

# From the medical press

## Khat chewing is a risk factor of duodenal ulcer

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Sir

Duodenal ulcer is estimated to affect 10 % of population during some time in their life <sup>(1)</sup>. Duodenal ulcer was found in 14 % at the Endoscopy Department in Riyadh Military Hospital <sup>(2)</sup>. No national figure was traced in recent literature about the situation in Yemen. But increases in attendants at hospitals with duodenal ulcer are noticed. Vast majorities of them are khat chewers.

Khat is a plant known scientifically as *Catha edulis* forsk. Its fresh leaves only are used for chewing. Khat chewing is a very common habit in Yemeni society. It is chewed also in southern parts of Saudi Arabia <sup>(3)</sup> and in several east African countries. Recently khat appeared in USA and several European countries <sup>(4)</sup>

Duodenal ulcer is a multi factorial disease, with many known risk factors, e.g. genetic predisposition, blood group, HLAP <sup>(5)</sup>, colonization of *Helicobacter pylori* <sup>(6)</sup>, smoking, NSAID and alcohol consumption <sup>(5)</sup>

Khat chewing was found to be associated with gastritis, delayed gastric emptying and decreased gastric cell secretion. Daily khat chewing was found associated with high prevalence of *Helicobacter pylori* and duodenal ulcer, especially in women. However, the study was of small sample size (n= 28) and was not controlled for. Current study was designed to explore association between khat chewing and duodenal ulcer.

Analytical design was employed in this study with cases and controls coinciding in background and confounding variables. Cases were defined as patients who had duodenal ulcer and controls that did not. Both having being diagnosed by gastroduodeno-scopy. Exclusion criteria was patients that had duodenitis, erosion, stress ulcer, Zollinger-Ellison syndrome and corrosive ulceration. Any individual who had clinical features of duodenal ulcer was excluded from controls also.

Khat chewer was defined operationally as a person who chewed for  $\geq 14$  hours per week.

Sample size was calculated according to an expected exposure of 37% and worth detecting odds ratio of 1.6 at a confidence level of 95%. Patients and controls were informed about the study and signed on consent forms.

Data were collected in questionnaire forms by the investigators and entered onto a PC, processed and analyzed by SPSS 9 program for the calculation of t-test, Chi square and Odds ratio. P-value was considered significant at  $< 0.05$ .

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Table 1 Variables confound the relationship between duodenal ulcer and Khat chewing

Variable		Cases %	Controls %	Chi <sup>2</sup>	P-value
Smoking	Yes	38	33	1.111	0.299
	No	62	67		
NSAID	Yes	5	8	1.091	0.623
	No	95	92		
Family history	Yes	17	16	0.076	0.881
	No	83	84		
Alcohol consumption	Yes	3	4	0.074	1.086
	No	97	96		
Chronic disease	No	87	86	0.355	0.949
	Liver	4	5		
	Renal	4	4		
	Other	5	4		

Cases and controls were significantly comparable in all background variables. Levels of significance ( $p$ ) were 0.54 for mean age, 0.32 for sex, 1.0 for marital status, 0.225 for residency, 0.412 for occupation, 0.708 for educational level and 1.098 for blood group. Differences in confounding variables were also not significant statistically as revealed in Table 1. Regarding khat chewing in relation to duodenal ulcer please refer to Table 2. Mean duration of chewing in cases was 25.09 hours per week compared to 11.01 hours only in controls ( $t$ -test = 8.30,  $P < 0.0001$ ).

Results revealed that Khat chewing is significantly associated with duodenal ulcer. This effect can be due to stress that follows khat chewing. This phenomenon is very common and is induced by the effect of amphetamine like action of cathine present in khat. Another possible factor can be due to *Helicobacter pylori* associated with khat chewing, beverages consumed during the session or insecticides and chemicals used for growing the plant. All these factors together with the chemical constituents of the khat itself needs further investigation to unveil the causation effect on duodenal ulcer.

Table 2 Khat chewing in relation to duodenal ulcer

Duodenal ulcer	Khat chewing				Total
	Yes		No		
	No.	%	No.	%	
Cases	133	76	42	24	175
Controls	52	35	98	65	150
Total	185	57	140	43	325

Chi squared = 56.275,  $P = 0.0001$ , Odds ratio = 5.968.

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