

Pattern of oesophageal diseases in Madinah region, Saudi Arabia: An 11 years experience

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Abstract

The oesophagus can be a site for a variety of lesions including inflammatory disorders, infections, mechanical conditions, toxic and physical injuries, vascular disorders and neoplastic conditions. Hence the oesophageal diseases have a wide spectrum of pathological features. An understanding of histopathological details of oesophageal diseases is essential for their accurate diagnosis and management. The main objective of our study was to provide a comprehensive audit of oesophageal diseases in the province of Madinah in Saudi Arabia. From January 2006 to December 2017, we reviewed the histopathological patterns of oesophageal lesions in patients at a tertiary care referral hospital who were diagnosed with oesophageal disease after upper gastroendoscopy. Of the 201 patients, 144 (71.6%) cases were found to be non-neoplastic and 57 (28.4%) cases were neoplastic. Our findings were comparable with earlier studies that helped establish a baseline of an oesophageal disease pattern, on the basis of histopathological examinations.

Keywords: Oesophageal diseases; Histopathological examinations; Non-neoplastic lesions; Neoplastic lesions.

Introduction

The oesophagus can be a site for a wide variety of lesions including inflammatory disorders, infections, mechanical conditions, toxic and physical injuries, vascular disorders, neoplastic conditions and radiation induced injuries.^{1,2} Since the introduction of the endoscope, the diagnosis of oesophageal disorders has greatly improved. Endoscopic biopsy followed by histopathological examination provides a critical adjunct to the endoscopic findings of oesophageal disorders, and remains a gold standard for the accurate assessment of patients with oesophageal disorders.^{3,4} Histopathological examinations

of the oesophageal biopsy not only help in narrowing down the diagnosis, but also help in monitoring the progression of the disease, therapeutic response and an early identification of any untoward complications. However, there is a lack of histopathology-based data on oesophageal lesions around the world, and no such studies have been found in the Kingdom of Saudi Arabia (KSA). Thus, the main aim of this research was to provide a comprehensive study of the histopathological pattern of oesophageal diseases in the province of Madinah, KSA.

Methods and Results

From January 2006 to December 2017, the authors retrospectively reviewed 201 consecutive cases of oesophageal biopsy specimens received during those 11 years in the pathology department of King Fahad Hospital, Madinah, Saudi Arabia. After taking the biopsy, specimens were sent to the histopathology laboratory, along with the relevant demographic, clinical and personal data. After fixation, the biopsies were processed and mounted on glass slides for haematoxylin-eosin staining. All the biopsies were reported by two pathologists trained in gastrointestinal histopathology. Ancillary techniques such as special histochemical stain and immunohistochemistry were used in suitable patients. As the main aim of the study was to address the basic demographic and histopathological breakdown of the oesophageal diseases, no comparison was indicated between the clinical findings, hence the statistical analysis was not done. A total of 201 oesophageal specimens were received, out of which the male cases were 114 (56.7%) and the female cases were 87 (43.3%) with a M:F ratio of 1.4:1. The ages of the cases studied ranged from 15 to 90 years with a mean of 52.1 ± 13 years. All the cases were categorised into two broad subgroups; non-neoplastic lesions and neoplastic lesions.

One hundred and forty-four cases of non-neoplastic lesions were found, representing 71.6% of all oesophageal cases. The largest group of the non-neoplastic lesions were that of reflux oesophagitis, and it involved (96; 47.8%) of all

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Table-1: The histopathological diagnosis, number, percentage, mean ages and sex distribution of our patients with esophageal diseases.

Histopathological diagnoses	n (%)	Mean age (years)	M/F
Non-neoplastic lesions			
Reflux esophagitis	96 (47.8)	48	53/43
Barrett's esophagus	22 (10.9)	56.5	14/8
Eosinophilic esophagitis	17 (8.5)	28	11/6
Hyperplastic polyps	5 (2.4)	69	4/1
Candida esophagitis	4 (2)	65	2/2
Neoplastic lesions			
SCC	39 (19.4)	62.1	15/24
AC	16 (8)	64.1	13/3
Lymphoma	1 (0.5)	65	1/0
NET	1 (0.5)	86	1/0
Total	201 (100)		

SCC: Squamous Cell Carcinoma, AC: Adenocarcinoma, NET: Neuroendocrine Tumour.

the specimens reviewed. The second largest group of the examined non-neoplastic cases were Barrett's oesophagus, and it was observed in (22; 10.9%) of all oesophageal lesions and Eosinophilic oesophagitis was seen in (17; 8.5%). Other less common lesions reported in our study were hyperplastic polyps and Candida oesophagitis seen in (5; 2.4%) and (4; 2%) respectively of all oesophageal lesions.

Fifty-seven cases of malignant neoplasms were found, representing 28.4% of all oesophageal lesions. Squamous cell carcinoma (SCC) was the commonest malignant tumour in this study reported in (39; 19.4%) cases, and was followed by adenocarcinoma (AC) seen in (16; 8%) of all oesophageal lesions. Other less common malignant lesions reported in our study were oesophageal lymphoma and oesophageal neuroendocrine tumour (NET). The demographic data, the total number, percentage and histopathological categorisation of all the cases are depicted in Table 1.

Discussion

Oesophageal diseases continue to be a major health problem attracting ever increasing research activities throughout the world.¹ However, there are very few histopathology-based studies on the spectrum of oesophageal diseases reported in recent literature. We believe our study is the first of its kind in the Madinah region, in which we have highlighted the frequency, demographic data and pathological features of oesophageal diseases. The present study being a retrospective histopathology laboratory-based research, has the limitation of data collection efficacy and a lack of statistical analysis. However, it has served the purpose of providing basic demographic and histopathological data. A comparison of histopathological findings of this study with previous relevant studies is shown in Table 2. The present study shows a wide range of ages from 15 years to 90, with a mean age of 52.1±13 years. There are very few studies available to compare age-related figures with our study. Oesophageal diseases have been more commonly reported in males with a M:F ratio of 1.4:1 in the present study. Medical literature on oesophageal disease reports variable M:F from different geographical regions.^{1,2}

Reflux oesophagitis (Gastro-oesophageal Reflux Disease, GERD) was the most common benign lesion encountered in our study, which was observed in 66.7% of the total benign lesions. Upon reviewing the literature, we found that reflux oesophagitis was also the most common benign lesion seen in almost all the previous studies.^{2,4} Barrett's oesophagus (BE) was the second most common non-neoplastic lesion encountered in the present series. It was observed in 15.3% of the total non-neoplastic

Table-2: Comparison of histopathological findings of present study with the relevant previous studies.

Study Year Country	Shennak et al ⁷ 1997 Jordan	Qureshi et al ⁵ 2007 United Kingdom	Islam et al ¹⁰ 2014 Bangladesh	Memon et al ³ 2015 Pakistan	Abilash et al ⁴ 2016 India	Present Study 2018 Saudi Arabia
No. of Cases	201	417	22	169	38	201
Non-neoplastic	186 (92.5%)	343 (82.3%)	6 (27.3%)	36 (21.3%)	21 (55.3%)	144 (71.6%)
Reflux Esophagits	131 (70.5%)	182 (53%)	4 (66.7%)	16 (44.4%)	14 (66.7%)	96 (47.8%)
Barrett's Esophagus	40 (21.5%)	126 (36.8%)	-	10 (27.8%)	4 (19%)	22 (10.9%)
Eosinophilic Esophagitis	-	-	-	-	-	17 (8.5%)
Candida	-	-	-	-	-	4 (2%)
Hyperplastic Polyp	-	-	-	10 (27.8%)	-	5 (2.4%)
Neoplastic (Cancer)	15 (7.5%)	74 (17.7%)	16 (72.7%)	133 (78.7%)	17 (44.7%)	57 (28.4%)
SCC	15 (100%)	17 (23%)	13 (81.2%)	-	16 (94%)	39 (19.4%)
AC	0%	52 (70.3%)	3 (18.8%)	-	1 (6%)	16 (8%)
Lymphoma	-	-	-	-	-	1 (0.5%)
NET	-	2 (2.7%)	-	-	-	1 (0.5%)

SCC: Squamous cell carcinoma, AC: Adenocarcinoma, NET: Neuroendocrine tumors

lesions. Qureshi et al⁵ reported a higher rate of BE which was seen in 36.8% of patients. Eosinophilic oesophagitis (EoE) was the other common histopathological lesion encountered in non-neoplastic lesions of the oesophagus. In the present series, EoE was noted in 11.8% of the cases. Other non-neoplastic lesion noted in the present study was the hyperplastic polyp (HP) and oesophageal candidiasis. Hyperplastic polyp was seen in 3.4% of the total non-neoplastic lesion. The incidence of HP reported is very low and in a recent study done by Sheikh et al⁶ from India reported 4% of HP. oesophageal candidiasis seen in 2.8% of the total non-neoplastic lesions of the oesophagus. All the cases were seen in elderly male with immunity compromised. Oesophageal candidiasis was reported in 7.8% of the cases by Terada et al,² which is higher than the present study.

In our study, neoplastic oesophageal lesions were seen in 28.4% of the total cases. Squamous cell carcinoma was seen in 68.4% of all malignancies. In a recent study by Terada et al² from Japan reported SCC as the most common aggressive tumour in the oesophagus and recognised in 75.8% of the cases. Shennak et al⁷ from Jordan and Rashmi et al¹ from India reported a higher rate of SCC recognised in 100% of the cases. While, Qureshi et al⁵ from the UK reported a lower rate of SSC found in 23% of the cases.

In our study, a higher rate of occurrence of SCC is seen in females with a M:F ratio of 1:1.6. However, previous studies indicate a higher incidence of SCC in males than females around the world. There were similar findings in a study done by Eroglu et al from Turkey.⁸ Another study from Sudan by Elhadi et al⁹ has also reported a higher incidence of SCC in females, in which they found 10 cases of SCC out of total 14 cases. However, none could establish a definitive reason for this shift. We suggest further descriptive or analytical studies to establish the reasons for this variation in sex distribution of SCC. Adenocarcinoma (AC) of the oesophagus was the second most common malignancy found in 28.1% of the total malignant cases. Though the incidence of AC is lesser than SCC in the present study, but when compared with recent studies of similar nature, we found a higher rate of AC in our study. Shennak et al⁷ and Rashmi et al¹ did not find a single case of AC in their studies. While Abilash et al⁴ and Islam et al¹⁰ reported a lower rate of AC observed respectively in 6% and 18.8% of the cases.

Other less common malignant lesions reported in our

study were, oesophageal lymphoma and oesophageal neuroendocrine tumor (NET). NET of the oesophagus is a rare entity and limited literature is available to describe this tumour in oesophagus. A study from New York, USA reported a total 8,305 numbers of NET at various anatomical sites and only 3 cases were found in the oesophagus.¹¹ Primary lymphoma of the oesophagus is an exceedingly rare neoplasm and accounts for <1% of all gastrointestinal lymphomas and <0.1% of all lymphomas.¹²

Conclusion

To conclude, this retrospective study has established a baseline for oesophageal disease pattern on the basis of histopathological experience in a tertiary referral hospital in the province of Madinah in KSA and provides an excellent tool for future population targeted studies on oesophageal diseases.

Disclosure: The manuscript or essence of its contents has not been previously published in partial or in full on a website or printed journal in any language including English. This article has not been presented in partial or full in any conference proceedings.

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