ORIGINAL ARTICLE

Histopathological pattern of benign endoscopic gastric biopsies in Western Saudi Arabia: A review of 1236 cases

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Abstract

Objective: To determine the histopathological pattern of gastritis and benign gastric diseases in western Saudi Arabia.

Methods: This retrospective histopathology-based study was conducted in a tertiary care hospital in Madinah, Saudi Arabia, and comprised medical records of all patients who were diagnosed to have benign gastric diseases from January 2006 to December 2015.SPSS 19 was used for data analysis.

Results: Of the 1,236 patients, 669(54.1%) were males and 567(45.9%)were females. The overall mean age was 43±10.75 years (range: 10-100 years). Besides, 755(61.1%) patients were in the age group of 20-49 years. Gastritis was diagnosed in 1,105(89.4%) cases, 1,091(88.3%) of which were chronic. Benign polypi was found in 34(2.75%) cases and normal biopsies in 97(7.85%) cases. Helicobacter pylori organisms were detected in 402(32.5%) cases. Helicobacter pylori gastritis was active in 331(82.5%) cases, atrophic in 4(0.9%) and metaplastic in 11(2.7%) cases. The mean age of gastric polypi patients was 50.1±12.52 years (range: 16-90 years). Hyperplastic polypi was seen in 30(88.2%) cases. Fundic gland polypi were found in 4(11.8%) cases.

Conclusion: Benign gastric diseases appeared to affect the younger individuals. Gastritis was more prevalent and benign polypi was less so.

Keywords: Endoscopic biopsies, Helicobacter pylori, Gastric polypi, Western Saudi Arabia, Al-Madinah. (JPMA 67: 252; 2017)

Introduction

Benign gastric diseases (BGDs) are fairly common all around the world, particularly among Asians due to their lifestyles and low socio-economic conditions. With the modernisation of health facilities, growing gastroenterology practices and endoscopic biopsies, the modern-era histopathologists face a significant load of gastric biopsies. Microscopic examinations of random endoscopic gastric biopsies show pathology in about two-thirds cases, which are predominantly inflammations and polypi. The recent studies on BGDs are predominantly based on endoscopy findings and epidemiological data.[1,2] Helicobacter pylori (Hp)-associated chronic gastritis is the most common condition, as reported in recent studies.[3,4]

Although histopathological examination is considered the gold standard for diagnosis of Hp gastritis, most of the recent studies have reported the prevalence of Hp gastritis utilising a variety of diagnostic tools such as urea breath test, campylobacter-like organism test, immunoglobulin G, culture and antimicrobial susceptibility tests.[5,6]

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There is, however, a lack of histopathology-based data for the BGD, especially gastritis and benign gastric polypi (BGP) from the Kingdom of Saudi Arabia (KSA). The present study was planned to determine the histopathological pattern of gastritis and BGD in western KSA.

Materials and Methods

This retrospective study was conducted at the Department of Pathology of a tertiary care hospital in Madinah, KSA, and comprised all patients who had been subjected to gastroscopy and gastroscopic biopsies between January 2006 and December 2015. Gastric biopsy samples were examined with routine haematoxylin and eosin (H&E) stain and Giemsa stain for histopathological examination and Hp organisms. Relevant data such as age, gender, histological diagnosis and Hp status was extracted from the histopathology reports. Patients with any malignancy, including dysplastic changes and adenomatous polypi, were excluded. Data was analysed using SPSS 19.

Results

Of the 1,236 patients, 669(54.1%) were men and 567(45.9%) women. The male-to-female (M:F) ratio was 1.2:1. The overall mean age was 43±10.12 years (range: 10-100 years). The mean ages of males and females were 45.1±11.27 years and 40.5±10.12 years, respectively. Moreover, 755(61.1%) patients were in the age group of 20-49 years. The young

Table-1: Summary of the frequency and percentages of main groups of diagnoses in our study.

Diagnosis	Frequency	(%)
Normal Histology	97	7.85
Acute Gastritis	14	1.13
Chronic Gastritis	1091	88.3
	[Out of 1091]	
Mild	912	83.5
Moderate	167	15.3
Severe	12	1.2
Benign Gastric Polypi	34	2.7
	[Out of 34]	
Hyperplastic	30	88.2
Fundic gland	4	11.8
Total Cases	**1236**	**100**

Table-2: Types of gastritis seen in 402 Hp-positive patients.

Histopathologic diagnosis	Hp-positive (n)	(%)
Chronic active gastritis	331	82.5%
Chronic non specific gastritis	56	13.9%
Gastritis with intestinal metaplasia	11	2.7%
Chronic atrophic gastritis	4	0.9%
Total	402	100%

Hp: Helicobacter pylori.

age group (<20 years) and the elderly age group (≥ 80 years) constituted 51(4.1%) and 30(2.4%) patients, respectively.

The number of cases with histopathological diagnosis of gastritis was 1,105(89.4%), 1,091(88.3%) of which were chronic gastritis. Acute gastritis was seen in 14(1.13%) cases. Benign gastric polyps accounted for 34(2.75%) cases of the total biopsies. Normal gastric biopsies were found in 97(7.85%) cases.

The mean age of patients who had chronic gastritis was 42.9±10.72 years (range: 10-100 years).Of them, 612(56.1%) were males and 479(43.9%)were females. The male-to-female ratio was 1.3:1. Chronic inflammation was mild in 912(83.5%) cases, moderate in 167(15.3%) and severe in 12(1.2%) cases. The mean age of the patients with acute gastritis was 49.5±12.37 years. Of them, 8(57.1%) were females and 6(42.9%) males. The female-to-male ratio was 1.3:1. Hp organisms were detected in 402(32.5%) cases, out of which 307(76.4%) were histologically chronic gastritis, whereas only 5(1.2%) were acute gastritis.

Of the Hp cases, there were 215(53.5%) males and 187(46.5%) females with a male-to-female ratio of 1.14:1. Their mean age was 43.6 years (SD =10.9). The age range was 15 to100 years. Most of the patients i.e. 42.5% (n=171) were in the age group of 30-49 years.

Among the gastric polypi cases, the mean age of patients was 50.1±12.52 years (range: 16 to 90 years). There were 19(55.9%) females and 15(44.1%) males. The female-to-male ratio was 1.3:1. Hyperplastic gastric polyp was the predominant type and was seen in 30(88.2%) cases. The mean age was 56±14 years, with a female-to-male ratio of 1:1. In contrast, fundic gland polypi were diagnosed in 4(11.8%) cases. These were seen in younger patients with a mean age of 47.8±11.95 years. All cases of fundic gland polypi were seen in females (Table-1).

Of the Hp-positive patients, 331(82.5%) had chronic active gastritis, 56(13.9%) had chronic non-specific gastritis, 11(2.7%) had gastritis with intestinal metaplasia and 4(0.9%) had chronic atrophic gastritis (Table-2).

Discussion

BGDs are very common in our part of the world due to the lifestyles and relatively low socio-economic conditions. There has been a significant rise in the workload and experience of histopathologists due to increased endoscopies and gastroenterology practices. Hp gastritis appears to be the most common condition. Although histopathology is considered the gold standard of Hp diagnosis, various different methodologies are available and a number of articles have been reported on their clinical application. Very few histopathology-based studies are

Table-3: Comparison of present study Hp data with relevant studies.

Study	Manxhuka-Kerliu et al 2009	Duduyumi et al 2014	Myint et al 2015	Present study 2016
Region	Kosovo [Europe]	Nigeria [Africa]	Myanmar[Asia]	Saudi Arabia [Asia]
No. of cases	154	118	252	402
% of Hp	23.37%	61%	48%	32.5%
Gastritis	Moderate [72.2%]	Mild[61.8%]	Severe[% N/A]	Active[82.5%]
Metaplasia	16.2%	8.47%	11.5%	2.7%
Atrophy	14.93%	N/A	54.7%	0.9%

N/A: Data not available.
Hp: Helicobacter pylori.

present in the recent literature, especially from our region.

The M:F ratio in our series was found to be slightly above 1, i.e. 1.2:1. The medical literature on BGD reports variable figures from different geographic regions. Two recent Nigerian studies on the upper gastrointestinal (UGI) disease report a M:F ratio of around 1:1, but with a slight female preponderance.[1,7] A study on dyspeptic patients from Bangladesh found M:F ratio of 1.77:1.[4] Brazilian scientists found even higher number of male patients (M:F = 2.2:1) during their study on upper gastrointestinal bleeding.[8] From a coastal region of India, a study of upper gastrointestinal haemorrhage reports a very high M:F ratio of 6:1.[2] Thus, literature review shows males predominance in BGD cases; our observation is in concordance with the medical literature.

The mean age of our UGI patients as a whole was found to be 43±10.75 years. There are only few studies to compare this and other age-related figures. Singh and Panigrahi from India quote a mean age of 42 years, almost the same as reported in the current study.[2] A Nigerian found the age range of UGI patients to be from 18-92 years with a mean age of 52.5 years, slightly higher than the mean age in the present study.[1] Whereas the Brazilian researchers found the mean age of 54.5 years in their UGI cases.[8] Thus we have observed an involvement of younger patients by BGD in our experience, which may be due to geographic or lifestyle reasons.

In our series, histopathological diagnosis of gastritis accounted for 89.4% of the cases. Reviewing the literature, we found that gastritis accounted for 76.3% diagnoses in a small series of 211 cases from Nigeria.[1] Al-Akwaa from KSA in a series of 62 obese patients, reported gastritis in 67.7% cases.[9] Gastritis appears to be very frequent in our patients, and over shadows all other diagnoses. This can most likely be attributed to eating lifestyles of the local population.

Hp infection has been very extensively studied and reported in recent literature due to its high prevalence. For example, researchers from Bhutan have quoted figures as high as 73.4%.[10] In a study of histological spectrum of gastrectomies from the eastern region of KSA, the endoscopic biopsies revealed 62.5% cases of Hp infection.[11] A recent large-scale study from the United States reported Hp-gastritis in only 10.6% cases.[12] There is no histological comparable study from the western region of KSA; however, Hanafi and Mohamed in their study reported an Hp prevalence of about 28% on basis of enzyme-linked immunosorbent assay (ELISA).[13] Our present histological study found a frequency of 32.5% Hp positivity in a series of 1,236 cases. We also found males to be more commonly affected by Hp infection and in the same age group. In summary, our observation of Hp frequency is midway between the high figures reported from the Asian countries and the low frequency observed by researchers in the western world.

The details of histological changes observed during Hp had been studied by a number of scientists, especially from Japan, due to very high prevalence of gastric carcinoma in their population. We observed a frequency of atrophic gastritis in less than 1% in the Hp-infected patients. In two different studies comparing the histological features of Hp in Japanese patients with Nepalese and Bangladeshi patients, Matsuhisa et al. have observed higher frequency and severity of histological changes including atrophic gastritis in Japanese patients.[14,15] Recently, Myint et al. from Myanmar found a significant association of Hp infection with gastric mucosal atrophy.[16] In contrast, Garg et al. from India, in their detailed histological study of chronic gastritis, did not find any association of atrophic gastritis and intestinal metaplasia with other histological features, including Hp infection. They recommended that Hp organisms should be carefully searched in the presence of dense chronic inflammation and neutrophilic infiltration.[17] Almost similar observation was made by another group of scientists from India; they report that the presence of H pylori is strongly associated with an acute and a chronic inflammatory infiltrate. Neutrophilic infiltrate in biopsy is strongly associated with the presence of H pylori.[18] A study conducted in Kosovo involving Hp gastritis cases found atrophy in 14.9% cases and intestinal metaplasia in16.2% cases in their benign gastric lesions.[19] In the current study, atrophic gastritis was found in only 0.9% cases and intestinal metaplasia in only 2.7% cases. Thus, in contrast to the studies from the countries with higher incidence of gastric cancer, such as Japan, we observed very low rates of the grievous precancerous changes such as atrophic gastritis and intestinal metaplasia. Most of our Hp gastritis cases were active in keeping with the studies from Asian countries (Table-3).

BGPs are usually small in size and detected incidentally during gastroscopic examination. However, occasionally these polypi may be large and responsible for bleeding, obstructions and malignant change. In our study, we found 34 BGPs accounting for 2.75% of BGDs. In 2009, Carmack et al. reported the prevalence of gastric polypi to be 6.35%.[20] Elhanafi et al. found 4.7% polypi in their upper endoscopy patients.[21] Thus our experience in the tertiary care hospitals of the western region of KSA was that of low prevalence of BGP, as compared to most of the figures quoted in the world medical literature. In concordance to our observation, very high frequencies (71.3%) of hyperplastic polypi have also been reported in the recent literature.[22] In divergence to our results, a few studies have also reported fundic gland polypi (FGP) to be more prevalent than hyperplastic polypi. In 2015, Sonnenberg and Genta et al. reported 7.72% prevalence of

FGP versus 1.79% of gastric hyperplastic polypi.[23] In a study related to FDG and its association with gastrointestinal tract(GIT) neoplasia, Genta et al. found 6,081(7.7%) FGP in 78,801 gastric biopsies; more than two-thirds of them were females.[24] Our findings were in concordance with this study as we also observed that all our four FGP patients were females. Our observation of FGP occurring in females was also in agreement with a Chinese study.[25]

Regarding BGP, we experienced lesser frequency of polyps as compared to the prevalence reported in the literature. However, our findings are in concordance with most of the world literature that hyperplastic polyps are more common than FGP, and that BGPs affect more females than males.

Conclusion

The demographic and pathological findings were consistent with the national and international figures. However, as a whole BGDs appeared to affect the younger individuals in our population. Gastritis was prevalent in our patients, with the frequency of Hp gastritis lower as compared to studies conducted in other Asian countries and higher than western countries. The frequency of precancerous histological changes was also low. Polyps were less prevalent in our experience, although the pattern of diagnosis was in keeping with that reported in world literature. Further pathology-based studies of larger patient cohorts at regional and national levels are recommended.

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Conflict of Interest: None.

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