



## A STUDY TO CORRELATE BETWEEN GASTRO-INTESTINAL LESIONS AND CHRONIC TOBACCO INGESTION IN CENTRAL RAJASTHAN : AN ENDOSCOPIC STUDY

### Gastroenterology

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### ABSTRACT

**INTRODUCTION:** There is high prevalence of tobacco ingestion in India. Peoples used tobacco in several forms. The effect of chronic ingestion of tobacco on the gastro-intestinal mucosa varies from ulcerations/erosions to the occurrence of malignancies.

**AIMS:** To determine relation between chronic use of tobacco products and gastrointestinal lesions

**Materials AND Methods:** 200 patients presenting to the Outpatient Dept. Of Gastroenterology and Medicine with symptoms of dyspepsia warranting upper G.I Endoscopy were divided into two groups of 100 each (100 smokers/tobacco chewers and 100 non-smokers). All 200 patients underwent UGI Endoscopy and biopsy of visible lesion, if required.

**RESULTS:** Out of the 200 patients, 80 had normal endoscopy results, whereas 120 had significant findings. Amongst these 120, 80(76.33%) were smokers/tobacco chewers, while other 40(26.67%) did not consume any form of tobacco. In the 120 patients with significant findings, the majority of the lesions were present in the Gastric Antrum(40%) whereas the area least affected was middle 1/3rd of oesophagus(1%). 60 patients had erosions, 40 had ulcerations without any bleeding, 4 had ulcerations with active bleeding and 16 patients had a growth arising from gastric or esophageal mucosa, which were biopsied. Out of 16 patients with growth, 11 were consumed tobacco in various form. 14 of these were microscopically proven to be malignant, 8 of which were squamous cell carcinoma and 6 were adeno- carcinoma.

**CONCLUSIONS:** The present study has shown a very high association of chronic tobacco intake with the development of endoscopically visible gastrointestinal disease. The rate of development of gastrointestinal malignancy was also found to be significantly higher in patients who were chronic smokers or tobacco chewers.

### KEYWORDS

Gastro-Intestinal Lesions, Chronic Tobacco Ingestion, Endoscopic Study, Correlation

#### INTRODUCTION:

There is high prevalence of tobacco ingestion in India. Peoples used tobacco in several forms like cigarette, bidi, chewing tobacco, hookah, khaini.(1) The effect of chronic ingestion of tobacco on the gastrointestinal mucosa varies from ulcerations/erosions to the occurrence of malignancies. This study was undertaken to find out the effect of tobacco consumption on the GI mucosa.

#### AIMS:

- To determine relation between chronic use of tobacco products and gastrointestinal lesions

#### MATERIALS AND METHODS:

200 patients presenting to the Outpatient Dept. Of Gastroenterology and Medicine with symptoms of dyspepsia warranting Upper G.I Endoscopy were divided into two groups of 100 each(100 smokers/tobacco chewers and 100 non-smokers). All 200 patients underwent UGI Endoscopy and biopsy of visible lesion, if required.

#### INCLUSION CRITERIA:

patients were included in study those have the criteria of chronic smoker/ chronic tobacco chewer as follows:

- Pack years > 1.5 i.e Smoking of more than 5 cigarettes/ day for at least the last 3 years.
- Chewing tobacco/ tobacco products such as – Khaini, Guthka, Pan Masala at least 3 times/ day for the last 3 years.

#### Exclusion criteria:

- Previously treated patients of any GI illness/ gastrointestinal mucosal pathology.
- Patients on co-existing usage of long term(>4 weeks) Steroids/ NSAIDS for any medical condition.
- Patients consuming Proton Pump Inhibitors / H2 blockers 1 week prior to study.
- Patients suffering from gastritis due to other identifiable causes

#### Table 2: Correlation Of Endoscopic Findings With Esophago-gastro-duodenal Areas

Endoscopic findings	Middle 1/3rd of esophagus		Lower 1/3rd of esophagus		Fundus		Body		Antrum		Duodenum	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
Erosions	0	0	3	2	3	2	6	4	15	10	10	5
Ulcerations	0	0	2	1	3	2	3	2	13	7	5	2
Ulcerations with active bleeding	0	0	0	0	0	1	1	1	0	0	1	0

such as : Recent or chronic alcohol intake, chronic kidney disease etc.

#### RESULTS:

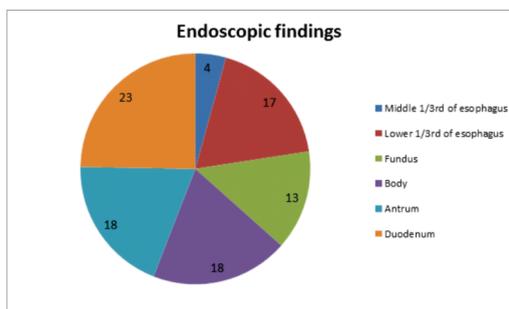
In our study the total numbers of males and females were 180 and 20, respectively. All patients were in age group of 18-86 years with the mean age of 52.7 years.

Out of the 200 patients, 80 had normal endoscopy results, whereas 120 had significant findings. Amongst these 120, 80(76.33%) were smokers/tobacco chewers, while other 40(26.67%) did not consume any form of tobacco. In the 120 patients with significant findings, the majority of the lesions were present in the Gastric Antrum(40%) whereas the area least affected was middle 1/3rd of oesophagus(1%). 60 patients had erosions, 40 had ulcerations without any bleeding, 4 had ulcerations with active bleeding and 16 patients had a growth arising from gastric or esophageal mucosa, which were biopsied. Out of 16 patients with growth, 11 were consumed tobacco in various form. 14 of these were microscopically proven to be malignant, 8 of which were squamous cell carcinoma and 6 were adenocarcinoma.

#### Table 1: Correlation of endoscopic findings with numbers of patients

Endoscopic findings	Smoker	Non Smoker	Total No of patients
Erosions	40	20	60
ulcerations without bleeding	27	13	40
ulcerations with active bleeding	2	2	4
Growth	10	4	14
Malignant	1	1	2
Non- Malignant			
Normal	20	60	80

Growth Malignant	3(Squamous ca)	0	5 (Squamous ca) 1(Adeno Ca)	2(Adeno Ca)	1(Adeno Ca)	1(Adeno Ca)	0	1(Adeno Ca)	0	0	0	0
Non Malignant	1	0	0	1	0	0	0	0	0	0	0	0
Total	4	0	11	6	7	6	10	8	10	17	16	7



**DISCUSSION**

Study was carried out in the Dept. Of Gastroenterology and Medicine, JLN Medical College, Ajmer Rajasthan from october 2016 to October 2018. Smoking and ingestion of tobacco products are well known independent risk factors for gastrointestinal disorders. Various studies have shown that tobacco and its products lead to many harmful effects on the gastrointestinal mucosa, most common amongst which are gastro duodenal erosions, ulcers and gastric cancer. The mortality of peptic ulcer disease is also higher in smokers than non-smokers. Changes in the gastric histology mainly include inflammation of mucosa, polymorphonuclear infiltration and increased gastric mucosal cell apoptosis. Healing of ulcers and lesions is also significantly delayed in chronic smokers.(3,4,5)

Joel Richter in his study demonstrated that tobacco smokers and tobacco chewers were more susceptible to develop GERD, oesophageal stenosis and inflammation of the gastrointestinal tract. Most of the patients (41%) had findings more prominent in the Antrum of stomach whereas findings were least present in the middle 1/3rd of the oesophagus.(4)

Aro, P et al revealed in their study that among 989 smokers and tobacco chewers who underwent upper GI endoscopy, 95% patients had endoscopically visible lesions, 45% of which were present in the antrum of stomach alone.(5) Namoiit Z showed that cigarette smoking causes neutrophilic infiltration and caused antral inflammation and atrophy.(6)

Bhatnagar M et al included 100 patients in his study, in which 50 were smokers/tobacco chewers and other 50 were non-smokers. 19 patients out of 100 had normal endoscopic findings whereas 81 patients had significant endoscopic findings.. Of the 81 significant endoscopic findings, 50 were found in smokers whereas 31 were found in nonsmokers. 14 subjects had minor erosions and signs of non-specific inflammation, 47 had visible ulcerations without any bleeding, 8 subjects had visibly active bleeding/ signs of chronic inflammation like strictures and fibrosis and 12 subjects had a visible growth arising out of the gastric and esophageal mucosa. 11out of 12 consumed tobacco in some form. 6 of these were microscopically proven to be malignant, 4 of which were squamous cell and 2 were adenocarcinoma. In the 81 with significant findings, the majority of the lesions were present in the Gastric Antrum(41%) whereas the area least affected was middle 1/3rd of oesophagus(1.1%).

In our study, 20 patients had growths/masses which were endoscopically visible. Only 2 of these 20 were non-smoker whereas the other 18 consumed tobacco. Out of these 20, 17 biopsy samples proved to be malignant (12 of which were squamous cell carcinoma and 5 were adenocarcinoma), which showed a very high incidence rate of gastrointestinal malignancy in persons who consume tobacco.

Ahmed,W. et al had found that in 383 chronic smoker or chronic tobacco chewer patients , 78% had endoscopically visible lesion. While the most common lesion was the duodenal ulcer, a large number of patients also have malignant growths and tumours.(7) Sonja P. Dawsey et al also found in their study of 109 young patients that smoking was the single largest independent risk factor causing malignancies of the gastrointestinal tract.(8) Many studies have now proven that while adenocarcinoma is on the rise in western countries,

in developing countries such as India, it is squamous cell carcinoma which has a higher incidence and prevalence thereby causing a higher mortality.

The study has shown that although dyspepsia, dysphagia and other complaints maybe present in smokers and non-smokers both, the severity of gastrointestinal morbidity in the form of ulcers, erosions, GI bleeding etc. is significantly higher in persons who consume tobacco on a chronic basis. Also, the incidence of malignancy appears to be significantly higher in persons who intake tobacco in any form. Smedley et al included in their retrospective study of 275 smokers and 275 non-smokers found that smokers were more likely to suffer from peptic ulcers, stenosis of lumen and fibrosis of mucosa etc. Of the 128 patients with duodenal ulcers in his study, 85.9% were smokers.(11) A similar pattern was found in our study as well, where 71.9% of the subjects suffering from peptic ulcers were smokers.

**CONCLUSIONS**

The present study has shown a very high association of chronic tobacco intake with the development of endoscopically visible gastrointestinal disease. The rate of development of gastrointestinal malignancy was also found to be significantly higher in patients who were chronic smokers or tobacco chewers.

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