

Original Research Article

Histomorphological and clinicopathological correlates of reflux esophagitis

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ABSTRACT

Background: Inflammatory lesions of the esophagus are major concerns to patients who visit our Medical Out Patient Department (OPD) on a regular basis. Endoscopic examination, with histopathological confirmation is the diagnostic modality employed in many centers. Endoscopic appearance is characteristic, and so are histomorphological findings. In our study we have analyzed the clinical, endoscopic and histomorphological findings of various types of esophagitis. This will help us to arrive at a correct diagnosis to initiate appropriate therapy.

Methods: We included 141 cases of esophagitis reported in Sri Ramachandra Institute of Higher Education and Research from January 2016 to December 2020 in our study, mostly the ones which came as biopsy samples in histopathology section. Slides were reviewed, various histological features, clinical and endoscopic findings were correlated. Microsoft excel was used for the calculation of results.

Results: Reflux esophagitis was most commonly seen in male patients (64%), between 40-60 years (35%) of age with presenting complaints of heart burn and clinical diagnosis of reflux esophagitis. Classic histological feature for the diagnosis of reflux esophagitis was epithelial hyperplasia noted in 89% male and 86% female patients, followed by increased basal cell thickness noted in 66% male and 55% female patients.

Conclusions: Accurate diagnosis of reflux esophagitis is mainly based on histomorphological features. Capillaries in epithelium and basal cell hyperplasia along with history and endoscopic appearance to be considered for the diagnosis of reflux esophagitis.

Keywords: Endoscopy, Epithelial hyperplasia, Esophagitis, Proton pump inhibitors, Reflux

INTRODUCTION

Inflammatory lesions of the esophagus are major concerns to patients who visit our medical OPD on a regular basis. Prevalence of esophagitis has increased in the recent years. Prevalence ranges from 10%-20% of the population with rise noted in the adolescents.¹ Reflux is the entrance of gastric content into esophagus.² Various causes include changes in the lower esophageal sphincter pressure, acid clearance and resistance. Endoscopic examination, with histopathological confirmation is the

diagnostic modality employed in many centers.³ Endoscopic appearance is characteristic, and so is histomorphological findings. Esophagitis can be classified based on histomorphological findings into reflux esophagitis, lymphocytic esophagitis, eosinophilic esophagitis, pill esophagitis and infectious esophagitis. Histological features help us to get a clue to the exact diagnosis of esophagitis. Since there can be a variety of etiological factors, the histological findings will help us to arrive at a correct diagnosis to initiate appropriate therapy.

Our objectives was to analyse various clinical presentations, endoscopic appearance and histological findings to arrive at the diagnosis of reflux esophagitis.

METHODS

In this retrospective study, data was collected from histopathology records in our hospital. All the slides were reviewed and various histopathological parameters including epithelial hyperplasia, basal cell thickness, presence of neutrophils, lymphocytes, eosinophils, prominence of capillaries in epithelium, intercellular edema, ulceration with mucosal damage and Barretts esophagus were analysed in all cases. The clinical and endoscopic findings were obtained from the medical records section of the hospital. We included all 141 cases of esophagitis reported in Sri Ramachandra Institute of Higher Education and Research, Chennai, India from January 2016 to December 2020 in our study. All of these cases came as biopsy samples in histopathology section. Slides were reviewed, various histological features, clinical and endoscopic findings were correlated.

Microsoft excel was used for the calculation of results.

All the suspected cases of esophagitis, which were sent for histopathological examination were included in the study. All the other esophageal lesions including cases of esophageal carcinoma were excluded.

RESULTS

Most of the patients belonged to the age group of 40-60 years (35%), followed by 20-40 years (31%), >60 years (30%) and 10-20 years (4%) (Table 1).

Table 1: Demographic details.

Age distribution	Percentage (%)
10-20 years	4
20-30 years	11
30-40 years	20
40-50 ears	10
50-60 years	25
Above 60 years	30

Table 2: Clinical suspicion.

Clinical suspicion	Percentage (%)
Reflux esophagitis	47
Carcinoma	35
Barretts	10
Esophageal ulcers	6
Infections	3

Male predominance was noted (64%) and the remaining (36%) were female. Patients came with the clinical suspicion of reflux esophagitis (47%) followed by

carcinoma (35%), Barretts esophagus (10%), esophageal ulcer (6%) and infections (3%) (Table 2).

Table 3: Clinical presentation.

Complaints	Percentage (%)
Heart burn	32
Dyspepsia	26
Chest pain	21
Vomiting	21

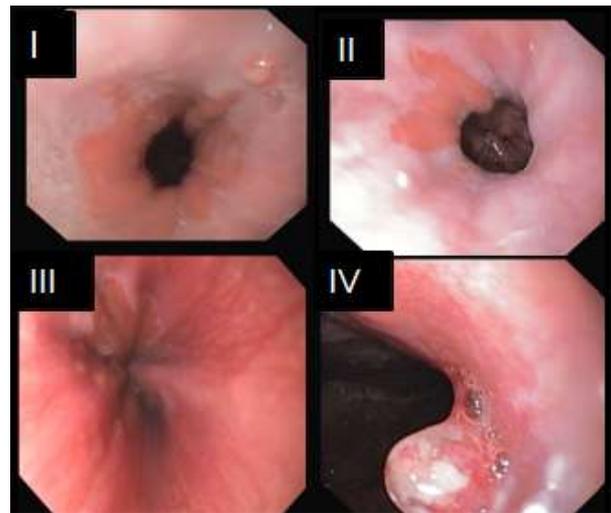


Figure 1: Endoscopic findings. I) Mucosal edema. II) Red tongue shaped patch. III) Multiple small nodules. IV) White mucosal patches and edema.

Most of the patients presented with complaints of heart burn (32%) followed by dyspepsia (26%), chest pain (21%) and vomiting (21%) (Table 3). Many cases of esophagitis had endoscopic finding of mucosal breaks (51%) followed by nodular appearance (31%) and superficial ulcers (17%) (Figure 1). Histopathological evaluation was done and all slides were reviewed. Epithelial hyperplasia was the most common finding in both males (89%) and female patients (86%) (Table 4).

Table 4: Histopathological findings.

Features	Males (%)	Females (%)
Epithelial hyperplasia	89	86
Basal cell thickness	66	55
Intercellular edema	50	44
Barretts	13	13
Capillaries in epithelium	79	78
Presence of neutrophils	61	47
Presence of lymphocytes	19	21
Presence of eosinophils	10	5
Ulceration and mucosal damage	10	18
Dysplasia	Nil	Nil

Histological features noted, In males, basal cell hyperplasia (66%), intercellular edema (50%), barretts (13%), capillaries in epithelium (79%), presence of neutrophils (61%), presence of lymphocytes (19%), presence of eosinophils (10%), ulceration and mucosal damage in 10 percent (Figure 2) (Table 4).

In females, basal cell hyperplasia (55%), intercellular edema (44%), Barretts (13%), capillaries in epithelium (78%), presence of neutrophils (47%), presence of lymphocytes (21%), presence of eosinophils (5%), ulceration and mucosal damage in 18 percent (Figure 2) (Table 4).

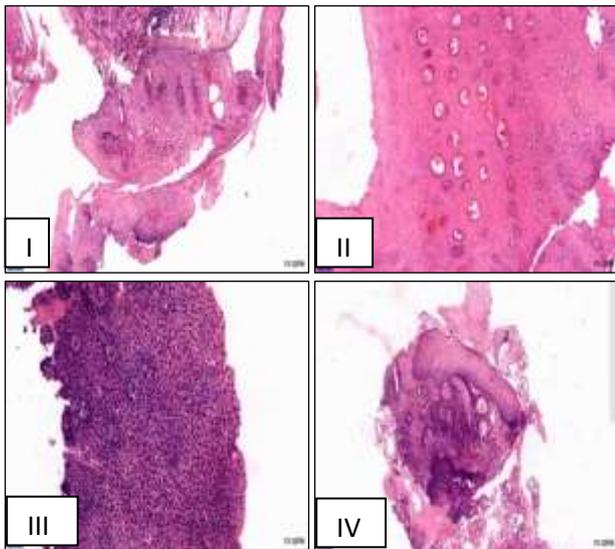


Figure 2: Histopathological findings. I) Epithelial hyperplasia (H&E 20X). II) Increased capillaries (H&E 40X). III) Eosinophilic esophagitis (H&E 40X). IV) Barretts esophagus (H&E 20X).

DISCUSSION

Reflux esophagitis is a common presenting morbidity in our medical gastroenterology Out Patient Department (OPD). Prevalence ranges from 10%-20% of the population with many cases noted in adolescents.¹ Patient usually presents with symptoms of heart burn. This was earlier called kardia-gia-heart pain.⁴ Reflux is said to be more common in the population consuming hot beverages and carbonated drinks.⁵ Incidence is interestingly lower in south Asian countries namely China and Korea.⁴ Endoscopy features and histomorphological findings have brought tremendous change in the early diagnosis and management of reflux esophagitis. Our study was conducted to determine the most reliable features to depend on for the diagnosis of reflux esophagitis. Biopsy are usually taken 2cm proximal to the squamo columnar junction.⁶ Incorrect interpretation of the biopsy can lead to inappropriate treatment to the patient as presence of reflux do not indicate gastro esophageal reflux disease.⁷ Angeles classified reflux esophagitis into four grades. Grade A:

One or more esophageal mucosal breaks less than 5 mm in length. Grade B: One or more mucosal breaks greater than 5 mm but with continuity across mucosal folds. Grade C: Continuous mucosal breaks between the tops of two or more mucosal folds, but involving less than 75% of the esophageal circumference. Grade D: Mucosal breaks involving more than 75% of the esophageal sphincter. Above are the common endoscopic findings we correlate with the histological features to confirm the diagnosis of reflux esophagitis.⁹ Few features are said to be more specific for reflux esophagitis, those include increased basal thickness, dilatation and congestion of intra epithelial capillaries, presence of neutrophils, eosinophils and lymphoid aggregates.⁵ According to Tripathi et al, basal cell hyperplasia is considered to be the most reliable indicator of reflux esophagitis. 1-4 layer thickness is normal, more than that is considered to be hyperplasia.⁴ According to Tripathi et al lymphocytes should be absent in intra epithelial mucosa and their presence >10-15/ High power field indicate reflux esophagitis and presence of eosinophils are not a reliable marker of reflux esophagitis because they can be seen in case of pill induced injury and parasitic infections.⁴ In our study 12 cases had increased intra epithelial lymphocytes and 7 cases had increased intra epithelial eosinophils. Increased neutrophils can be associated with endoscopic ulcers with infectious and non-infectious esophagitis.¹⁰ Our study comparatively had high number of cases with increased intra epithelial neutrophils. Intercellular edema is considered when the dilatation is more than 1cm of the lymphocyte's diameter.⁴ It is a very significant finding in eosinophilic and lymphocytic esophagitis.⁷ In our study, 40 cases had intercellular edema. Ulceration and mucosal breaks may be in the form of necrosis, granulation tissue or fibrin deposition.⁵ They do not indicate reflux esophagitis, rather indicate only mucosal breaks and most common cause of it is pill abuse.¹⁰ Study by Vierra et al, show 8% of their cases with capillary dilatation and congestion.⁹ Capillary dilatation and congestion are features of erosion and reflux and can indicate reflux esophagitis.¹⁰ In our study, 67 cases had increased capillary congestion and dilatation. Barretts esophagus is an important pre-malignant condition and diagnostic algorithm include: endoscopy and histology features.¹¹ Presence of intestinal metaplasia confirms the diagnosis. The transformation of reflux esophagitis to Barretts or malignancy is not known, but adjacent area of Barretts have high potential of malignant transformation.¹² In our study 7 cases had reflux esophagitis and associated Barretts. The important differentials for reflux esophagitis include infections, ulcers and malignancy that can be ruled out with endoscopy and biopsy correlation.¹³ Treatment for reflux esophagitis include diet modification including avoidance of hot beverages, late night binging, oil and spices, proton pump inhibitor and steroids.¹³ Many patients take proton pump inhibitors on their own, which is very cost effective.¹⁴ Few do not seek medical advise unless symptoms persist or worsen. Treatment for reflux esophagitis include reduction of lower esophageal sphincter pressure and acid reflux.¹⁵ H2 receptor

antagonist like Ranitidine relieves symptoms and heals endoscopic lesions in 27%-45% cases.¹⁶ Failure of medical management, chronic reflux diseases and complications including Barretts and peptic strictures require surgical management.¹⁷ Fundoplication is said to have good control on acid reflux.¹⁸ Current trend is the utilization of Laparoscopic and Robotic anti reflux surgery.¹⁸ Bariatric surgery-gastric bypass is done in obese patients.¹⁷ Complications of reflux treatment are schatzki ring, laryngitis, idiopathic pulmonary fibrosis and esophageal adenocarcinoma.¹⁸

This study has few limitations. Our study lacked more details on the clinical presentation and follow up of the patients. This is a pilot project and we wish to continue the study on more cases of reflux esophagitis.

CONCLUSION

Accurate diagnosis of reflux esophagitis is mainly based on histomorphological features. Important pre – malignant conditions like Barretts can be diagnosed in esophageal biopsy. No totally reliable diagnostic criteria have emerged. Capillaries in epithelium and basal cell hyperplasia along with history and endoscopic findings may be considered as reliable criteria for the diagnosis of reflux esophagitis.

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