



SALINE SONOHYSTEROGRAPHY IN THE DETECTION OF ENDOMETRIAL POLYP IN AUB

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ABSTRACT

Objective: Endometrial polyps are relatively common in reproductive and perimenopausal age group of women. It is an important easily treatable cause of AUB. With the advent of transvaginal ultrasound and saline sonohysterography more polyps are being diagnosed even in asymptomatic patients. The main aim of the study is to determine the efficacy of saline sonohysterography as an adjuvant to transvaginal sonography in detecting causes of AUB.

Study design: A Prospective Cohort Study was conducted on 50 patients in the reproductive and perimenopausal age group with complaints of abnormal uterine bleeding. Patients were selected based on selection criteria. Specific history with clinical examination and lab investigations were done. These patients were advised to undergo transvaginal sonography and saline sonohysterography.

Results: In the present study there was statistically significant association between the detection of endometrial polyp and the diagnostic method used either SIS or TVS [Chi-square value-6.383 and P value=0.012]. SIS detected seven endometrial polyp cases whereas TVS detected none. Therefore it was concluded that SIS is superior to TVS in detection of endometrial polyps. The diagnostic efficacy of both the tests were compared using paired “t” test showed significant difference between TVS and SIS [t-value-2.824 and P-value=0.007]. From the mean value observed it was concluded that SIS [mean=0.52060] is more effective than TVS [mean=0.44309] in detecting intrauterine pathologies.

Conclusion: In saline infusion sonohysterography saline outlines the uterine cavity and appears to be very sensitive in detecting endometrial polyps which are often missed by doing transvaginal ultrasound alone as diagnostic method. Thus saline infusion sonohysterography when combined with transvaginal sonography is more sensitive, accurate and simple method in detecting endometrial polyp as a cause of AUB

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INTRODUCTION

Endometrial polyps are relatively common in all age group of women¹. Endometrial polyps are most common endometrial pathological cause of abnormal uterine bleeding although a few percentage of patients may be asymptomatic.² Transvaginal ultrasound (TVS) is the first modality used in the radiologic work-up of endometrial disease, findings in sonohysterography, hysterosalpingography are often correlated with findings in TVS. It is important to understand that the appearance of the endometrium is related to factors such as patient's

age, stage of the menstrual cycle, pregnancy status and treatment with hormonal replacement therapy. An accurate diagnosis requires consideration of these factors in addition to clinical history and physical examination findings³.

Transvaginal sonography allows a detailed assessment of the endometrium and has been proved useful for diagnosing endometrial disease⁴. Some authors have concluded that B-mode transvaginal sonography may distinguish endometrial polyps from endometrial hyperplasia and endometrial cancer⁵. However, this conclusion has been challenged by other authors.⁶The

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introduction of transvaginal color Doppler sonography allowed the analysis of endometrial vascularization and has showed that polyps have a distinctive vascular pattern.^{7,8} Transvaginal saline sonohysterography is an improved minimally invasive technique that enables the visualisation of uterine cavity in detail after instillation of saline. It is usually done in the proliferative phase of the menstrual cycle (Day-8 to Day-10). The infused saline distends the cavity thus providing an excellent visualisation of endometrial lining and improved clarification of intraluminal abnormalities like polyps, submucous fibroid and endometrial hyperplasia. Several studies quote that saline sonohysterography is superior to transvaginal sonography in detecting endometrial pathologies.¹² Saline sonohysterography has shown to increase the specificity of conventional B-mode sonography in identifying endometrial polyps.^{9,10}

Aims and Objectives

Saline Infusion Sonohysterography [SIS] as an adjuvant to TVS to improve the accuracy of diagnosis of endometrial pathologies with special emphasis on endometrial polyp in patients with AUB.

MATERIALS AND METHODS

A Hospital Based Prospective Cohort Study was conducted on 50 patients attending the department of Radiodiagnosis, Rajah Muthiah Medical College & Hospital, Annamalai University, Chidambaram with an indication of abnormal uterine bleeding referred from the Department of Obstetrics and Gynecology, Rajah Muthiah Medical College Hospital from Nov 2014 to Sep 2016.

All the patients in the reproductive and perimenopausal age group with complaints of abnormal uterine bleeding were chosen based on selection criteria. A detailed history was taken. After proper clinical examination, laboratory investigations were carried out. After taking an informed consent, these patients were advised to undergo transvaginal sonography and saline sonohysterography.

Inclusion Criteria

Patients with abnormal uterine bleeding in reproductive and perimenopausal age group.

Exclusion Criteria

1. Menstruating women.
2. Patients suspected or confirmed to have endometrial carcinoma/cervical carcinoma.
3. Patients with pelvic inflammatory disease.
4. Patients with possibility of pregnancy.
5. Patients with severe cervical stenosis due to previous history of surgeries of cervix.
6. Unmarried women
7. Thyroid related disorder

METHOD

The patients were asked to empty the bladder before the procedure and then placed in dorsal position with legs flexed. A transvaginal ultrasound is performed using 7.5MHz endovaginal probe of PHILIPS and SIEMENS

machine [covered with a condom].The appearance of the endometrium, myometrium and adnexae were noted.

Patient was made to lie in lithotomy position. Standard bivalve speculum was inserted, the cervix was swabbed with Betadine solution and anterior lip of the cervix is grasped. Then No.8 Foley's catheter was introduced through the external os of cervix upto the fundus of uterus. It was then drawn 1 to 1.5cm back and the catheter is fixed by inflating it with 1.5 to 2 ml of distilled water such that it lies just above the internal os and blocks the fluid from flowing out. Then the speculum was removed carefully and the transvaginal probe was inserted. Gentle infusion of sterile isotonic saline was completed during real time sonography. Saline separates the echogenic endometrium which appears as hypoechoic area within the endometrial cavity. Uterine cavity was visualized in the longitudinal plane from corner to corner and in coronal plane from fundus to endocervix.

The endometrial cavity was examined for the presence of polyps. Any projection inside the uterine cavity is observed with special attention to its shape and echogenicity. The balloon was deflated and the catheter is gently removed.

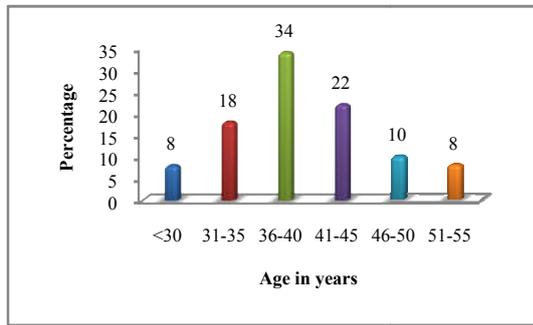
RESULTS

The present study was conducted in 50 cases with complaints of abnormal uterine bleeding. Patients were subjected to transvaginal sonography and saline sonohysterography for the evaluation of uterine abnormalities.

1. In the present study, the age of the patient ranged from 22 to 55 years, with maximum number of cases falling in the age group of 36 to 40 years (34%).
2. The commonest complaint among the patients was Menorrhagia (70%).
3. The duration of symptoms in the patients ranged from 2 months to 3 years. Most of the patients had complaints for 4-6 months (36%).
4. Transvaginal sonography showed anterior intramural fibroid in 18%, posterior intramural fibroid in 16%, multiple intramural fibroid in 20%, bulky uterus in 18% and endometrial hyperplasia in 2% of cases. The study was normal in 26% of patients.
5. Saline sonohysterography showed anterior intramural fibroid in 18%, posterior intramural fibroid in 16%, multiple intramural fibroid in 18%, submucous fibroid in 6%, endometrial polyp in 14% and normal in 20% of cases. Combination of intramural fibroid with polyp was seen in 6% of cases.
6. The sensitivity of the Saline infusion sonohysterography was 92.5%, specificity was 100%, the negative predictive value was 76.9%, the positive predictive value was 100% and the accuracy rate was 94%.
7. A statistically significant association was seen between the detection of endometrial polyp and the diagnostic method used either SIS or TVS [Chi-square value-6.383 and P value=0.012]. Out of 50

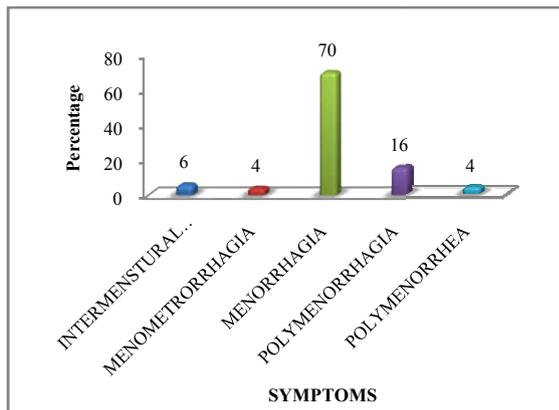
cases SIS detected polyp in seven patients whereas TVS detected none. Therefore it was concluded that SIS is superior to TVS in detection of endometrial polyps.

Distribution of Age



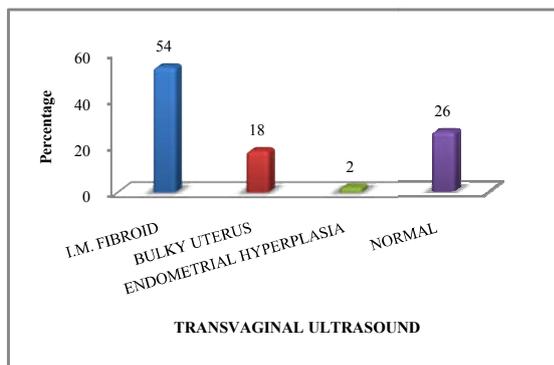
Graph 1-This graph represents the distribution of patients on the basis of their age. Out of fifty patients, majority of the patients falls in the age group of 36-40 yrs (34%) which is followed by 41-45 yrs (22%). About 18% of patients falls under 31-35yrs, 10% of the patients falls under 46-50yrs. Equal number of patients falls in the age groups less than 30 yrs and 51-55yrs

Frequency of Symptoms



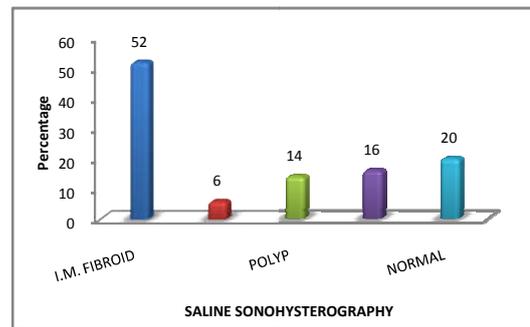
Graph 2-The above graph shows the distribution of patients on the basis of the symptoms noted .Majority 70% of the patients had complaints of Menorrhagia, followed by polymenorrhagia (16%) and intermenstrual bleeding(6%). Menometrorrhagia and polymenorrhoea was noted in 4% of the patients each.

Diagnosis in Transvaginal Ultrasound



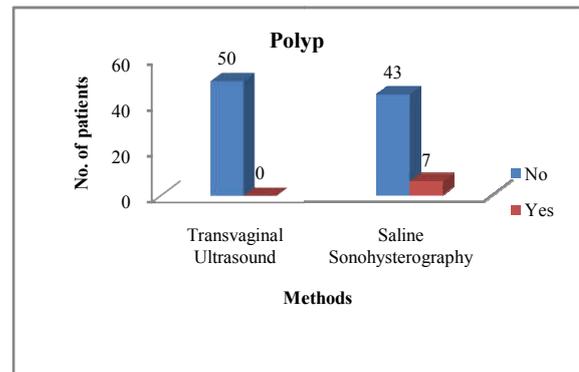
Graph 3- In TVS more than half of the patients (54%) have Intramural fibroid.18% of patients showed bulky uterus and 2% have endometrial hyperplasia. In 26% of patients TVS appears normal.

Diagnosis in Saline Sonohysterography



Graph 4- In SIS more than half of the patients (52%) have Intramural fibroid.16% of patients showed bulky uterus and 14% of patients have endometrial polyps. In 6% of patients submucous fibroids are detected.

Detection of Endometrial Polyp in TVS And Sis



Graph 5- In the detection of endometrial polyp all the fifty cases falls under non-traceable by using transvaginal sonography method, whereas out of fifty cases seven cases are traceable by using saline sonohysterography method

Table 1 -Detection of Endometrial Polyp in TVS And Sis

Polyp	Transvaginal Ultrasound		Saline Sonohysterography		Total N
	N	%	N	%	
No	50	100	43	88	94
Yes	0	0	7	12	6
Total	50	100	50	100	100

Chi-Square Tests

	Value	df	Sig.
Pearson Chi-Square	6.383	1	0.012

Chi-square test is carried out to test the association between endometrial polyp and the diagnostic methods used. In transvaginal sonography method all the fifty cases falls under non-traceable by using, whereas out of fifty cases seven cases are traceable by using saline sonohysterography method. The calculated Chi-square value 6.383 and the corresponding p-value 0.012 confirms that there is significant association between the detection

of endometrial polyp and different diagnostic methods used.

DISCUSSION

In patients with abnormal uterine bleeding the diagnosis of the exact etiology is very important because the treatment modality entirely depends on it. Endometrial polyp in most cases causes abnormal uterine bleeding. These polyps in most cases appears as normal or mere endometrial thickening in transabdominal sonography and transvaginal sonography. With saline sonohysterography an intracavitary polyp is surrounded by anechoic fluid well demonstrating the polyp and its stalk. In addition colour Doppler can be used to demonstrate the vascularity of the polyp.

In the present study transvaginal ultrasound revealed that the majority i.e. 54% of cases had intramural fibroid. In 26% of the patients the study appeared normal with no obvious intracavitary lesions and 2% of patient showed endometrial hyperplasia. Reddi Rani *et al.*¹⁴ study showed that the most common diagnosis found in patients with AUB was intramural fibroid (42%) followed by submucous fibroid(21%).In the present study, Saline sonohysterographic evaluation showed intramural fibroid in 52%, submucous fibroid in 6% and endometrial polyp in 14% of cases. Combination of intramural fibroid with polyp were seen in 3 cases. Thus saline sonohysterography detected seven endometrial polyps which was previously diagnosed as endometrial hyperplasia or normal in transvaginal sonography.

Elvire Jacques *et al.*¹³ made a study to assess the accuracy of saline infusion sonohysterography versus transvaginal sonography in detecting intracavitary uterine pathology. Polyps were accurately diagnosed in 91.3% of the patients whereas by transvaginal sonography, polyps were correctly diagnosed in only 34% of the patients. In the present study there was statistically significant association between the detection of endometrial polyp and the diagnostic method used [Chi-square -6.383 and $P=0.012$]. Out of 50 cases SIS detected seven endometrial polyps whereas in TVS the corresponding cases were diagnosed as normal (2), endometrial hyperplasia(1) or as intramural fibroid(4). From this, it is concluded that SIS is superior to TVS in detection of endometrial polyps¹¹. Also the diagnostic efficacy of both the test were compared using paired 't' test showed significant difference between TVS and SIS[t-value-2.824 and $P=0.007$]. From the mean value observed it was concluded that SIS [mean=0.52060] was more effective method than TVS [mean=0.44309].

The overall sensitivity of the Saline infusion sonohysterography was 92.5%, specificity was 100%, the negative predictive value was 76.9%, the positive predictive value was 100% and the accuracy rate was 94%.



Fig. 1 TVS showing Endometrial hyperplasia



Fig. 2 SIS showing Endometrial polyp

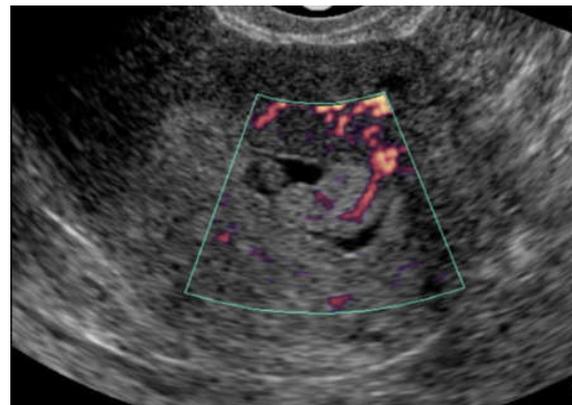


Fig. 3 Power Doppler showing vascularity in the pedicle of polyp



Fig. 4 SIS showing both polyp and fibroid

CONCLUSION

In saline infusion sonohysterography saline outlines the uterine cavity and appears to be very sensitive in the detection of endometrial polyps which are often missed when transvaginal ultrasound alone is done as a diagnostic method. Thus saline infusion sonohysterography when combined with transvaginal sonography is more sensitive,

accurate and simple method in detecting endometrial polyp as a cause of abnormal uterine bleeding.

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