Letter to the Editor

A Novel Non Invasive Screening Tool for Triaging Endometrial Pathologies in Abnormal Uterine Bleeding: Diseases of Endometrium – Evaluation and Risk Scoring

To the Editor,

Endometrial pathologies contribute to a large proportion of abnormal uterine bleeding (AUB) during the reproductive years as well as after menopause. These pathologies can vary from variants of normal endometrium to benign, premalignant and malignant causes. Invasive sampling and subjecting it to histological diagnosis is the only confirmatory way to differentiate these causes, direct treatment and prognosticate the pathologies of the endometrium. Currently, there is a lack of highly efficacious clinically available noninvasive tests or biomarkers to differentiate these.[1] Endometrial thickness seen during transvaginal sonography (TVS) is the only parameter popularly used to define endometrial pathologies, which miserably fails to diagnose specific lesions of the endometrium.[2-4]

Hence, we propose a noninvasive scoring system that will help to prognosticate the disease even before sampling, thus reducing the anxiety for the patient until the final histology report confirms it. It may also help to reduce the burden of unnecessary samplings to the clinicians as well as decrease the burden of histological slide review for the pathologist. We call this system "diseases of endometrium– evaluation and risk scoring" (DEERS) that stands for "DEERS".

DEERS is a combination of patient characteristics and TVS indicators to differentiate various endometrial causes of AUB [Table 1].

This scoring system was developed based on our experience and literature review. It includes patient characters and endometrial features that could be visualized in gray scale TVS. The scores were adjusted based on multivariate regression analysis from a pilot study conducted on 96 patients who presented with AUB and were found to have a spectrum of endometrial pathologies from normal (proliferative and secretory endometrium) to endometrial malignancy. Cut off to differentiate malignancy from a benign/normal variant of the endometrium was calculated with the help of receiver operating characteristics curve analysis. Five experts in the field individually assessed the score for content validity and modifications incorporated as per the suggestions, following detailed discussion. This proposed scoring system was then prospectively applied in a cohort of 454 (curettage/cases: 284, hysterectomy/controls: 170) women, in cases

Table 1: Diseases of Endometrium-Evaluation and Risk Scoring System to screen endometrial pathologies by demographic characteristics and transvaginal sonography findings

Demographic characteristic	Score
Age	20-0 (score 1), 41-55 (score 2), 56 and above (score 5)
Menopausal status	Premenopause (score 1), postmenopause (score 4)
Diabetes, obesity, hypertension	Score 1 each
HRT	Score 1
Tamoxifen	Score 1

1a. Score allocation system based on demographic and transvaginal sonography characteristics - devised after literature review and clinical experience (minimum score: 2+4=6, maximum score: 13+22=35)

TVS characteristic	Score
Endometrial thickness	Up to 5 mm (score 1), 6-10 mm (score 2) 11-20 mm (score 3), >21 mm (score 4)
E-M junction	Distinct (score 1), indistinct (score 5)
Echo-texture	Homogenous (score 1) Cystic spaces (score 3) Heterogeneous (score 5)
Polyp	Score 4
Endometrial collection	Up to 5 mm (score 1), 6-10 mm (score 2) 11-20 mm (score 3), >21 mm (score 4)

1b. Score interpretation to for prediction of endometrial pathology (minimum score: 2+4=6, maximum score: 13+22=35)

Score	Interpretation
6-9	Normal endometrium (secretary/proliferative)
10-15	Benign pathologies: Polyp, Submucus myoma Disordered proliferation, Simple endometrial hyperplasia
16-25	Complex hyperplasia
26-35	Endometrial malignancy

HRT: Hormone replacement therapy, TVS: Transvaginal sonography

myometrial, cervical, and ovarian causes of AUB were ruled out, and only those cases where the cause were suspected to be in the endometrium were included. We found that though the efficacy of DEERS to diagnose normal variant, benign lesions, complex hyperplasia, and cancer separately was not as expected. However, the score was able to differentiate

normal and benign lesions of endometrium from malignant lesions with a sensitivity of 72.2%, specificity 92.1%, positive predictive value of 44.1%, and negative predictive value of 97.5%.

The quest of sonographically visualization of endometrial appearance to device a scoring system to predict malignancy is not new. All the earlier studies, however, have focused on a very specific population of women who present with postmenopausal bleeding. This is the first study wherein a novel concept of a noninvasive scoring system to screen endometrial pathologies across ages is used. The results look promising with high to predict endometrial malignancy. With the available data, we are trying to modify this score further to make it more user-friendly without compromising its efficacy. The results of both the systems are planned to be compared in large prospective study.

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Conflicts of interest

There are no conflicts of interest.

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