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Histopathologic Spectrum of Upper Gastrointestinal Tract Endoscopic Biopsies in Taif Population: Retrospective Study

Howaida M. Hagag[1,2], Afaf Alharthi[2], Khalid Q. Ghallab[3], Asmaa F. Hassan[4], Amal A. Alqurashi[2], Sara A. Alzahrani[2], Ebtehaj M. Alqarni[2], Reem A. Ramadan[5], Khaled Ali[6], Ahmed M. Mahmoud[7], Amr Moustafa[8] and Khadiga A. Ismail[2]

[1]Department of Pathology, Faculty of Medicine, Al-Azhar University, Nasr City, Cairo 11884, **Egypt**.
[2]Department of Clinical Laboratory Sciences, College of Applied Medical Sciences, Taif University, P.O. Box 11099, Taif 21944**, Saudi Arabia**
[3]Consultant Anatomical Pathologist/Bone and Soft tissue Pathologist,Director, Laboratory and Blood Bank Department, KAASH, Taif, **Saudi Arabia**
[4]Department of Physiology, College of Medicine, Taif University, P.O. Box 11099, Taif 21944, **Saudi Arabia**
[5]Faculty of Medicine, Modern University for Technology and Information, Cairo, **Egypt**
[6]Department of Internal Medicine, Mayo Clinic, Rochester, MN, **USA**
[7]Department of Urology, Mayo Clinic, Rochester, MN, **USA**
[8]Department of Internal Medicine, The Brooklyn Hospital Center, New York, NY, **USA**

***Correspondence:** amoustafa@tbh.org abdalmoamen2001@gmail.com **Received 29-08-2022, Revised: 28-10-2022, Accepted: 30-10-2022 e-Published: 07-11-2022**

Upper gastrointestinal tract endoscopy is frequently used to diagnose a many pathological conditions affect the upper gastrointestinal tract, and when combined with biopsy they provide the exact diagnosis for further management. A retrospective study was conducted in the KAASH Hospital, Taif, KSA. Histopathological assessment of upper GIT endoscopic biopsies from patients suffering from upper GIT disorder were done at the histopathology Lab, and the important clinical data were collected from medical records of all patients from January 2021 to April 2021.

A total 85 case enrolled in the study, 54.1% were males and 45.9% were females; the male to female ratio was 1.7:1, their ages ranged from 11 to 103 years old with a mean age of 47.8 ± SD. 21.2. The most common patient's complaints were dyspepsia 28.6% and heart burn 23.8%. The most frequent endoscopic findings in the study cases were gastritis 28%, followed by hiatus hernia 25%, reflux esophagitis and incompetent cardia 15%, duodenitis 10%, malignant gastric masses 7.5%, peptic ulcers 5% and finally esophageal mass 2.5%. While the normal endoscopic finding observed in 7.5%. The histopathological finding of examined endoscopic biopsies in the study group, acute and chronic nonspecific gastritis 37.6%. chronic gastritis with *Helicobacter pylori* infection 23.5%, esophagitis 10.5%, duodenitis 8.2%, Barret's esophagus 1.2%, gastric carcinoma 5.8% and esophageal cancer 1.2%.

Endoscopic examination of patients with upper GIT disorders is incomplete without histopathological assessment of biopsies and so, the combinations of two procedures play an important role in diagnosis and management of upper gastrointestinal tract disorders that frequently increased in all ages and in both genders.

Keywords: Upper gastrointestinal endoscopy, biopsy, histopathology, GERD, Gastritis, peptic ulcer, Taif.

INTRODUCTION

The Upper Gastrointestinal tract disorders include a wide spectrum of inflammatory, neoplastic, vascular, mechanical, and physical disorders, including radiation injury (Nazrin et al. 2019).

GERD is a chronic and prevalent disorder with 8.7–33.1% prevalence in the Middle East (El-Serag et al. 2014). Helicobacter pylori infection prevalence rates in developing Asian countries is as high as 92% (Islam et al. 2013). Helicobacter pylori (H. pylori) associated chronic gastritis is the most common condition in western of Saudi Arabia (Elsawaf et al. 2017). H. pylori infection has been linked to myriad types of dysplasia (Piyush et al. 2018).

Peptic ulcer is one of the most common gastric diseases in Saudi Arabia (Alahmadi et al. 2013). The incidence of uncomplicated peptic ulcers was

approximately one case per 1000 person in the general population, and the incidence of complicated ulcers was approximately 0.7 cases per 1000 person (Lin et al. 2011). Incidence of peptic ulcer in *H. pylori*-infected individuals is approximately 1 percent per year, which is higher than for uninfected individuals by 6-10 folds (Wang et al. 2011).

Around 53-73 % of elderly peptic ulcer patients are positive for H.pylori (Pilotto. 2004).

Worldwide oesophageal cancer ranks as the 7th most frequent cancer and has overall 5-year survival rate less than 20%. The most prevalent types of oesophageal cancers is squamous cell carcinoma followed by adenocarcinoma, both account more than 90% of cases (Veerendrasagar and Nandish .2020).

Tobacco, alcohol, GERD, and obesity are the main risk factors for esophagus carcinomas (Crew. 2004).

The gastric carcinoma being 2nd most common cancer among men and 3rd most common in women in Asia as well as worldwide (Veerendrasagar and Nandish .2020).

The incidence of gastric cancer in Saudi Arabia in 2012 was 3.14 (3.84 in men and 2.41 in women according to the WHO (Alahmadi et al. 2013).

Gastrointestinal endoscopy has been established as one of the safest and most effective diagnostic and management approaches to gastrointestinal diseases. Gastrointestinal endoscopy combined with histopathology are a gold standard techniques for accurate diagnosis and early therapeutic intervention or even monitor course of the disease (Alibraheem et al. 2020). However, there is, a lack of upper endoscopic and histopathology-based data about the spectrum of upper gastrointestinal lesion and their changing pattern in western region of the Kingdom Saudi Arabia (KSA) especially Taif city. The study was planned to determine the histopathological pattern of upper gastrointestinal lesions.

MATERIALS AND METHODS

Retrospective study was conducted during the period from January 2021 to April 2021, in the GIT endoscopy department and histopathology laboratory of KAASH hospital, Taif, KSA. The study included 85 patients of different age group and both genders, the patient selected according to inclusion and exclusion criteria.

Inclusion criteria: all patients who have upper gastrointestinal symptoms and diagnosed clinically to have upper gastrointestinal tract lesion and admitted to gastroenterology department and underwent upper endoscopic examination and biopsies during the period between 2017 and 2020.

Exclusion criteria: patients who done upper endoscopic biopsies for lesions of the mouth and pharynx and intestinal biopsies below duodenum.

Patients clinically diagnosed to have upper GIT lesion needing endoscopic biopsy were admitted in gastroenterology department, with a well-established endoscopic unit. The patients underwent endoscopic examination and biopsies were taken.

The endoscopic tissues biopsies were sent to histopathology laboratory, in the lab. The biopsies examined grossly and then fixed in 10% formaldehyde, routinely process in an automatic tissue processor, and then embedded in paraffin wax. Three to five serial sections of four-micron thickness were cut on rotatory microtome subjected to routine H&E staining. The sections were examined and analyzed microscopically after staining with Hematoxylin and Eosin by qualified pathologist to detect the pathological changes and to reach the histopathological diagnosis.

Relevant important clinical data for each patient from the hospital medical records from endoscopy department and histopathology lab. will be collected retrospectively using a chick list and including Patient age, sex, dietary or other personal habits if present and patient's complaints at presentation. Site of upper endoscopic biopsy, upper endoscopic findings. Histopathological diagnosis of routinely stained H&E sections. Data entry and statistical analysis done using SPSS version 20 software. Permission to conduct the study taken from the research committee in Collage of Applied Medical Sciences - Taif University The study also approved by the ethics committee of the king Abdul-Aziz Specialized Hospital.

RESULTS

A total 85 case included in the study. 54.1% were males and 45.9% were females (figure 1); the male to female ratio was 1.3:1, their ages ranged from 11 to 103 years old with a mean age of 47.8 ± SD. 21.2. The patient's complaint was dyspepsia 28.6%, heart burn 23.8%, epigastric pain 16.6%, and abdominal pain 11.9%, vomiting 7.1% and dysphagia 4.8% (figure-1).

The patients underwent endoscopic examination and endoscopic biopsies, the site distribution of endoscopic biopsies 59 (69.4%) cases have gastric biopsy. 15 (17.6%) cases have duodenal biopsy and 11 (12.9%) have esophageal biopsy (figure-2).

The most common endoscopic findings in the study group were gastritis (erythematous, erosive and sever hemorrhagic) 28%, followed by hiatus hernia 25%, reflux esophagitis and incompetent cardia 15%, duodenitis 10%, irregular vascular gastric masses (malignant) 7.5%, peptic ulcers 5% and finally esophageal mass 2.5%. While the normal endoscopic finding observed in 7.5% (figure-3).

The histopathological finding of examined endoscopic biopsies in the study group, non-neoplastic lesions 79 cases (93%) and neoplastic lesions 6 cases (7%). Non-neoplastic lesions include acute and chronic nonspecific gastritis 37.6%, chronic gastritis associated with *Helicobacter pylori* infection 23.5%, esophagitis 10.5%, duodenitis 8.2%, and Barret's esophagus 1.2%. Neoplastic lesions include gastric carcinoma 5.8% and esophageal cancer 1.2% (figure-5) (Table-1 and 2).

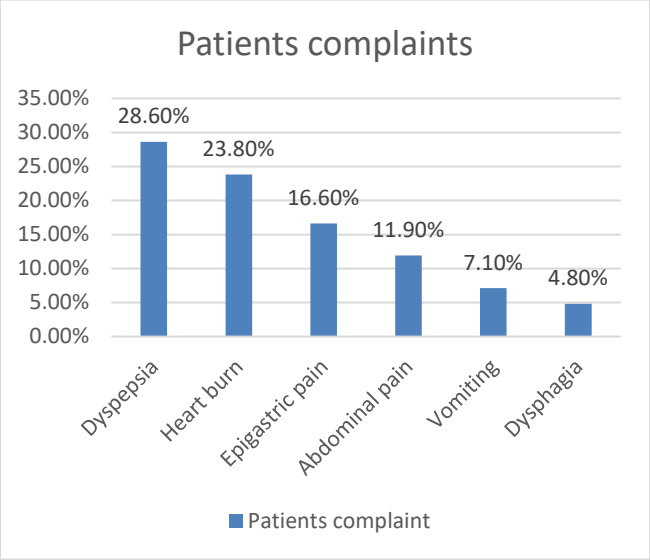

Figure 1: Frequency of patients complains

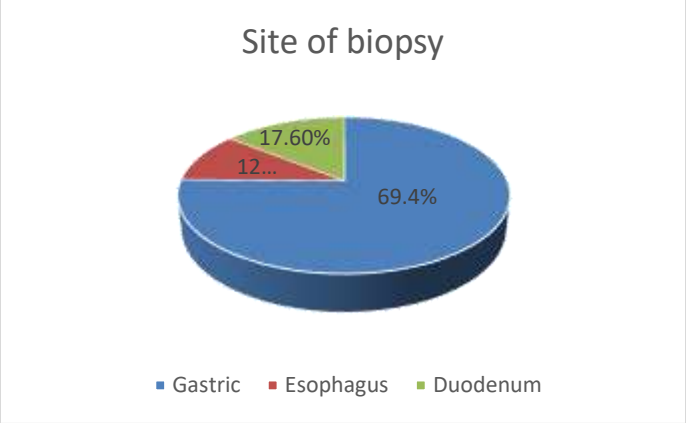

Figure 2: Site distribution of endoscopic biopsies

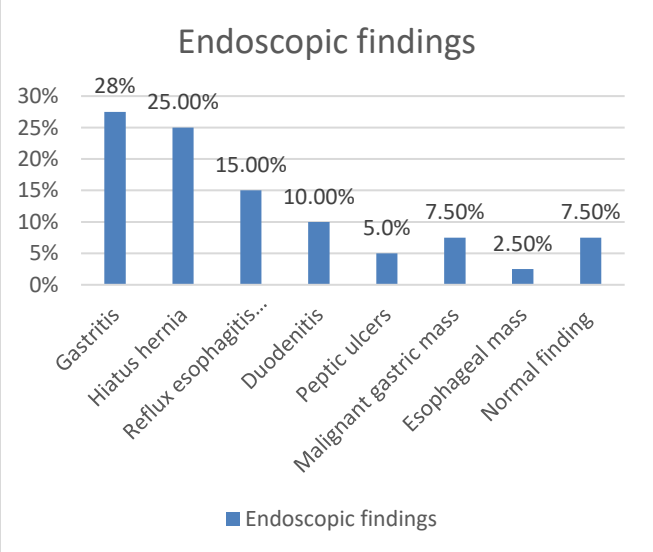

Figure 3: Frequency of endoscopic finding in the study group

Table 1: Histopathological nature of lesions

Nature of the lesions	Number	Percentage (%)
Non neoplastic	79	93%
Neoplastic	6	7%
Total	85	100%

Table 2: Histopathological diagnosis of biopsies

Diagnosis	Number	Percentage (%)
Acute and Chronic nonspecific gastritis	32	37.6%
Chronic gastritis with Helicobacter pylori infection	20	23.5%
Esophagitis	9	10.5%
Duodenitis	7	8.2%
Barret's esophagus	1	1.2%
Gastric carcinoma	5	5.8%
Esophageal cancer	1	1.2%

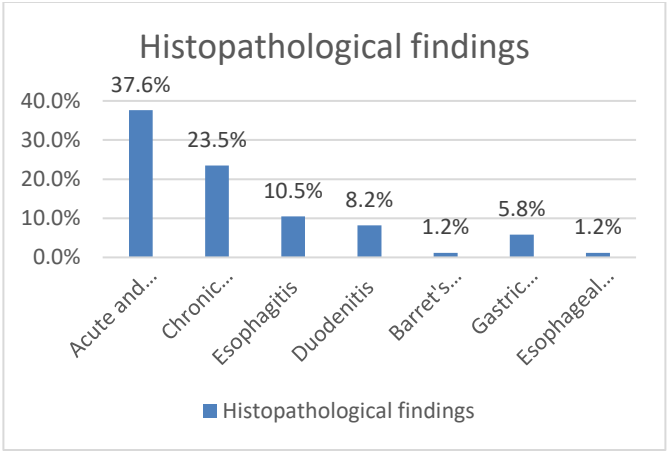

Figure 4: Frequency of histopathological finding in the study group

DISCUSSION

Upper gastrointestinal endoscopy is consider one of a valuable tool as it helps in the diagnosis and management of diseases affecting gastrointestinal tract (Memon et al. 2015).

The male to female ratio is 1.3:1 in our study may be due to exposure of males to many risk factors than female and the observation that gastrointestinal malignancies are more common in male.

As regard to the patient's age, the most common age for patients is forty to fifty years. The age range in patients suffered from upper GIT symptoms and did upper GIT endoscopy was in agreement with the study done by Al-Humayed et al, (Al-Humayed et al. 2010). in the southern region of KSA, also supported by the study of Meira, Tanajura and Viana, (Meira et al. 2019). that showed the

mean age of 44.01.

Dyspepsia is a major complaint for bring the patients either to primary care physicians or gastroenterologists. Dyspepsia is confused with other conditions such as GERD, peptic ulcer disease, gastritis and malignancy (Radhakrishna and Subbarayudu. 2019). The most common patient's complaints in this study was dyspepsia followed by heartburn. This finding supported by finding of Al-Humayed et al, [14] and Assimakopoulos et al, (Assimakopoulos et al. 2008).

The endoscopic finding demonstrated in the current study, out of total 85 cases showed in figure 4, 28% of cases have gastritis, 25% have hiatus hernia and 15% of cases have reflux esophagitis. Also the important finding observed was the low percentage of cases with normal endoscopic finding that account only 7.5%, this may be due to better selection of patients for endoscopy. Our finding are in agreement with Meira, Tanajura and Viana, (Meira et al. 2019).

Similar to our study is study conducted by Rajendran et al, (Rajendran et al. 2018). and Yellapu, et al. (Radhakrishna and Subbarayudu. 2019), who found that the most common endoscopic findings is gastritis followed by heart burn. The explanation for the increasing frequency of esophageal disorders and gastritis, may be due to increase prevalence of obesity and overweight accompanied by lack of exercise.

The histopathological diagnosis of biopsies in this study showed 93% of cases were non-neoplastic esophageal, gastric and duodenal lesions while 7% were malignant, of which gastric carcinoma was 5.8%, and esophageal carcinoma was 1.2%, this finding is confirmed by the studies conducted by Krishnappa et al, (Krishnappa et al. 2013), Abilash et al, (Abilash et al. 2016). and Sheikh Hamdani and Malik, (Sheikh et al. 2013). 37.6% of the study population were acute and chronic nonspecific gastritis as they are the most common non-neoplastic lesions, this finding was supported by the study done by Elsawaf, et al. (Elsawaf et al. 2017), Al-Akwaa, (Al-Akwaa. 2010), Ajayi and Picardo, (Ajayi and Picardo. 2015), and in the study done by Thapa et al, (Thapa et al. 2013). The commonest lesions in duodenal biopsies were duodenitis, in agreement to studies done by Abilash et al, (Abilash et al. 2016), Hussain et al, (Hussain et al. 2015). and Shepherd and Valori, (Shepherd and Valori. 2014).

In the current study chronic gastritis with Helicobacter pylori positive cases were 23.5% and account the second prevalent histopathological diagnosis and increase the frequency of diagnosed case of gastritis to be the same as detected in relevant studies done in different regions in KSA.

CONCLUSION

The study demonstrated an increased frequency of upper gastrointestinal lesions, with a wide range of site distribution in the upper gastrointestinal tract and variety of non-neoplastic and neoplastic lesions were reported. The stomach is the commonest site of upper gastrointestinal lesions. The most prevalent non-neoplastic lesion was chronic gastritis followed by Helicobacter pylori infection and esophageal diseases such as hiatus hernia and GERD. Possible causes to explain such change may be attributed to changes in lifestyle and/or a high fat diet with lack of exercise, leading to obesity.

Early detection of lesions either neoplastic lesions or non-neoplastic is the corner stone in early management to reduce morbidity and mortality. Early detection of lesions and further management through the use of endoscopy in combination with histopathological examination of biopsy plays an important role in prevention of serious complications. Further studies must be done on a large number of cases to detect the risk factors for increasing upper gastrointestinal lesions.

CONFLICT OF INTEREST

The authors declared that present study was performed in absence of any conflict of interest.

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AUTHOR CONTRIBUTIONS

HMH, AA designed and performed the experiments and also wrote the manuscript. KQG, AFH, AAA, SAA, EMA, RAR, KA, and AMM, performed practical part as tissue collection, processing and examination, AM and KAI made data analysis. All authors read and approved the final version.

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