

Hysteroscopic Evaluation Of Menorrhagia And Its Correlation With Saline Infusion Sonography

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Abstract: Background: In India Menorrhagia is becoming an increasingly frequent problem of women seeking gynaec consultation and has become a major reason for hysterectomy without any uterine pathology. Woman work 2/3rd of world's working hours and produce 1/2 of world's food and earn 10% of world's income but menorrhagia leads to loss of working hours significantly hence to treat properly a correct diagnosis is a must. Aim: The purpose of this study is to know best way of diagnosis cause of menorrhagia with minimum invasion and more accuracy¹. Method: A prospective observational study on 97 women attending gynaec OPD in R.D. Gardi Medical College between 01-09-2011 to 01-03-2013 was done. Complete clinical examination with saline infusion sonography and hysteroscopy was done in each patient here we compare results of two diagnostic methods. Result: Out of 97 patients (n=97), by Hysteroscopy 44% had normal findings and 55.6% had abnormal findings. Out of 97 patients (n=97), by SIS 42% had normal findings and 57.7% had abnormal findings. Conclusion: (Saline infusion sonography) SIS an easy diagnostic modality being widely available, can be used in the same sitting of ultrasound scan of the pelvis and if a structural lesion is detected plan for definitive management may be taken early in a poor country like India. Hysteroscopy is the gold standard in evaluation of AUB and besides diagnostic accuracy offers definitive management in cases like small endometrial polyp, sepsis, small fibroid, indometrial hyperplasia. [Neelam T NJIRM 2016; 7(6):40-44]

Key Words: Menorrhagia, saline infusion sonography (SIS), hysteroscopy.

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Introduction: Menorrhagia is blood loss more than 80ml/cycle or bleeding for more than 7 days. It may be primary and called dysfunctional uterine bleeding (DUB) or secondary. As per Federation of International of Gynaecologist and Obstetricians (FIGO) classification (2006) of etiology of abnormal uterine bleeding (AUB).

PALM – COEIN arranged according to acronym. (Polyp, Adenomyosis, Leiomyoma, malignancy, hyperplasia, coagulopathy, Ovulatory dysfunction; Endometrial; Iatrogenic; and Not yet classified².

Goal of clinical management are mainly dependent upon attaining correct etiological diagnosis.

Modalities for etiological diagnosis of AUB were

1. Invasive – Dilatation and Curretage (D & C)
2. Non invasive – Saline infusion sonography (SIS)
3. Minimal invasive – Hysteroscopy. Each modalities have their own advantages and disadvantages.

3D saline infusion sonography is a newer modality. It is non invasive and it reliably evaluates uterine contour, adhesions and focal pathologies. Apart from being non invasive it is cheap and easily available.

Hysteroscopy allows direct inspection of intrauterine abnormality as well as it simultaneously offers

treatment options for causes like polyp, endometrial hyperplasia³.

Older method of D & C usually missed half cases of endometrial polyp. For local lesions D & C is not accurate however it gives Histopathology which is of utmost importance. So hysteroscopy along with Histopathology is new “gold standard” for AUB evaluation⁴.

Proper evaluation will help in prevention of unnecessary hysteroscopy and reduces morbidity because of surgery.

Aim: To formulate a plan for evaluation of cases of primary menorrhagia based on findings of SIS and Hysteroscopic evaluation of menorrhagia and its correlation with SIS .

Method: The study was carried out in R.D Medical College in patients attending Gynaec outpatient department (OPD). Mostly were multiparous and illiterate.

50 hysteroscopies were done because of AUB (abnormal uterine bleeding). It was a prospective observational study conducted on 97 women attending Gynaec OPD for complaints of menorrhagia

between 01-09-2011 to 01-03-2013 all patients underwent thorough physical examination and detailed history including routine investigations.

Abdominal and vaginal sonography was done to note uterus (size, position, endometrial thickness) ovaries (size, follicular development) adnexa and Pouch of Douglas. Saline infusion sonography was done by instilling normal saline into foley’s catheter no.8. Trans vaginal sonography (TVS) probe was 8-13 MHz attached with LOGIQ P6 model of ultrasonography machine of general electronics.

All women underwent diagnostic hysteroscopy for endometrial lining, submucous fibroid and endometrial polyp. Results of SIS and Hysteroscopy were compared to detect normal and abnormal findings in terms of sensitivity, specificity, positive predictive value, negative predictive value, accuracy, false negative results, and likelihood ratio (L.R. Ratio) P value less than 0.05 were considered significant.

Inclusion Criteria: Women aged between 18-50yrs, married, with history of menorrhagia.

Exclusion Criteria: Unwilling women, unmarried, active cervical and uterine infection, or any Pelvic malignancy.

Ethical Aspect: Patient were explained about the study and informed consent was taken. The proposal was approved by the institutional ethical committee.

Review of Literature: A typical menstrual cycle is defined as 28 ± 7 days, with menstrual flow lasting 4 ± 2 days and average loss of 20 to 40 ml ⁵.

A more practical definition is menstrual loss greater than woman feels she can reasonably manage. National Institute for Health and Clinical Excellence (NICE) defines heavy menstrual loss as one which interferes with the woman's physical, social, emotional well being and/or quality of life.

Despite rarely being life threatening, menorrhagia has significant effects on personal, social, family, and work life of women and thereby reduces their quality of life ⁶. Etiology of AUB newer FIGO classification system; PALM - COLIN.

Evaluation of AUB: History taking is important in respect to frequency, duration, severity bleeding cyclic / acyclic, use of medications or hormonal contraceptives, weight loss stress.

Physical Examination: Signs and symptoms of hypothyroidism, liver disease, hyperprolactinemia could be looked for pap smear is essential and cervical cultures for Neisseria, gonorrhoea and Chlamydia trachomatis should be done midcycle spotting end be ruled out.⁷

Hysteroscopy: Diagnostic hysteroscopy needs no anaesthesia and sedation and can be performed in an office setting.

Role of SIS – is a single non invasive easily available procedure saline serves as contrast medium and distends endometrial cavity allowing display of inner lining of endometrium. It detects focal endometrial masses more accurately.^{8,9}

A vigilant eye in the uterine cavity is better than numerous blind curettages. Aim of study is to study accuracy comparatively between two different offices based diagnostic modalities of AUB.¹⁰

Observation & Results:

Comparison of SIS and Hysteroscopy: On comparison of SIS with respect to Hysteroscopy overall Sensitivity was 100%, Specificity 95.34%, Positive Predictive Value (PPV) 96.42%, Negative Predictive Value (NPV) 100% and Concordance (Accuracy) was 97.93 and p value <0.01. (Table 1)

Table 1: Comparison of SIS and Hysteroscopy

		Hysteroscopy			p value
		Present	Absent	Total	<0.01
SIS	Present	54	2	56	
	Absent	0	41	41	
Total		54	43	97	

Comparison of SIS and Hysteroscopy, to detect polyp On comparison of SIS with respect to Hysteroscopy to detect polyp findings Sensitivity was 96.29%, Specificity 97.14% , Positive Predictive Value (PPV) 92.85% , Negative Predictive Value (NPV) 98.55% and Concordance (Accuracy) was 96.90 with p value <0.01. (Table 2)

Table 2 : Comparison of SIS and Hysteroscopy to detect polyp

		Hysteroscopy to detect polyp			p value
SIS	Present	Present	Absent	Total	<0.01
	Absent	26	2	28	
		1	68	69	
Total		27	70	97	

Comparison of SIS & Hysteroscopy, to detect submucous fibroid On comparison of SIS with respect to Hysteroscopy to detect submucous fibroid Sensitivity was 95.23% , Specificity 94.73% , Positive Predictive Value (PPV) 83.33% , Negative Predictive Value (NPV) 98.63% and Concordance (Accuracy) was 94.84 with p value <0.01. (Table 3)

Table 3 : Comparison of SIS and Hysteroscopy to detect submucous fibroid

		Hysteroscopy to detect submucous fibroid			p value
SIS	Present	Present	Absent	Total	<0.01
	Absent	20	4	24	
		1	72	73	
Total		21	76	97	

Comparison of SIS & Hysteroscopy, to detect endometrial hyperplasia On comparison of SIS with respect to Hysteroscopy to detect endometrial hyperplasia Sensitivity was 80%, Specificity 100%, Positive Predictive Value (PPV) 100%, Negative Predictive Value (NPV) 98.92% and Concordance (Accuracy) was 98.96 with p value <0.01. which is highly significant. (Table 4)

Table 4 : Comparison of SIS and Hysteroscopy to detect endometrial hyperplasia

		Hysteroscopy to detect endometrial hyperplasia			p value
SIS	Present	Present	Absent	Total	<0.01
	Absent	4	0	4	
		1	92	93	
Total		5	92	97	

Discussion: FIGO has classified abnormal uterine bleeding (AUB) in etiological two groups (I) PALM (Structural lesions viz. Polyp, Adenomyosis, Leiomyoma, Malignancy Or Hyperplasia) (II) COEIN (Non structural lesions viz. Coagulopathy, Ovulatory

dysfunction, Endometrial, Iatrogenic and Not yet classified). In present study diagnostic utility of Hysteroscopy and SIS are discussed in the light of FIGO etiological classification system.²

One third of all gynaecological consultations are because of AUB. This proportion rises to more than 2/3rd when only peri and postmenopausal women are considered. In normal size uterus to 10 weeks size uterus, the cause of AUB often remains obscure. The major impacts of menorrhagia are anaemia, loss of working hours and deterioration of women’s quality of life and health. Hysteroscopy provides a simple and easy method for visualization of the uterine cavity. It is also used for treating different kinds of benign pathologies and with recent availability of fiber optic endoscopes; this procedure has now become an easy “Office Procedure”.

Total n = 97 subjects were recruited based on inclusion and exclusion criteria from Gynaecology OPD with complaints of menorrhagia with the aim to assess hysteroscopically ,by saline infusion sonography and histopathology of endometrium and to correlate findings.

The study also tries to evaluate the co-relation and study the role of SIS vis – a –vis Hysteroscopy in planning management of AUB, since ultrasound facilities are available everywhere, whereas availability of hysteroscopy is limited to a select few, and it also requires special training.

Correlation of SIS: In present study analysis of SIS findings of total n = 97 subjects shows 42% subjects had normal findings, while 28.8% had polyp, 24.7% had submucous fibroid, and 4.1% had endometrial hyperplasia which is comparable to other studies.

Diagnostic potential of SIS compared with hysteroscopy of present study Table 23 In present study on comparison of Hysteroscopy and SIS to detect polyp Sensitivity was 96.29%, Specificity 97.14% , Positive Predictive Value (PPV) 92.85% , Negative Predictive Value (NPV) 98.55% and Concordance (Accuracy) was 96.90 with p value <0.01. (Table 2) On comparison of Hysteroscopy and SIS to detect submucous fibroid Sensitivity was 95.23% ,Specificity 94.73% , Positive Predictive Value (PPV) 83.33% , Negative Predictive Value (NPV) 98.63% and Concordance (Accuracy) was 94.84

with p value <0.01. (Table 3) On comparison of Hysteroscopy and SIS to detect endometrial hyperplasia Sensitivity was 80%, Specificity 100%, Positive Predictive Value (PPV) 100%, Negative Predictive Value (NPV) 98.92% and Concordance (Accuracy) was 98.96 with p value <0.01. (Table 5)

Table 5: Diagnostic potential of SIS compared with hysteroscopy of present study

Test	Over all	Normal	Polyp	Sub. fibroid	End. Hyperplasia
Sensitivity	100	96.29	96.29	95.23	80
Specificity	95.34	97.14	97.14	94.73	100
PPV	96.42	92.85	92.85	83.33	100

NPV	100	98.55	98.55	98.63	98.92
Accuracy	97.93	96.9	96.9	94.84	98.96
P value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

On comparison with other studies viz. Widrich et al¹¹ total number of lesions on SIS was 61, by hysteroscopy it was 56, sensitivity was 96%, specificity 88%, PPV 89%, and NPV was 96%. In study of Kamel et al¹² total number of lesions on SIS was 56, by hysteroscopy it was 53, while sensitivity was 93.1%, specificity 93.9%, PPV 94.6%, and NPV was 92%. In present study total number of lesions on SIS was 56, by hysteroscopy it was 53, sensitivity was 100%, specificity 95.34%, PPV 96.42%, and NPV was 100% with significant p value. Table 6

Table 6: Diagnostic potential of SIS compared to Hysteroscopy

	Our study	Widrich et al ¹⁴⁸	Kamel et al ¹⁴⁹
Total lesions SIS / Hysteroscopy	56/53	61/56	56/53
Sensitivity	100	96	93.1
Specificity	95.34	88	93.9
Positive predictive value	96.42	89	94.6
Negative predictive value	100	96	92
Significance (McNemar's test)	P=0.01	P=0.18	P=0.05

So main outcome of present study is hysteroscopy and SIS are comparable to detect structural lesions.

Advantage of Hysteroscopy: Hysteroscopy has dual advantage, one is diagnosis and simultaneous treatment and another is guided biopsy. We can increase sensitivity and specificity of Hysteroscopy if we take hysteroscopy guided biopsy.

If structural lesion is not detected by SIS then hysteroscopy is advised since hysteroscopic guided biopsy increases diagnostic accuracy and also help in definitive management and if structural lesion is detected than definitive management based on various criterias viz. age, parity, desire of preserve uterus etc. may be planned.

Table 7 : Distribution of patients according to findings on SIS, Hysteroscopy, Histopathologically proved morphological lesion in uterus

Test	Normal Uterus	Morphological lesions in uterus				Total
		Polyp	Submucous fibroid	Endometrial Hyperplasia	Others	
SIS	41 (42%)	28 (28.86%)	24 (24.74%)	4 (4%)	0 (0%)	97 (100%)
Hysteroscopy	43 (44%)	27 (28%)	21 (22%)	5 (5%)	1 (1%)	97 (100%)

Conclusion and Summary: On the basis of results we conclude: Menorrhagia is more common in reproductive age group of 20-40 years of age with mean age of 36.4.years. Menorrhagia is more common in women with parity ≥ 2. Majority of

women seek treatment for menorrhagia within one year of onset of complaint. Clinically majority of patients having of menorrhagia had 6 – 8 weeks size of uterus, while polymenorrhagia and metrorrhagia had normal size uterus. Out of 97 patients (n=97), by

Hysteroscopy 44% had normal findings and 55.6% had abnormal findings. Out of 97 patients (n=97), by SIS 42% had normal findings and 57.7% had abnormal findings. For polyp Hysteroscopy has sensitivity 89.47% and specificity 87.17%, while SIS had sensitivity 100% and specificity 88.46% with significant p value (<0.01). For submucous fibroid Hysteroscopy has sensitivity 82.35% and specificity 91.25% while SIS had sensitivity 88.23% and specificity 88.75% with significant p value (<0.01). For endometrial hyperplasia Hysteroscopy has sensitivity 30.76 and specificity 98.8% while SIS had sensitivity 30.76% and specificity 100% with significant p value (<0.01). Hysteroscopy had overall sensitivity of 96%, specificity 87.23%, PPV 88.88%, NPV 95.34% with accuracy 91.75 to detect normal and abnormal pathology as compare with histopathology (p value < 0.01). SIS had overall sensitivity of 96%, specificity 82.97%, PPV 85.71%, NPV 95.12% with accuracy 89.69 to detect normal and abnormal pathology as compare with histopathology (p value < 0.01). SIS an easy diagnostic modality being widely availability can be used in the same sitting of ultrasound scan of the pelvis and if structural lesion is detected plan for definitive management may be taken in poor country like India. Hysteroscopy is the gold standard in evaluation of AUB and besides diagnostic accuracy offers definitive management.

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