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Doppler evaluation of endometrial polyps

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ABSTRACT

Introduction: Endometrial polyps are a common cause of abnormal uterine bleeding. Ultrasound is the most accepted investigation to evaluate them. However, the diagnosis can be difficult and even missed on transabdominal and grayscale imaging. Our study aims to assess the evaluation of endometrial polyps on transvaginal color Doppler.

Patients and methods: A prospective study with performance of transvaginal Doppler and saline infusion sonohysterography with histopathological correlation.

Results: The pedicle artery sign on transvaginal color Doppler sonography was found to have sensitivity of 86.67%, accuracy of 86.67% and positive predictive value of 100%.

Conclusion: Addition of Doppler to transvaginal sonography and Saline infusion Sonohysterography improves characterization and diagnosis of endometrial lesions.

1. Introduction

Ultrasound is the most accepted investigation for evaluation of abnormal uterine bleeding [1]. In about 25% of patients, abnormal uterine bleeding is the result of a well defined organic abnormality [2]. The PALM-COEIN Classification System described causes of Abnormal Uterine Bleeding as Polyps, Adenomyosis, Leiomyoma, Malignancy, Coagulopathy, Ovulatory disorders, Endometrial, Iatrogenic and Not classified. The components of the PALM group are discrete (structural) entities that are measurable visually, with the use of imaging techniques, and/or with histopathological findings [3]. Endometrial polyps account for abnormal vaginal bleeding in 39% and 21% to 28% of pre- and postmenopausal women, respectively [4]. The purpose of our study was to assess applicability of Color Doppler to enhance diagnostic confidence and characterization of endometrial lesions on transvaginal sonography (see Table 1).

2. Patients and methods

We performed an 18 months prospective study at our hospital including 58 patients with abnormal uterine bleeding refractory to medical management. Patients with uterine size > 12 wks, suspected or diagnosed pregnancy, acute PID, suspected or diagnosed endometrial carcinoma, severe cervical stenosis and refusal to consent to procedure were excluded from the study. These patients underwent transvaginal ultrasound (TVS) followed by Doppler evaluation which included analysis by color doppler and identification of the spectral waveform. Finally saline infusion sonohysterography (SIS) using 7.5–10 MHz endovaginal transducer on Aloka Prosound SSD-3500 SX Color Doppler Ultrasound machine was performed. Risks and benefits of procedure were explained and informed consent was obtained from the patient for SIS. Patient was placed in lithotomy position. The perineum was cleaned with a povidone/iodine solution. Cusco's bivalved self retaining speculum was inserted and the cervix was visualized and the external os cleansed by antiseptic solution. No 8F Foley's catheter was flushed with sterile saline and inserted into the uterine cavity, bulb inflated with 3 ml of normal saline & mild traction given for confirmation. The speculum was removed. The TVS probe was reintroduced and sterile saline infused under real time guidance. Axial and sagittal imaging of the entire uterus was done and the findings noted. Findings were confirmed by histopathology after performing D&C. SPSS 20 and STATA 11 have been used to analyze the data.

3. Results

The mean age of patients was 42.76 yrs. 37.9% patients were perimenopausal and 62.1% patients were premenopausal. Most of the patients were multiparous. The most common symptom was menorrhagia, (91.3%), followed by metrorrhagia (10.3%),

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Table 1
T-Test.

	Pedicle artery sign	No of pts	Mean size (mm)	Std. deviation
Size of polyp (mm)	present	13	17.7692	8.61350
	absent	4	7.2500	2.21736

P value = .044*.
The pedicle artery sign was more often seen in larger polyps (mean size 17.8 mm).

polymenorrhoea (8.6%). Out of the 58 patients included in the study, 24 showed increased endometrial thickness on TVS. Saline sonohysterography diagnosed endometrial polyps in 16 of these patients and submucous fibroids in 3 patients. The rest had smooth endometrial thickening. On histopathological examination, 4 of these had endometrial hyperplasia. The rest had proliferative phase endometrium.

Of these, 13 were typical polyps, 2 had multiple small polyps and 1 had a broad based polyp. The mean size of the polyps was 15.29 mm with largest identified polyp measuring 32 mm and smallest one measuring 5 mm (in largest dimension). Doppler evaluation of these polyps revealed the "pedicle artery sign" in 13 of the identified polyps (76.5%). Spectral analysis revealed arterial waveform. The pedicle artery sign was more often seen in larger polyps (mean size 17.8 mm) with a p value $< .05$. All of the patients with positive pedicle artery sign proved to have endometrial polyps on histopathological correlation. The pedicle artery sign was found to have sensitivity of 86.67%, accuracy of 86.67% and positive predictive value of 100%.

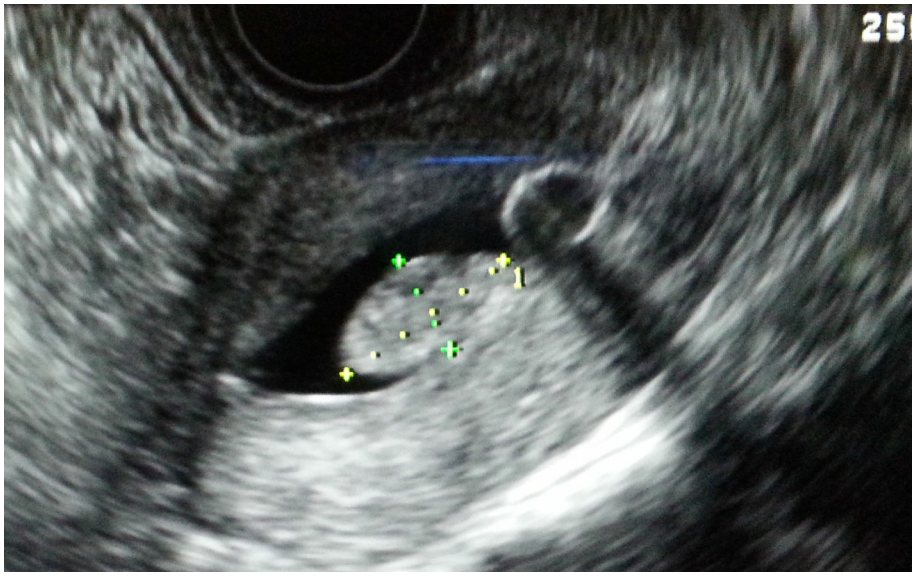

Fig. 1. Endometrial polyp delineated by saline during saline infusion sonohysterography.

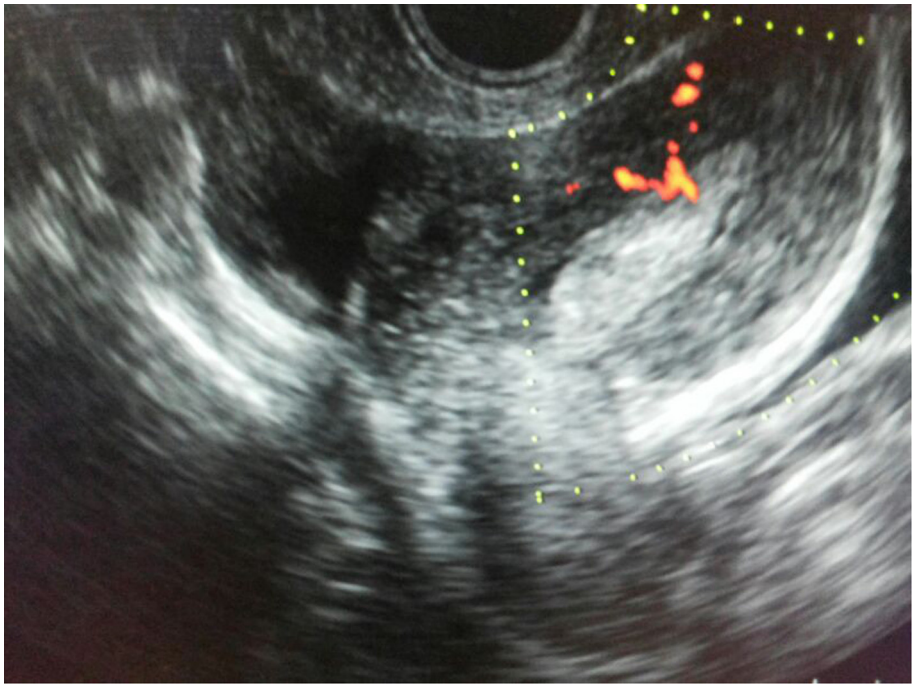

Fig. 2. The pedicle artery sign in the same patient as above on power Doppler evaluation.