PJA, Tzeuton C, Ndam ECN. Valeur de l'endoscopie de routine dans le diagnostic de la gastrite chronique antrale à Yaoundé. Revue de la Médecine et de pharmacie. 2015; 5 (1): 491-98. [Value of routine endoscopy in diagnosis of chronic antral gastritis in Yaoundé. Journal of Medicine and Pharmacy].
- [9] Bagny A, Darré T, Bouglouga O, Lawson-Ananissoh LH, Kaaga YL, El-Hadj R, et al. Gastrite chronique à Helicobacter pylori au CHU Campus de Lomé (Togo). J Rech Sci Univ. Lomé (Togo). 2014; 16 (3): 495-502. [Chronic gastritis at Helicobacter pylori at CHU Campus de Lomé (Togo)].

- [10] Doffou SA, Bangoura AD, Kouamé GD, Yaogo A, Kissi H, Allassan KM et al. Corrélation entre l'intensité de l'infection à *Helicobacter pylori* et la sévérité de l'atrophie gastrique et de la métaplasie intestinale gastrique selon le système Sydney. *Rev int méd abj-RISM*. 2019; 21 (4): 319-25. [Correlation between the intensity of *Helicobacter pylori* infection and the severity of gastric atrophy and gastric intestinal metaplasia in the Sydney system].
- [11] Tagzout D, Tebaibia A. Diagnostic histologique de l'infection à *Helicobacter pylori*: prévalence et aspects histopathologiques. *La revue de la médecine interne*. Déc 2019; 40: A105-A214. [Histological diagnosis of *Helicobacter pylori* infection: prevalence and histopathological aspects. The review of internal medicine].
- [12] Nakhli A, Bouchabou B, Hemdani N, Romdhan HB, Nejma HB, Ennaifer R. Diagnostic positif et variations anatomopathologiques au cours des gastrites chez les patients sous inhibiteurs de la pompe à protons. *La Revue de médecine interne*. 2019; 40: A101-A220. [Positive diagnosis and pathological changes during gastritis in patients receiving proton pump inhibitors. The Journal of Internal Medicine].
- [13] Slama SB, Ghachem DB, Dhaoui A, Jomni MT, Dougui MT, Bellil K. Gastrites chroniques à *Helicobacter pylori*: évaluation des systèmes OLGA et OLGIM. *PAMJ*. Fév 2016; 23 (28): 1-8. [Chronic gastritis with *Helicobacter pylori*: OLGA and OLGIM assessment].
- [14] Darré T, Amégbor K, Bagny A, Sewa E, Tchangai B, Sahiye E, et al. Profil Histo-épidémiologique des gastrites chroniques et infection à *Helicobacter pylori*: A propos de 296 cas de Biopsies au Togo. *J Afr Chir Digest*. 2013; 13 (1): 1426-30. [Chronic gastritis and *Helicobacter pylori* infection: About 296 cases of Biopsies in Togo].
- [15] Zeitoum JD, Talis AC, Lefevre J. Hépatologie Gastrologie-Entérologie Chirurgie Viscérale. 6^e ed. Paris: Vernazobres-Grego; 2017. [Hepatology Gastrology-Enterology Visceral Surgery].
- [16] Marcos-Pinto R, Carneiro F, Dinis-Ribeiro M, Wen X, Lopes C, Figueiredo C et al. First-degree relatives of patients with earlyonset gastric carcinoma show even at young ages a high prevalence of advanced OLGA/OLGIM stages and dysplasia. *Aliment Pharmacol Ther*. 2012 Jun; 35 (12): 1451-9.
- [17] Martinez D, Otero W, Ricaurte O. A case and control study of the OLGA system's impact on detection of chronic atrophic gastritis in colombia. *Rev col Gastroenterol*. 2016; 31 (4): 360-6.
- [18] Bulbuloglu E, Dagmura H, Daldal E, Deresoy A, Bakir H, Ozsoy U et al. Can simple tests prior to endoscopy predict the OLGA stage of Gastritis? *Healthcar*. 2020 July 24; 8 (230): 1-11.
- [19] Benoit A, Hoyeau N, Fléjou JF. Diagnostic d'infection à *Helicobacter pylori* sur biopsies gastriques: coloration standard, coloration spéciale ou immunohistochimie? *J Ana pathol*. 2018; 03 (009): 1-7. [Diagnostic d'infection à *Helicobacter pylori* sur biopsies gastriques: coloration standard, coloration spéciale ou immunohistochimie?].
- [20] Zhou Y, Li HY, Zhang JJ, Chen XY, Ge ZZ, Li XB et al. Operative link on gastritis assessment stage is an appropriate predictor of early gastric cancer. *WJG*. 2016 Apr 7; 22 (13): 3670-78.
- [21] Brkic N, Terzic V, Svageli M, Cvrkovic M. The prevalence and characteristics of *Helicobacter pylori*-associated gastritis in dyspeptic patient in Eastern Croatia, determined by immunohistochemistry. *Period biol*. 2017; 119 (1): 75-80.
- [22] Zhang C, Yamada N, Wu YL, Wen M, Matsuhisa T, Matsukura N. Comparison of *Helicobacter pylori* infection and gastric mucosal histological features of gastric ulcer patients with chronic gastritis patients. *World J Gastroenterol*. 2005; 11 (7): 976-81.
- [23] Guglielmi DS, D'angelo F, Bichard P, Lepilliez V, Frossard JL. Métaplasie intestinale gastrique et risque de cancer: quelle surveillance? *Rev Med Suisse*. 28 Août 2019; 15: 1502-5. [Gastric intestinal metaplasia and cancer risk: what surveillance?].
- [24] Moussata D, deKorwin JD. Gastrites chroniques. *EMC-Gastro-entérologie*. Janvier 2015; 10 (1): 1-12. [Chronic gastritis. *EMC-Gastroenterology*. *EMC-Gastroenterology*].