14. "Khattan" Consumption-A Risk Factor in the Development of Carcinoma Stomach

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ABSTRACT

Consumption of KHATTAN, a locally made liquor (whose carcinogenicity has been proved by bacteriological and animal studies) is considered as a high risk factor in the development of gastric carcinoma. The incidence of carcinoma stomach is very high in and around Angamaly. During the past five years, ie, between 1980-'85, we have had 217 cases of biopsy proved carcinoma of the stomach of varying stages. This incidence of carcinoma of stomach of 7.2% is very high compared to the studies done by Bhakthavatsalam et al 1933. This is probably due to the high consumption of Khattan.

INTRODUCTION

A variety of enviromental factors have been associated with a high incidence of gastric carcinoma including smoked fish, salted foods and aflatoxin (Moerted et al, 1982). Whereas gastric carcinoma is very common in Japan, the Central and South American Andes and part of Eastern Europe, it is uncommon in United States, Mexico and Malaysia. Though the cause of gastric cancer is unknown, diet has been implicated. It has been suggested that gastric cancer may be related to the formation of N-Nitroso compounds by the conversion of food Nitrates to Nitrites, which then interact in the stomach with secondary or tertiary amines (Petersdorf et al, 1983).

Out of 3000 cases of Oesophagogastroduodenoscopies done at the Department of Surgical Gastroenterology, Little Flower Hospital, Angamaly, between 1980 to '85 a very high incidence of carcinoma stomach has been observed. Of the 217 cases of biopsy proved gastric carcinoma patients, around 92% were found to consume Khattan in large quantities. Though all persons consuming Khattan did not have carcinomatous changes, varying degree of gastric mucosal abnormalities were visualised macroscopically

MATERIALS & METHODS

We have analysed 3000 cases of upper G I endoscopies done in our department during the last five years. The scope used were Olympus GIF Q and GIF D3. Scopies were done under sedation. In our study, the peak incidence of carcinoma stomach was between 40 and 50 years of age with a very high male predominance.

Khattan is the local name given to this liquor, prepared in almost every house of the working class in the surrounding villages. This hospital caters to the needs of about eight to ten villages around. Most of the male members of these families consume this at about 200 to 600 ml per day. Thier food habits are so poor that they hardly take any food after the drink.

Khattan is prepared in different ways, but the main recipe are as follows; fruits, mostly rotton ones; bark of a tree, Jaggery, Rice, old batteries (dry cell), Millipedes or leeches (these are mentioned by many of them). They are mixed and fermented by burrying them under the sand. Some add Ammonia to this. This is usually taken out after 72 hours and distilied.

Samples from many patients (Khattan samples) were sent for biochemical and bacteriological studies (Using Salmonella Typhi), which were found mutagenic and also carcinogenic. The biochemical investigation showed that this contained a very high concentration of Nitrosamide, which probably is the cause of its carcinogenicity.

RESULTS

In our study of 3000 cases of upper G I endoscopies done at the department of Surgical gastro-

enterology, we had noticed a high incidence of gastric carcinoma in patients consuming Khattan. As such this incidence of gastric malignancy is higher than that of similar other studies conducted (Bhakthavatsalam et al, 1983)

The details of our study are given in Table I, where in we had observed that out of 217 patients, 91.7 percent were habitual drinkers. But 33.3% of people who had also consumed Khattan had no significant macroscopic abnormalities found in the gastric mucosa. A comparative study of our scopy findings with that of Bhargava et al 1982 and Bhakthavatsalam et al 1983 are shown in Table II.

Out of 217 cases of carcinoma stomach, 119 cases (54.7%) were located in the body of the stomach, which is contrary to the high incidence of malignancy in the pyloric region as mentioned in standard text books (Harding Rain et al. 1977; David C Sebastin. 1981; Vincent T Devita et al. 1985). As we have now come across a possible risk factor in Khattan, for the development of carcinoma of stomach, we have taken up a project of detecting metaplastic and dysplastic changes in gastric mucosa at large, and to find out a Pro-carcinogen in them.

DISCUSSION

Alcohol is known to cause Oesophagitis and Gastritis (Sainani, 1933). Alcohol concentrations of over 10-15% when ingested cause increase in mucus secretion, the gastric mucosa becomes congested and hyperaemic and their acid secretion becomes depressed. This is a state of acute gastritis (Victor et al, 1983; Burton, 1983). This would further lead to Chronic atrophic gastritis and prove a precancerous lesion Mirvish, (1983).

The incidence of Chronic Gastritis in all chronic alcoholics have been demonstrated and the incidence in heavy drinkers of more than 40 to 50 years of age is higher (Vilardell, 1974). Alcohol is recognised to increase the risk of carcinoma of oesophagus (Burton, 1983). Alcoholic beverages have been found to be associated with an elevated risk of gastric carcinoma (Hirayama, 1971; Haenszel et al, 1972).

Nitrosamines have been suggested as an etiological agent for oesophageal cancer (Kawachi et al, 1977). Number of workers have proposed that Nitrosamides eg. Nitrosureas are produced in the stomach from amides and nitrite derived from food and act in that organ to induce cancer (Haenszel et al, 1975; Mirvish, 1971; Correa et al, 1975; Weisburger, 1981; Tannenbaum et al, 1977; Frazer et al, 1980). Nitrosamides are a subgroup of N-Nitroso-compunds, which are generally strong carcinogens and also include Nitrosamines.

Thus the presence of Nitrosamides in this product in high concentration is suggested as a possible etiological agent for Gastric Carcinoma.

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TABLE:-II

Diagnosis	Our study 3000 cases %	Bhargava et al 500 cases %	Bhakthavatsalam et al 1000 cases %
Duodenal ulcer	20.3	14.8	66
Gastric ulcer	11.6	2.0	6
Oesophageal carcinoma	2.2	2.6	2
Gastric carcinoma	7.2	-	4

TABLE-I Total number of cases studied: 3000

Diagnosis	No. of cases	%	Pts. consuming Khattan	%
OESOPHAGUS:				
Oesophagitis	249	8.3	140	56.2
Hiatus Hernia	74	2 4	28	37.8
Mallory Weiss tear	13	0.4	9	69.2
Achalasia cardia	6	0 2	-	-
Oesophageal varices	25	0.8	23	92.0
Carcinoma oesophagus	67	2.2	46	68.6
STOMACH:				
Acute gastritis	439	14.6	302	68.7
Atrophic gastritis	58	1.9	37	63.7
Erosive gastritis	183	6 1	118	64.4
Ac. gastric ulcer	212	7.1	127	59.9
Prepyloric ulcer	111	3.7	78	70.3
Healed gastric ulcer	25	0.8	6	24.0
Post-op stomach	121	4.0	93	76.8
Carcinoma stomach	217	7.2	199	91.7
DUODENUM:				
Duodenitis	406	13.5	196	48.3
Ch. Duodenal ulcer	609	20.3	263	43.9
Healed duoden ulcer	76	2 5	24	31.5
Pyloric stenosis	114	3.8	66	57.8
Pseudodiverticulam	20	0.6	4	20.0
Normal oesophago gastroduodenoscopy	597	19 9	199	6.5