

## Missed abortion in Yemeni patients Correlation with age and chewing qat habit

Abdul Karim Al-Zabedi MD<sup>1</sup>, Mohamed Gouda<sup>2</sup>, Basoma saad<sup>2</sup>

Head of Radiological Department in Military Hospital, 2Arab board of radiology)

### Abstract

*Purpose: To find out if there is any correlation between missed abortion and the habit of qat chewing in republic of Yemen .In other words, to find if the chemical substances in the qat can be a leading cause to abortion.*

*Material and Methods: This is a prospective study of 64 patients diagnosed to have missed abortion during 3 months period on 2007. All patients underwent clinical evaluation and ultrasonographic examination and then asked to complete a questionnaire. 20 cases of missed abortion who are admitted of qat chewing during pregnancy were selected just for evaluation of the effect of frequency and duration of qat chewing on missed abortion and were compared to a control group of 20 pregnant lady who passed normal first trimester period.*

*Results: According to the results of this questionnaire,a higher percent of mothers with missed abortion were included in the age group 26-30 years (43.75%). 62.5% of the patients in our study were qat chewers during pregnancy in contrast to 37.5% who were not. However in relation to the control group ,it was found that the percentage of normal gestational cases who were chewing qat during pregnancy is the same (65%).*

*Conclusion: this is a small study which suggests that there is no direct relation between the number of cases of missed abortion and qat chewing during pregnancy. However still more deep studies are needed to evaluate the effect of qat on pregnancy.*

### Introduction:

Abortion is Loss of a pregnancy during the first 20 weeks, at a time that the fetus cannot survive. Such a loss may be involuntary (a "spontaneous" abortion), or it may be voluntary ("induced" or "elective" abortion) (1). Miscarriage is the layman's term for spontaneous abortion, an unexpected 1st trimester pregnancy loss (2). Abortions are further categorized according to their degree of completion. These categories include Threatened, Inevitable, Incomplete, Complete, and Septic.

A missed abortion was defined in 12 December 1998 as the retention in the uterus of a dead fetus two months or more after its death. However many sources do not consider a definite period and define it as dead conceptus

within uterine cavity, occurring between 8- 18 weeks.

Before 18 weeks, a dead baby is usually aborted without his mother knowing that he is dead. Occasionally however, the abortion is delayed for several weeks. When this happens the only sign of fetal death is that her uterus fails to grow. Alternatively, she may have a threatened abortion, which stops bleeding, and is followed by a brown discharge and no further periods (3).

About one in five early pregnancies will not survive. These will grow for a while, with Human chorionic gonadotrophin HCG in the urine and serum, but eventually will stop growing normally, and then will stop growing at all. (3).

Clinically, manifestations of pregnancy gradually

disappear and there may be brownish discharge. If there were foetal movements before they will stop. The uterus is smaller than expected and doesnot enlarge. Pregnancy tests become negative , though they may remain weakly positive for 3-4 weeks after death of the ovum.

#### **Sonographic evidence of a missed abortion:**

- No cardiac activity in a well-defined embryo with Crown Rump Length > 9mm on abdominal scan or > 5mm on transvaginal scans.
- Gestation not in correspondance with menstrual age.
- Sac > 25 mm in diameter without an embryo (differential diagnosis: anembryonic pregnancy).
- Sac > 20 mm without yolk sac.
- Crenated irregular angular sac configuration.
- String like debris within gestational sac.
- Discontinuous thin irregular choriodecidual reaction.
- No double decidual sac.
- Low sac position.
- Subchorionic collection (4).

If death of the embryo occurs towards the end of second trimester, fetal heart movements cannot be monitored. The fetal body movement cannot be detected also. Overriding of cephalic bones (spalding sign), hyperflexion of or angulation of the spine, and collapse of the thorax can be demonstrated if presents.

Abortion is common, occurring in about one out of every 5 pregnancies. The rate of abortion is about 10-25% of clinically diagnosed pregnancies and it decreases with increasing gestational age. For the most part, these losses are unpredictable and unpreventable. About 2/3 are caused by chromosome abnormalities incompatible with life. About 30% are caused by placental malformations and are similarly not treatable. The remaining miscarriages are caused by miscellaneous factors but are not usually associated with minor trauma, Intercourse, or too much activity (2).

According to a reference written by Dr A al-hadrani (5), the plant of qat contains different chemical components, like Cathinone, Methcathinone, cathine, Norephedrine

....etc, in variable concentrations. Some of these components are considered sympathomimetics which has variable action on the uterus, but generally causes relaxation of pregnant human uterus (6).

#### **Patients and Methods :**

The study was conducted between June to August in 2007. Using transabdominal ultrasound (Sonoline versa plus-siemens), 64 patients referred to Al-Sabeen hospital and Yemen German Hospital to do US examination for being clinically complaining of bleeding per vagina or vague brown discharge. They where diagnosed as having missed abortion depending on the clinical evaluation and one of the following US signs: absence of cardiac activity in a well-defined embryo with Crown Rump Length > 9mm (fig 1) ,Gestation not in correspondance with menstrual age (fig 2), gestational Sac > 25 mm in diameter without an embryo (fig 3) , Sac > 20 mm without yolk sac and Crenated irregular angular sac configuration. If death of the embryo occurs towards the end of second trimester, fetal heart movements cannot be monitored. The fetal body movement cannot be detected also. Overriding of cephalic bones (spalding sign), hyperflexion of or angulation of the spine, and collapse of the thorax can be demonstrated if present (fig 4).

17.Hoffbrand AV, Pettit JE and Moss PAH. (2001). Blood transfusion. In: Essential Haematology. 4th ed. Blackwell Science Publications. PP 307-318.

18.Heyns AD (2000): The risk of transmitting HIV and other diseases with blood transfusion in South Africa. Transfusion Today, 42; 4-9.

19.Burnouf T, Cuthberston B, Lin L, Liu DT et all (2000): Experience in implementing collection of plasma for fractionation in Taiwan. Transfusion today, 42; 9-13.



Fig (1): Missed abortion 9 Wks GA: Missed abortion 9Wks GA by 2D ultrasound and by using color flow mapping to detect absence of color signals from fetal heart. The spectral Doppler shows an artifact from maternal arterial “thump”.



Fig (2): missed abortion 12 weeks after last menstrual period. Calculation by US by CRL corresponds to 7weeks. Gestation is not in correspondance with menstrual age.



Fig (3): missed abortion: anembryonic sac corresponding to 9wks. US shows about 26 mm gestational sac without embryo. The sac also appears crenated.



Fig (4) missed abortion at 13 weeks: the fig shows hyperflexion of the spine, and collapse of the thorax (white arrow). Note also early spalding of skull (arrow head).

The main investigator and assistant radiologist in the presence of an obstetrician performed all US examinations conducted in this study. A 3.5 MHz transabdominal transducer was used to visualize uterus, and the conceptus. Then the patients were asked to fill a questionnaire about the history of previous abortions and their habits of smoking and Qat chewing before and during pregnancy. All the patients deny smoking, so the study was confined to the habit of Qat chewing. 20 cases of missed abortion who are admitted of qat chewing during pregnancy were selected just for evaluation of the relation of frequency and duration of qat chewing with missed abortion and were compared to a control group of 20 pregnant lady who passed normal first trimester period.

The age range of the patients was between 15 and 40 years. They were divided into 5 groups according to age group and eventually were classified into 3 types: those who are not qat chewers at all, those who stop qat chewing during pregnancy, and those who continue to have Qat during gestational period.

### Results

According to the age of pregnant ladies, the highest number was between 26-30yrs (Table 1). According to estimated age of the embryo, after measuring the CRL by transabdominal US, it was found that the highest number of

missed abortion occur between 8- 10 weeks of conception by the time the US was done (75%) (table2).

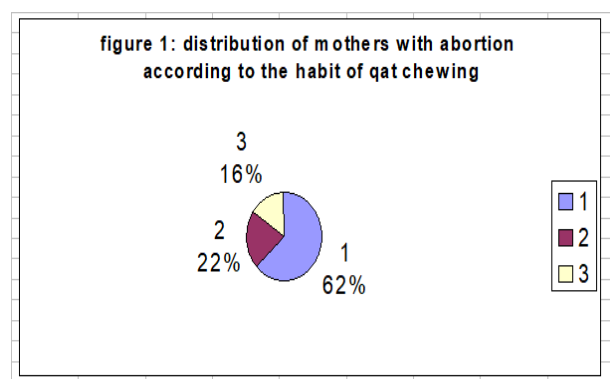
Table (1): age distribution of mothers with abortion

Age of mother (years)	16-20	21-25	26-30	31-35	36-40
Number	4	16	28	8	8
Percent%	6.25	25	43.75	12.5	12.5

Table (2): age of dead embryo at time of transabdominal US

Age of embryo (in weeks)	8-10	10-12	12-14	14-16
Number	48	4	8	4
Percent	75	6.25	12.5	6.25

According to the habit of Qat chewing, it was found that the number of patients who continue to have Qat during pregnancy are 40 cases (62.5%). Of the rest 24 cases, 14 mothers do not chew qat at all, and 10 mothers stop that habit only after discovering they are pregnant. (Figure 1).



- 1-Cases chewing qat during pregnancy.
- 2-Cases stop qat during pregnancy.
- 3-Non-qat chewers.

Of the 40 cases who admit chewing qat during pregnancy, 20 cases were selected for further evaluation of the duration and frequency of qat chewing. The dosage of qat chewing couldn't be evaluated as it needs more deep and complex study. It was found that on average , the duration of qat chewing was between 1-3 hours so it was irrelevant. 8 patients (40%) were having qat 1-2 times per week, 6 patients were having qat 1-2 times per month. The rest 3 patients were having qat nearly daily.

Control group of 20 pregnant lady who passed normal first trimester period were selected for comparison. 7 cases (35%) deny qat chewing at all during pregnancy. 13 cases (65%) admit qat chewing during pregnancy. Of these, 7 cases (53.8 %) were chewing qat 1-2 times/ week, 3 cases 1-2 times per month and 3 cases nearly daily.

#### Discussion:

In the present study, most of cases are found between age groups 26- 30yrs (43.75%). Higher percentages of missed abortion are found in those who have qat during pregnancy. 62.5% of the patients in our study were qat chewers during pregnancy in contrast to 37.5% who were not. However ,it was found that the percentage of normal gestational cases among control cases who were chewing qat during pregnancy is nearly the same (65%). also as we study the effect of frequency of qat chewing during pregnancy , we found no significant correlation with missed abortion.this gives an impression that the dosage of chemical substances (sympathomimetics) that present within the qat leaves are of low concentration to make a risky factor for missed abortion.

However this is still a preliminary study and there are no previous studies to place any correlation between the effect of chemicals in the Qat plant on the process of pregnancy and abortion ..

In conclusion : this preliminary study suggests that there is no direct relation between the number of cases of missed abortion and qat chewing during pregnancy. However still

more deep studies are needed to evaluate the effect of qat on pregnancy.

Further deep studies are needed to evaluate the chemical effect and dosage of qat material on the uterus and the embryo including lab tests on animals. .

### References:

- 1.Melanie N. Smith, M.D., Ph.D., Department of Obstetrics and Gynecology, Brigham and Women's Hospital, Boston, MA. Review provided by VeriMed Healthcare Network; ADAM Health Illustrated Encyclopedia, 03/29/2007.
- 2.Military Obstetrics and gynecology first trimester pregnancy loss, Medical Education Division, Medical education Division, Brookside Associates, 2006.
- 3.Definition abortion, missed from Online Medical Dictionary, Published at the Center for Cancer Education, University of Newcastle Upon Tyne, 1997-2000.
- 4.wolfgang Dahnert, radiology review manual, fourth edition, 1999 , P 852.
- 5.Ahmed Alhadrani Ph.D., scientific synopsis about Qat, academic study about qat and its effect, 2007.
- 6.M. B. ElHawary, M. T Khayyal, Z. Isaak, principle of pharmacology, 1998.
- 7.Bagobir, M. 1998. Khat effects on the function of the liver and kidneys, abbadi center for studies and publications, Sana'a Yemen Republic.
- 8.Anwar, W.A. 1997. biomarker of human exposure to pesticides. Environ health perspectives: 105: 881-886.
- 9.Brenneisen, R, Fisch, HU, Koelbing, U, Geissshusler, S. and Kalix, P. 1990, amphetamine like effects in humans of the khat alkaloid kathonoe. Br. J.clin Pharmac. 30:825-828.
- 10.Soufi H.E, Kameswaran M. and Mantani. 1991, Qat and oral cancer. J. Laryngo Oto 105, 643-645.
- 11.EPA. 1997. chlorpyrifos linked to british defects and multiple chemical sensitivity , pesticide news: 35 march.