



## CLINICAL AND ENDOSCOPIC STUDY OF ACID PEPTIC DISEASE (GERD, GASTRIC & DUODENAL EROSIONS, ULCERS) IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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### ABSTRACT

Chronic obstructive pulmonary disease (COPD) is a global problem with significant morbidity and mortality. In addition to respiratory symptoms like cough, breathlessness patients can present with gastrointestinal symptoms like heart burn, pain abdomen, hematemesis and malena. An association between COPD and acid peptic disease (APD) has been recognized in various studies involving lung diseases.

**KEYWORDS :** COPD, APD, Smoking

### AIM of the study:

The present work was undertaken to study the clinical gastrointestinal symptoms with upper gastrointestinal endoscopy in patients with COPD, with a view to find out the incidence of APD. The association between COPD and APD seems logical as there are anatomical changes that could favor the development of reflux in COPD patients. These changes include increased central drive, flattening of diaphragm and increased intra abdominal and negative intra thoracic pressure. Use of medication like  $\beta_2$  agonists and theophylline will further increase the reflux by decreasing the lower esophageal sphincter (LES) pressure.

### MATERIALS AND METHODS:

The present study was done in patients attending the General Medicine clinics in Government General Hospital Kurnool between Jan 2015 to July 2016. 25 patients and 25 controls according to following criteria are selected.

#### Inclusion criteria:

1. Age  $\geq 50$  years
2. Smoking history  $\geq 20$  pack years
3. Abnormal Pulmonary Function Tests (PFTs) demonstrating non reversible airway obstruction
4. Who meet criteria of COPD – FEV1 and FEV1/FVC  $< 70\%$  of predicted value

#### Exclusion criteria:

1. Respiratory disorders other than COPD
2. Normal PFTs after bronchodilator
3. Known esophageal diseases like cancer, stricture or achalasia
4. Active peptic ulcer disease
5. Zollinger Ellison Syndrome
6. Mastocytosis
7. Scleroderma
8. Current abuse of alcohol more than 3 alcohol drinks per day

### Control group

Patients who denied having any respiratory symptoms such as dyspnea, cough with sputum production or history of asthma or COPD or any respiratory illness

### Protocol

Both COPD patients and control subjects completed a modified version of previously validated reported questionnaire

### Statistical analysis

With the help of student t test for comparing continuous variables between two groups. The association between binary variables were tested using  $\alpha_2$

These associations are verified by using Bonferroni's multiple comparison adjustments.

### OBSERVATIONS

In this study of 25 patients of COPD, all were males between 42- 60 years of age, majority being in 5th and 6th decade. Duration of COPD symptoms varied from 2-10 years with mean of 4.6 years.

All the 25 patients in the study were smokers. The duration of smoking ranged from 5-40 years with mean of 26 years. The no. of beedis smoked per day were between 10-40 with a mean of 20. Ratio between smoker and non smoker causing COPD is 13.9 to 4.49.

Eleven patients who presented with the following symptoms

S. No	Gastrointestinal symptom	No. of patients
1	Dyspepsia and heart burn	4
2	Epigastric pain	3
3	Hiccoughs	1
4	Hematemesis and malena	2
5	Malena	1

All the 25 patients were dyspneic. There is diminished movements of chest wall, obliteration of cardiac dullness and liver dullness. Auscultation revealed diminished breath sounds on both sides with bilateral crepitations. Eight patients having raised JVP, palpable tender liver and bilateral pedal edema suggesting cor pulmonale and cyanosis was present in them.

X-ray chest revealed emphysematous changes and ECG in 13 patients had right axis deviation with right atrial enlargement and right ventricular hypertrophy. Three patients had leukocytosis and raised ESR.

In 23 of 25 patients there was moderate to gross mixed defect i.e., both obstructive and restrictive defect. Two had minimum mixed defect. There was a reduction in forced expiratory volume per second. The FEV1/FVC is less than the predicted value.

**ENDOSCOPIC FINDINGS:**

GERD	FRANK ULCERATION			EROSIONS		NORMAL
	GASTRIC	PREPYLO RIC	DUODEN AL	GASTRIC	DUODEN AL	
5	2	2	1	2	1	12

**DISCUSSION**

An association between COPD and APD has been recognized in several studies involving lung diseases. Peptic ulcer occurs in 30% of patients with COPD compared to 10 % in normal individuals and frequency of chronic lung disease is 2-3 fold in peptic ulcer disease patients [1]. Bronchial hypersecretion, airflow restriction and peptic ulcer have been linked in a population study( Kauffmanns& Brillie 1981).

Two defined syndromes  $\alpha$ 1 antitrypsin deficiency and cystic fibrosis are also examples of suspected association of COPD with peptic ulcer. The relative risk of peptic ulcer in  $\alpha$ 1 antitrypsin deficiency is estimated to be 1.5-3 times greater than general population [2]

In this study of 25 patients of COPD, all were males between 42- 60 years of age, majority being in 5th and 6th decade. Duration of COPD symptoms varied from 2-10 years with mean of 4.6 years. These cases in their presentation are comparable to the standard description of COPD patients in major studies[3].

All the 25 pateints in the study were smokers. The duration of smoking ranged from 5-40 years with mean of 26 years. The no.of beedis smoked per day were between 10-40 with a mean of 20.Ratio between smoker and non smoker causing COPD is 13.9 to 4.49.[4] Smoking habit of patients was not taken into account at the time of selection till study was completed.

Two patients were workers in industries. Two were cooks by occupation for a period of 10-20 years further adding risk for causation of COPD.[5] These patients how ever did not differ from other COPD patients in their clinical presentation.

Out of 25 patients, 11 patients presented with gastrointestinal symptoms. 7 were smoking for more than 30 years and more than 20 beedis/day. This shows that longer duration of smoking increased incidence of gastrointestinal symptoms.

Seven out of 11 patients with GI symptoms had a duration of COPD more than 4.6 years i.e., the mean duration of COPD in this study. Majority of patients were similar to those described by standard text books symptomatically. This shows that increased duration of COPD is associated with increased incidence of GI symptoms.

Nine out of 13 endoscopically positive patients smoked more than 20 years. This is further evidence that duration of smoking has definite relation to endoscopic positive lesions in COPD and corpulmonale patients[6]

Eight out of 11 patients with GI symptoms had a positive endoscopic lesions. 3 out of 11 had a normal endoscopic findings . In previous studies no emphasis was made on relationship between the smoking and COPD to that of acid peptic disease.

52% of COPD patients had APD. 85.71% of symptomatic COPD with GI symptoms had an endoscopic positive lesions. 35.71% of symptomatic COPD had endoscopic positivity. This was in accordance with the previous studies conducted by Churchill Living Stone in 1983 which showed an incidence of APD in 30% patients of COPD.

**CONCLUSIONS**

The relation between COPD and APD is 30 % from earlier studies. In this study relation between them was 52%. Almost all patients were smokers in this study. Thus 2 fold rise in APD incidence could be attributed to smoking in COPD patients. It is important ot further

evaluate the observation by prospective study of selective population of COPD- non smokers and their ulcer incidence.

**SUMMARY**

Twenty five patients of COPD over a period of one and half years were studied to establish the correlation between COPD and endoscopic positive lesions. 11 patients presented with GI symptoms. 13 out of 25 patients had a positive endoscopic lesions. 8 patients with GI symptoms had a positive endoscopic findings. 5 patients without GI symptoms had a endoscopic positive lesions. The study showed significant relation between COPD and APD.

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