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ORIGINAL ARTICLE

Endoscopic Findings of Esophageal Lesions

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ABSTRACT
Esophageal carcinoma is a type of cancer that affects the oesophagus and other parts of the digestive tract. Esophageal lesions, formerly thought to be uncommon, are now one of the most frequent illnesses afflicting people all over the world. Barrett's oesophagus (BE) is a premalignant disorder in which the normal squamous epithelium is replaced by the aplastic columnar epithelium with goblet cells. Barrett's oesophagus and esophageal cancer are both linked to Barrett's oesophagus. In our analysis, Candida esophagitis was the second most frequent esophagitis. In four cases, endoscopic examinations revealed adherent white plaques in the middle and lower oesophagus, as well as ulcerated mucosa beneath. Infective esophagitis was the endoscopic diagnosis. The oesophagus has a wide range of benign tumours and non-neoplastic masses. However, they are usually infrequent lesions that are small and asymptomatic, and their significance resides in their difference from malignant tumours. Endoscopy's progress and widespread use has made it a crucial tool for detecting early esophageal illnesses.
***KEYWORDS**: Esophageal cancer,Barrett's esophagus, malignant tumors, met aplastic*

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INTRODUCTION

The oesophagus is a hollow tube that runs vertically through the mediastinum and connects the pharynx and stomach. It is roughly 25 cm length in adults. It has no substantial secretory or absorption capabilities, and its sole job is to convey food from the mouth to the stomach[1-4]. The mucosa, submucosa, muscularis externa, and adventitia are the four major layers of the oesophagus, just like the rest of the digestive tract [5-8]. Because a tumour grows beyond the muscularis propria and into the mediastinum, the oesophagus is not bordered by a serosa [9]. Barrett's oesophagus (BE) is a premalignant condition in which the normal squamous epithelium is replaced by a metaplastic columnar epithelium containing goblet cells [10]. Barrett's oesophagus is linked to an increased risk of esophageal cancer [11-13]. Many esophageal adenocarcinomas occur in the context of Barrett oesophagus, and patches of dysplastic Barrett mucosa are frequently observed surrounding the cancer [14]. In individuals with Barrett's oesophagus, the incidence rate of adenocarcinoma has grown from 3.6 per million in 1973 to 25.6 per million in 20065-9 [15-18].The endoscopic and histological aspects of Barrett's oesophagus are explained in depth using specific stains in this paper. A variety of benign and malignant esophageal lesions are also discussed.

MATERIAL AND METHODS

The current investigation was carried out at Chrompet's chosen Hospital's Department of Pathology. Endoscopic biopsy revealed a total of 104 esophageal lesions. Each case was given a careful microscopic examination.

RESULTS AND DISCUSSION

A total of 110 endoscopic samples were received from the Gastroenterology department for histopathological assessment in this investigation. There were 73 males (70.19%) and 31 females (29.81%) in 104 endoscopic biopsies, with ages ranging from 22 to 90 years.

AGE INCIDENCE:

The patients who had biopsies were separated into seven groups based on their age and gender. (For example, 20-30 years old, 31-40 years old, 41-50 years old, 51-60 years old, 61-70 years old, 71-80 years old, 81-90 years old). The age group 51-60 years (35.58%) had the highest incidence of esophageal lesions, followed by 61-70 years (35.58 percent) (22.12%).

Table. 1. The age and sex distribution of esophageal biopsies

S. No	Age group (yrs)	No. of males	No of females	Total	Percentage (%)
1	20-30	6	2	8	7.69
2	31-40	5	9	14	13.46
3	41-50	13	3	16	15.38
4	51-60	28	9	37	35.58
5	61-70	16	7	23	22.12
6	71-80	5	0	5	4.81
7	81-90	0	1	1	0.96

Table. 2. Highlights the distribution of cases according to their clinical presentation in endoscopic biopsies.

S. No	Clinical features	No. of cases	Percentage (%)
1	Dysphagia	93	84.55
2	Weight loss	67	60.91
3	Anorexial complaints	66	60.00
4	Dyspepsia related consequences	39	35.45
5	Vomiting sensation	42	38.18
6	Odynophagial problems	27	24.55
7	Regurgitation of Nutrition	89	80.91
8	Heart Burn sensations	47	42.73

Dysphagia (93cases, 84.55%) is the most common complaint in our study followed by Regurgitation of food (89cases, 80.91%) and loss of weight (67cases, 60.91%).

ESOPHAGEAL BIOPSY EVALUATION

110 cases of esophageal biopsy were received for histopathological examination and evaluated. Among the110 cases studied,66 cases were Squamous cell carcinoma (60),11cases were Squamous dysplasia (10%), 5 cases were Adenocarcinoma 7 cases (6.36%),3 cases were Barrett's esophagus (2.73%), 8 cases were interpreted as esophagitis (7.27%), 4 cases were interpreted as normal stratified squamous epithelium.

Table. 3.Incidence of lesion and its percentage.

Type of lesions	Male	Female	Total	Percentage (%)
Normal	2	4	6	5.45
Inflammatory/Infective Reflux Esophagitis				
Eosinophilic Esophagitis	5	3	8	7.27
Herpes Simplex Esophagitis Candida Esophagitis	2	1	3	2.73
	3	1	4	3.64
	2	1	3	2.73
Barrett's Esophagus	1	2	3	2.73
Neoplastic –Benign Fibrovascular Polyp				
Hyperplastic Polyp	1	2	3	2.73
	2	2	4	3.64
Squamous Dysplasia	8	3	11	10.00
Malignant Neoplasm				
Squamous Cell Carcinoma	40	26	66	60.00
Adenocarcinoma	5	2	7	6.36

As shown in Table 3, Squamous cell carcinoma (SCC) of the esophagus is the common malignant neoplasm in our study comprising 65(62.5%) cases followed by 11 cases of Squamous dysplasia (11 cases, 10.58%). Incidence of Adenocarcinoma is 5 cases (4.81%) whereas Barrett's esophagus is 4 cases (3.85%). Esophageal lesions were common in male, with Male: Female ratio is 2.68:1 (Table. 4 and 5).

Table. 4. Incidence of Esophageal lesions in male

S. No.	Type of lesion	No. of cases	Percentage (%)
1	Barrett's esophagus	5	4.55
2	Squamous dysplasia	9	8.18
3	SCC	51	46.36
4	Adenocarcinoma	6	5.45

Table. 5. Incidence of Esophageal lesions in Female

S. No	Type of lesion	No. of cases	Percentage (%)
1	Barrett's esophagus	1	0.96
2	Squamous dysplasia	4	3.85
3	SCC	18	17.31
4	Adenocarcinoma	1	0.96

Also 2 cases of Hyperplastic polyps characterized by Hyperplastic squamous epithelium with granulation tissue, edematous lamina propria and inflammatory infiltrates was observed on Gastro-esophageal junction.104 esophageal biopsies categorized according to the endoscopic appearance and site of presentation whether in upper 1/3rd, middle 1/3rd, and lower 1/3rd in Table 5 and 6.

Table. 6. Ratio of different stages in cases

Type of lesion	No. of cases (%)	Site of presentation	No of cases (%)
Proliferative	55	Upper 1/3rd	5
Ulcerative	17	Middle 1/3rd	43
Infiltrative	32	Lower 1/3rd	56

As Table 6 shows, most of the cases presented in advanced stage with exophytic fungating growth (52.88%) on gross appearance. 32 cases (30.77%) were infiltrative growth while ulcerative lesions observed in 17 cases (16.35%). Lower 1/3 rd of esophagus (53.85%) is most commonly affected followed by middle 1/3 rd (41.35%). Upper 1/3rd (4.81%) is least involved in esophagus lesion.

ESOPHAGITIS

In our study, 12 various forms of esophagitis were studied.6 cases of Reflux esophagitis, 1 case of eosinophilic esophagitis, 2 cases of Viral esophagitis and 3 cases of esophageal candidiasis were observed. Ulcerations was the common endoscopic finding in all these cases [19-20]. Distal esophagus were most commonly affected [21-22]. Endoscopic and histopathological correlation of various forms of esophagitis was summarized in Table 7.

Table 7. Details of Endoscopic Findings

S. No	Endoscopic findings	Endoscopic diagnosis	No. of cases	Microscopic findings	Microscopic Diagnosis
1	Areas of erythema and longitudinal red streaks	Reflux esophagitis	6	Intraepithelial edoema with necrosis and increased lymphocytes in the mucosa. The presence of basal cell hyperplasia and intraepithelial eosinophils is visible	Reflux esophagitis
2	Mucosal rings with granularity and exudates.	Infective esophagitis	1	Intraepithelial eosinophilic Infiltrates with >15 eosinophils/ HPF	Eosinophilic esophagitis
3	Multiple shallow ulcers with exudates.	Viral esophagitis	2	Inflammation, ulcerations, and intranuclear inclusions. HSV antigen positive.	Herpes simplex esophagitis
4	Adherent white plaques with ulcerated mucosa underneath	Infective esophagitis	3	Erosions, ulcerations, intraepithelial neutrophils. Densely matted pseudohyphae and budding spores in squamous debris. PAS stain positive.	Candida esophagitis
			1	Nests of malignant squamous cells infiltrating into muscularis propria.	Squamous cell carcinoma

REFLUX ESOPHAGITIS

6 cases of reflux esophagitis were examined. All endoscopic biopsies showed areas of erythema and longitudinal red streaks in the distal esophagus was observed. In one case, esophagus was diffusely reddened and hemorrhagic. Mucosa showed intraepithelial edema with areas of necrosis and increased intramucosal lymphocytes. Basal cell hyperplasia and intraepithelial eosinophils are also seen.

CANDIDA ESOPHAGITIS

Candida esophagitis was the second common esophagitis in our study. Endoscopic findings of 4 cases showed adherent white plaques in the middle and lower esophagus with ulcerated mucosa underneath. Endoscopic diagnosis was given as infective esophagitis. Microscopic examination of 3 cases revealed erosions, ulcerations and presence of numerous intra-epithelial neutrophils in the squamous mucosa. Squamous waste contained densely matted pseudohyphae and budding spores, as well as regions of inflammation. PAS stain was positive infungal elements in three cases. So final diagnosis of Candidaesophagitis was arrived. One case revealed Squamous cell carcinoma in microscopic examination.

EOSINOPHILIC ESOPHAGITIS

A single case of eosinophilic esophagitis was observed in a 21 year old male. Endoscopic findings showed mucosal rings with granularity and exudates in the mid-esophagus. Microscopic examination revealed eosinophilic infiltration of the epithelium with more than 15 eosinophils per high power field. Marked epithelial basal hyperplasia was also observed.

HERPES SIMPLEX ESOPHAGITIS

The cases of Herpes esophagitis were observed which revealed multiple shallow ulcers with exudates in the endoscopy. Distal esophagus was involved in both the cases. Patients had history of oral herpes infection 2 weeks back and he had no history of immune-compromised illness. Multiple slices revealed portions of hyperplastic stratified squamous epithelium with distinct halo, isolated loss of polarity, and ulcerations in the nucleus. Several intranuclear (ground glass) inclusions were seen in the squamous epithelium. Correlating with clinical, endoscopic and microscopic findings, HSV antigen immunohistochemistry was performed and turned out positive. So, a final diagnosis of Herpes simplex esophagitis was arrived.

BARRETT'S ESOPHAGUS

In 4 cases, Endoscopic findings revealed patches of Salmon colored mucosa in the gastroesophageal junction extending into the distal esophagus measuring more than 3 cm in two cases (Long segment) and less than 3 cm (Short segment) in two cases. Microscopic findings showed metaplastic columnar epithelium with areas of goblet cells. Areas of inflammations were observed in all the cases with dysplastic changes in columnar epithelium is noted in one case. Endoscopic and histopathological correlation of Barrett's esophagus was summarized in Table 8.

Table 8. Endoscopic finding

S. N	Endoscopic finding	Endoscopic diagnosis	No. of Cases	Microscopic picture	Microscopic diagnosis
1	Salmon coloured mucosa in GE Junction extending into distal esophagus	Barrett's esophagus	4	Metaplastic Columnar epithelium with goblet cells.	Barrett's esophagus

One case of low-grade dysplasia revealed mild distortion in architecture with glandular crowding. Areas of abrupt transition between nondysplastic and dysplastic epithelium is noted.

FIBROVASCULAR POLYP

One case of Fibrovascular polyp was reported in a 24year old male. Grossly, the mass is soft and pedunculated with ulcerations in the mid esophagus. Microscopic examination revealed a polypoidal lesion covered by squamous epithelial lining with frequent ulcerations. Mature fibromyxoid t issue with spindle shaped cells, scattered thin-walled blood vessels and adipose tissue are seen. Occasional lymphocytic infiltrate is noted [23].

HYPERPLASTIC POLYP

Two cases of hyperplastic polyp were reported. Endoscopic findings revealed a elevated surface in gastroesophageal junction. Microscopic examination revealed a hyperplastic stratified squamous epithelium with granulation tissue, edematous lamina propria and inflamed stroma [24]. Areas of ulcerations were noted.

SQUAMOUS DYSPLASIA

Squamous dysplasia is the second most common esophageal lesion (10.58%) in our study. 11 cases were reported in our study. 6 biopsies were taken from mid - esophagus,4 biopsies from distal esophagus and one case from cervical esophagus [25]. Endoscopically, areas of focal lesion with friable mucosa were seen. Two cases showed erythematous mucosa on endoscopy. Endoscopic and histopathological correlation of Squamous dysplasia was summarized in Table 9. 11 cases of Squamous dysplasia was graded according to its degree of dysplasia.

Table 9. Endoscopic diagnosis

S. no.	Endoscopic finding	Endoscopic diagnosis	No. of Cases	Microscopic picture	Microscopic diagnosis
1	Focal lesion with friable mucosa	r/o malignancy	9	Atypical squamous cells	Squamous dysplasia
2	Erythematous mucosa	r/o malignancy	2	Atypical squamous cells	Squamous dysplasia

CONCLUSION

Esophageal cancer is a common malignant tumor in digestive tract. Esophageal lesions once thought to be rare, is nowadays being one of the common disorder affecting the people throughout the world. A diversity of benign tumors and non-neoplastic masses can be seen in esophagus. They are however mostly uncommon lesions, small and asymptomatic, whose importance lies in their distinction from malignant tumors. The development and popularization of endoscopy becomes a necessary inspection means of early esophageal diseases. It proved that early detection is necessary to identify malign and lesions and also premalignant conditions such as Squamous dysplasia and Barrett's esophagus, so that malignant transformation can be identified with proper follow up and treatment may render. Lesions which appeared to be of infective pathology in endoscopy turned out to be malignant in microscopy examination. This proves that microscopic examination is the confirmatory diagnostic tool. The microscopic examination along with accessary histochemical stain, immunohistochemistry for HSV antigen, p53 expression helped to arrive the accurate diagnosis.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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