Khat induced hemorrhoidal disease in Yemen

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ABSTRACT

Objectives: The aim of this study was to evaluate the potential association between the habit of khat chewing and the development of hemorrhoidal disease.

Method: Four hundred and seventy four individuals (373 men and 101 women) with ages ranging from 17 to 80 years were divided into 2 groups. Group 1 (n=247) chronic khat chewers. Group 2 (n=200) non-khat chewers. Data was collected regarding chewing habits, colorectal symptoms, abdominal, proctoscopic, and operative findings.

Results: The key difference between the 2 groups was the incidence of hemorrhoids and hemorrhoidectomy. In the chronic khat chewers group: 169 (62%) had hemorrhoids. Of these 124 (45.4%) underwent hemorrhoidectomy. In the control group there is 8 (4%) had hemorrhoids and one patient underwent hemorrhoidectomy (0.5%). P-value (0.05).

Conclusion: The study demonstrated a significant association between the habit of khat chewing and the development of hemorrhoidal disease.

Keywords: Khat, hemorrhoids.

Saudi Medical Journal 2000; Vol. 21 (5): 475-477

Khat is a plant cultivated in East Africa and Yemen. The young leaves and stems are chewed by the inhabitants for their stimulating effect. The chewing habit has been confined to countries such as Yemen, Somalia and Ethiopia. However, recently khat has been air-freighted to some European countries[1,2] and the United States where it is used by some immigrants. Khat has several components but, the alkaloid cathinone is regarded as the main active principle of the plant. Several studies have demonstrated that cathinone resembled amphetamine in its actions on central nervous system and its peripheral sympathomimetic effects.[3-5] Hemorrhoidal disease is a very common disease in the Yemeni population. The majority of patients complaining of anorectal problems have hemorrhoids. Hemorrhoidectomy is one of the most common operations carried out in Yemeni hospitals and clinics.

Methods. The study was conducted in the Yemen Specialized Hospital between January 1995 and March 1997. Four hundred and seventy four individuals were enrolled in the study, 373 men and 101 women whose ages ranged from 17 to 80 years. They were divided into 2 groups: group 1 were chronic khat chewers, group 2 were non-khat chewers. The age and sex distribution were similar in both groups (Table 1). Patients in the study group and controls were Yemenite who came from different sectors of the Yemeni society. The controls were chosen from non-khat chewers who attended the outpatient clinic or admitted to the hospital during the same period with diseases other than hemorroids. Patients who refused to undergo proctoscopic examination were refuted from the study.

Khat chewing sessions. The khat chewer usually begins after lunch, each person consumes about 100-500 gm of the leaves. The young fresh leaves are

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Received 9th December 1999. Accepted for publication in final form 21st February 2000.

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picked from twigs, chewed and then stored in the cheek. The saliva and leaf extract are swallowed or spitted out. The active components of khat are absorbed from the buccal mucosa of the mouth and the intestine. Chewing sessions may last 3 to 6 hours. Data has been collected regarding chewing habits, colorectal symptoms, abdominal, proctoscopic and operative findings. Open hemorrhoidectomy was carried out in 95% of patients and closed hemorrhoidectomy in 5%. The statistical analysis was performed using the method of maximum likelihood estimate for estimating the odds ratio parameters. A 90% confidence intervals with exact confidence limits were used.

The P-values were determined according to Chi-squared test on one degree of freedom.

Results. The present study demonstrated a significant association between the chronic habit of khat chewing and the development of hemorrhoidal disease. In the chronic khat chewers, 169 (62%) have hemorrhoids and 124 (45.4%) underwent hemorrhoidectomy. This is in contrast to the control group where only 8 (4%) have hemorrhoids and 1 (0.5%) underwent hemorrhoidectomy (Table 1). The key difference between the 2 groups is the incidence of hemorrhoids and hemorrhoidectomy. The odds ratio estimates for the incidence of hemorroids and hemorroidectomy were, 38.6 with P-value <0.05 and 28.1 with P - value <0.05. The distribution of hemorrhoidal disease among males and females was 4:1 and only one female to 4 males underwent hemorrhoidectomy. This difference in distribution among sexes, might reflect the difference in khat chewing habit between the 2 sexes. The study suggested that straining, chronic constipation and posture effect are the most important factors involved in hemorrhoid aetiopathogenesis.

Table 1 - Details between khat chewers and non-khat chewers.

	Chronic khat chewers Group 1		Non-khat chewers Group 2		
No.	274		200		
Sex: Males Females	213 61		160 40		
Age:	17-80 (mean=48.5)		19-82 (mean=50)		
	OR	**CI**	**OR**	**CI**	**P**
Hemorrhoids:	169 (62%)	8 (4%)	38.6	95%	<0.0001
Hemorrhoidectomy:	124 (45.5%)	1 (0.5%)	28.1	95%	<0.0001

OR=Odds ratio CI=Confidence interval

Discussion. Today, several million people living in the countries between Sudan and Madagascar and in Yemen[6,7] are frequent users of the khat leaves. Khat contains several alkaloids, tannins, flavanoids and other substances. Sustained khat chewing leads to physiological and potential pathological effects. This is the first study which evaluates the relationship between the khat chewing habit and the development of hemorrhoidal disease. The present results showed that a significant number of khat chewers developed hemorrhoids. In several studies, the sex ratio of the prevalence of hemorrhoids in the general population in the West is equal.[8-10] In this study, males were affected 4 times as frequently as females reflecting the ratio of males to females who chew khat, also 4:1 (Table 1). This sex distribution in this developing country might also support the possible correlation between chronic khat chewing and the development of hemorrhoidal disease. The pathogenesis by which khat induces hemorrhoids include: 1. Chronic constipation caused by the astringent effect of tannins, and the sympathomimetic effect of khat alkaloids. The causative relationship between chronic khat chewing and constipation was supported by the observation that, when khat was banned in Aden in 1957, the sales of laxatives decreased by 90%, but returned to the original level after the ban was lifted.[11] Habitual users of khat try to attenuates this undesirable effect by food adaptation. 2. Khat causes straining during defecation due to constipation, inhibition of intestinal peristalysis and increase in the tone of external anal sphincter by the effect of khat sympathomimetic components. 3. Khat causes straining during micturation by sympathetic inhibition of detrusor muscle activity and increasing the tone of the external sphincter. 4. A gravitational effect might also play a role in the pathogenesis of hemorrhoids in khat chewers by the prolonged sitting in the khat session which lasts between 3-6 hours. This prolonged sitting might lead to vascular filling which probably contributes to 15-20 percent of resting anal pressure.[12] Although the causes of hemorrhoidal disease remain unknown, several theories have been proposed:- Absent portal venous valves, upright posture, displacement of anal cushions,[13] chronic constipation and straining,[14,15] fragmentation and loosening of subepithelial connective tissue.[16-18] Currently, the most accepted theory is that anal cushions break their elastic support and become more sensitive to increased pressure from straining and to trauma from hard stools with a progressive downward displacement.

The results of the study is compatible with this

theory; In that chronic constipation, straining and gravitational effect are the most important factors in hemorrhoid formation. One or more of these factors might lead to secondary effects such as an increased intra-abdominal pressure, increased maximum resting anal pressure and breaking the elastic support of anal cushions and their displacement.

The main complaint of patients who underwent hemorrhoidectomy was impotence in males. This might be caused partly by sympathomimetic effects of khat on the erection mechanism,[19] although psychological, personal and cultural factors might play a role in this complaint.

In conclusion, the study demonstrated a significant association between the habit of khat chewing and the development of hemorrhoids and suggested that straining, chronic constipation and gravitational effect are the most important factors in hemorrhoid pathogenesis.

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