

# THE EFFICACY OF TRANSVAGINAL ULTRASOUND IN ASSESMENT OF ABNORMAL UTERINE BLEEDING IN FERTILE EGYPTIAN WOMEN

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## INTRODUCTION

Abnormal uterine bleeding is any significant deviation from a woman's established menstrual pattern including menorrhagia, metrorrhagia, and polymenorrhea. Abnormal uterine bleeding (AUB) is a common complaint in the female population, with an estimated prevalence of 10 to 30% in fertile age. Trans vaginal ultrasonography (TVUS) has been used as an initial diagnostic tool in AUB, because it proved safe and cost-effective, generally painless and virtually complication free. Compared with appropriate gold standards including histopathology, the sensitivity and specificity of sonography support its use. TVUS plays a key role in the diagnosis of structural causes of AUB such as polyps, adenomyosis, leiomyoma and endometrial cancer (PALM) and can also be used for the evaluation of nonstructural causes such as ovulatory dysfunction. In fact, American college of obstetricians and gynecologists describes TVUS as the "primary imaging test of the uterus for the evaluation of abnormal uterine bleeding."

## AIM OF THE WORK

The aim of this study was to evaluate the efficacy of trans vaginal ultrasound in assessment of abnormal uterine bleeding in fertile Egyptian patients.

## PATIENTS AND METHODS

The study was carried out on 285 Egyptian fertile patients referred to the ultrasound units of the main educational and El-Shatby maternity hospitals, Faculty of medicine, Alexandria University for trans vaginal ultrasound assessment of abnormal uterine bleeding. Patients were subjected to thorough history taking, clinical examination and Trans abdominal and trans vaginal ultrasound examination. The examination included the uterus, both a dnexa, with pelvic overlook. All necessary TVUS measurement of the endometrium and myometrium was carried out. Further histopathology and MRI assessment were done to indicated uterine lesions.

## RESULTS

**Table1:** Diagnosis of the studied group by TVUS. (n=285 patients)

| TVUS diagnosis          | Number | Percent |
|-------------------------|--------|---------|
| Leiomyoma               | 34     | 11.9    |
| Adenomyosis             | 21     | 7.4     |
| Endometrial hyperplasia | 10     | 3.5     |
| Endometrial polyp       | 5      | 1.7     |
| Endometrioid carcinoma  | 1      | 0.4     |

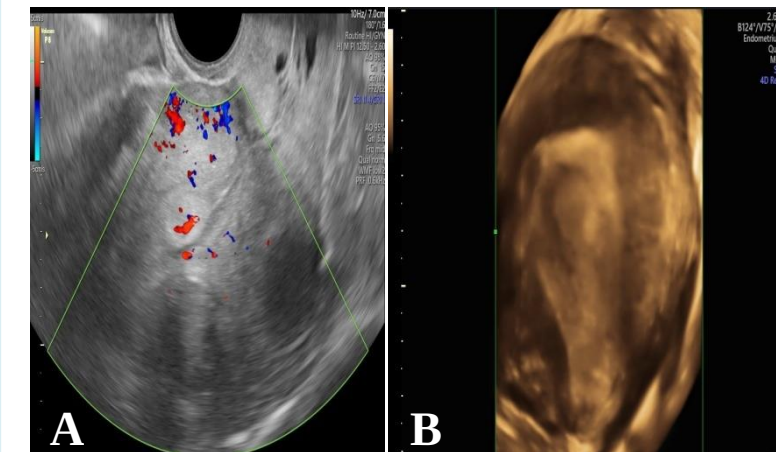
\*More than one diagnosis was detected in a single patient.

**The final diagnosis of the studied group of 285 female patients was based on:**

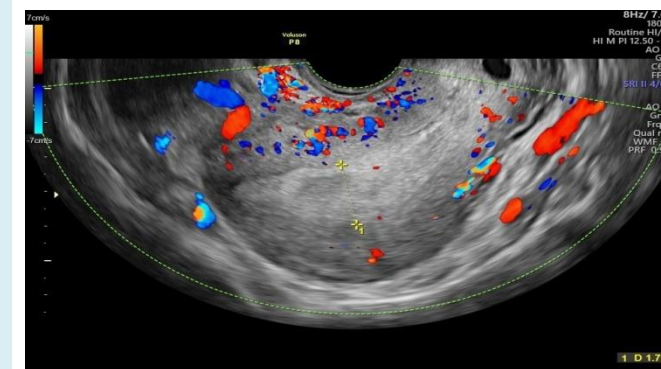
- Clinical and TVUS follow-up: (n=240/285 patients, 84.2%)
- 208 patients have been clinically assessed and followed up by TVUS. All of them showed normal outcomes (true negative). The remaining 32 patients expressed positive findings (true positive).
- *Histopathology:* 29 patients underwent further assessment as follows:
- Myomectomy (either by hysteroscope or laparoscope): 7 patients proved to have fibroid disease (true positive) diagnosis by TVUS, one patient had (false negative) diagnosis by TVUS, while the remaining patient proved to be (false positive).
- Hysteroscopic Polypectomy in 3 patients proved to be (true positive) diagnosis by TVUS, one patient had (false negative) diagnosis by TVUS, while the remaining patient proved to be (false positive).
- Laparoscopic hysterectomy: 4 patients were diagnosed as adenomyosis and one patient had fibroid. All of them were correctly diagnosed by TVUS (true positive).
- Endometrial biopsy (by hysteroscopy or D&C) (n=10 patients): 5 patients showed endometrial hyperplasia, and one patient had endometrial endometroid cancer, all of them were proved (true positive) diagnosis by TVUS, while the remaining 4 patients proved to be (false positive) diagnosis by TVUS.
- MRI imaging (n=16 patients): 11 patients had adenomyosis, 4 fibroid patients, while 1 patient showed normal findings; confirming 9 (TVUS true positive) diagnosis, 6 ( TVUS false negative) diagnosis and one (TVUS false positive) diagnosis.

**Table2:** Statistical analysis of the diagnosis of TVUS (sensitivity, specificity, PPV, NPV and the accuracy).

| Diagnosis | Sensitivity | Specificity | Positive predictive value | Negative predictive value | Accuracy |
|-----------|-------------|-------------|---------------------------|---------------------------|----------|
| TVUS      | 88.57%      | 96.74%      | 89.86%                    | 96.30%                    | 94.74%   |



**Figure1:** (A) Transvaginal color doppler ultrasound shows: a hyperechoic solitary polypoid shaped lesion, exhibiting feeding artery sign. (B) 3D Transvaginal ultrasound: confirmed the location of the lesion to be within the endometrial cavity, and diagnosed by TVUS as endometrial polyp; A diagnosis which was confirmed by polypectomy.



**Figure2:** Transvaginal color doppler ultrasound shows: diffuse increase in the endometrial thickness; reaching 18 mm, correctly diagnosed by TVUS as endometrial hyperplasia; A diagnosis which was confirmed by endometrial biopsy to be simple endometrial hyperplasia.

## CONCLUSION

TVUS is a reasonable first-line of investigation in women with abnormal vaginal bleeding. TVUS is an easy, safe, rapid and tolerable procedure It has a good diagnostic accuracy in the diagnosis of uterine pathologies responsible for abnormal uterine bleeding. It can be used as an initial diagnostic tool to determine which patients require further histopathological assessment or further MRI imaging.