

Ultrasonographic and Histopathological Study of the Endometrium in Women with Perimenopausal Bleeding

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Abstract

Trans vaginal gynecological ultrasonography as well as pathological examination of the endometrium were performed on 20 females with perimenopausal bleeding as well as on 10 age matching controls, to evaluate a screening role in these cases. A cut off point of > 8 mm single layer endometrial thickness for both anterior and posterior walls, accurately predicted the endometrial hyperplasia in patients with no organic pelvic disease.

Introduction

THE complaint of abnormal bleeding is one of the most frequent the gynecologist has to deal with. The menstrual regularity that occurs in 90% of women before the age of 40 persists to the menopause in only 10%, therefore perimenopausal menstrual disturbance is the rule rather than the exception [1].

Abnormal uterine bleeding in women over 40 years is commonly due to organic causes, and carcinoma of the endometrium

and of the cervix occur with increasing frequency with increasing age and constitutes an important and serious cause of uterine bleeding in this age group. It is therefore essential to make every step to exclude carcinoma in all cases of perimenopausal bleeding. This period of life nevertheless has a high incidence of dysfunctional uterine bleeding, the bleeding tends to be acyclic and approximately 50% of cases are associated with endometrial hyperplasia [2].

In order to reach the exact diagnosis for appropriate management the physician must obtain an adequate history, careful physical and pelvic examination and thorough investigations before diagnosing the case as dysfunctional uterine bleeding [3].

It is generally accepted that an abdominal and pelvic examination and a curettage or endometrial sampling must be performed in every case. With the knowledge that almost 70% of diagnostic curettages result in a diagnosis of benign condition, an improved preoperative evaluation could reduce the number of curettages and bring down the cost considerably [4]. The false negative rate with endometrial curettage is 2- 6% [5,6].

Many different methods have been developed to minimize the need for curettage [4,7]. Brooks et al [8] found that diagnostic hysteroscopy is an essential tool in the management of abnormal uterine bleeding and the prevention of unnecessary hysterectomies. Still after hysteroscopy, some cases of organic uterine bleeding as ovarian and tubo ovarian causes may be missed which may need the use of ultrasonography and laparoscopy and the use of hysterosalpingography before curettage.

Diagnostic ultrasonography is a very good instrument for evaluation of endometrial growth in menstruating women [9,10].

New vaginal probe ultrasonographic transducers are of higher frequency and closer proximity to structures being studied, this results in excellent near field resolution, despite high degree of magnification, thus yielding a type of sonomicroscopy [11].

The aim of this work is to carry out a prospective ultrasonographic and histopathological study of the endometrium in perimenopausal bleeding and to correlate between them in order to evaluate the value of vaginal sonography of the endometrium as a screening procedure before endometrial curettage. In this study the endometrial thickness as measured by transvaginal ultrasonography is used as the main parameter to detect endometrial abnormalities.

Material and Methods

The study was performed on 30 females aged 40 - 50 who attended the out-patient gynecology clinic of Kasr El Aini hospital between October 1992 and February 1993; 20 of them were admitted to the clinical wards for profuse and/or irregular perimenopausal vaginal bleeding (Gr II). These patients were randomly selected after exclusion of cases of overt fibroid uterus grossly interfering with the validity of the results.

A parallel age-matching group of 10 normal females with regular menstrual cy-

cles (Gr I) control was included in this study.

All females underwent proper history taking, general, abdominal and pelvic examination, transvaginal ultrasonographic examination, and endometrial biopsy.

Trans-vaginal ultrasonography was conducted in conformity with the descriptive account given by Fleischer et al [12]. Vaginal sonographic examination was performed with a HITACHI EUB-450 scanner, using a 6.5 MHz transducer probe, with the patient in the lithotomy position. Once the probe was inserted into the mid-vagina, sonographic examination of the ovaries, then the uterus in long axis views, semi-coronal and semi-axial views were done to detect any abnormality and to be sure that they were of average size (length, thickness, width in mm were measured) and of normal texture. With special emphasis on the endometrium, the anteflexed uterus could be imaged in the sagittal or long axis, plane. Pivoting the transducer into the fornix yielded optimized depiction of the uterus in its long axis.

The endometrium was measured as thickness of echogenic, intraluminal interface. The distance was halved since in previous studies it was found to represent two endometrial layers [9]. Once the endometrium had been adequately depicted in its

long and short axes, the probe was withdrawn into the mid-vagina and images of the cervix could be obtained.

The echogenicity of the endometrium was compared with the outer two-thirds of the myometrium as hypo-echoic, iso-echoic or echoic. The homogeneity of endometrial echo was classified as regular or irregular.

The endometrial thickness was measured in long axis and coronal views to avoid oblique semi-coronal views that might cause the endometrium to appear thicker.

Measurement of the endometrial thickness (single layer endometrium) in different uterine aspect was done.

Transvaginal sonographic measurements of endometrial thickness mainly and of uterine dimensions in Gr I normal control subjects were used as basis for assessment of the abnormal deviations of the individual estimates in Gr II with perimenopausal bleeding, from the reference limits of the range of variability in Gr I normal control subjects.

Endometrial biopsy was done by a sharp narrow curette.

Results

The results are shown in tables 1-2.

Table (1): Compiled Data Showing the Vaginal Ultrasonographic Measurements in the Control Group.

Statistical parameters	Endometrial thickness (mm)				
	Anterior	Posterior	Fundal	Lateral	
Mean	4.440	4.380	4.330	4.230	
Standard Error	0.397	0.429	0.303	0.350	
Measures of Scatter	Range	2-8	3-7	3-7	2-7
	S.D.	1.774	1.358	1.353	1.567
	C.V.%	39.96%	31%	31.26%	37.06%
95% Confidence limits		3.61-5.27	3.409-5.351	3.697-4.963	3.496-4.964
Reference limits normal range in population		0.835-8.04	1.957-6.803	1.58-7.04	1.045-7.415

Table (2): Compiled Statistical Data for Vaginal Ultrasonographic Measurements of Endometrial Thickness in Group II Patients with Perimenopausal Uterine Bleeding as Correlated from Predominant Histopathological Patterns by Endometrial

Pathological pattern and % incidence	Value (mm)	Endometrium			
		Anterior	Posterior	Fundal	Lateral
Proliferative (40%)	Mean	3.05	3.25	3.2	3.275
	Range	2.8-3.3	2.3-4.0	3.0-3.4	3.0-3.4
Secretory (30%)	Mean	5.83	5.17	5.6	5.833
	Range	5.0-6.5	5.0-6.5	5.0-6.5	5.0-6.5
Hyperplasia 30%	Mean	11.43	11.48	11.97	11.43
	Range	10-13	11.48	11.4-13	11.3-13

Discussion

Our study revealed that there is no significant difference between the reference limits of the normal endometrial thickness in population (as calculated from Gr I normal control) in different uterine aspects. So we chose > 8 mm thickness (single layer as a cut off point in our study to detect endometrial abnormality in Gr II patients with bleeding.

The cut off point of our control group had been calculated also and used as a cut off point in the study done by Smith et al [13], but Fleischer et al [14] suggested that an endometrial thickness up to 6 mm single layer in perimenopausal women was normal.

In our study, by using > 8 mm single layer endometrial thickness as a cut off point, in Gr II patients (N = 20) with dysfunctional uterine bleeding, it is obvious that the vaginal sonography could differentiate between normal cases giving proliferative and secretory endometrial pattern by fractional curettage and those with hyperplastic endometrium and the sensitivity of the vaginal sonography in this group is 100% with no false positive or false negative results, and all normal cases coincided well with the normal reference limits of the control group (Gr I), the hyperplastic endometrium showed significant deviation and increase in thickness above the cut off point.

In the study conducted by Smith et al [13] who used > 8 mm as a cut off point in perimenopausal group, the sensitivity of the sonar was 67% as there were false negative cases, and they recommended using > 6 mm single layer endometrium as a cut off point as suggested by Fleischer et al [14] because the sensitivity of the vaginal sonography technique increased, and there were no false negative results.

We recommend using > 6 mm single layer as a cut off point. We also recommend considering that sonographic measurements of endometrial thickness in anterior and posterior uterine aspects reliable and find no need for measuring fundal or lateral endometrium. This could make vaginal sonography an easy method for screening before curettage.

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