

Saline Infusion Sonohysterography, Office Hysteroscopy ,  
and Transvaginal Ultrasonography in Evaluation of  
Abnormal Uterine Bleeding in Premenopausal And  
Postmenopausal Women

*Thesis*

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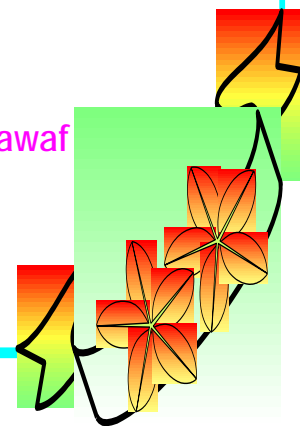
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## List of Abbreviations

C.S.	: Cesarean section
CRE	: Corticopin –releasing factor
EDC	: Estimated date of confinement
FHR	: Heat rate
IL	: Interluekin.
ISMP	: Institute for safe medication practices
M hz	: Mega hertz .
mcg	: Micrograms.
MIU	: Milli international unit.
MMP	: Matrix metalloproteinase
PG	: Prostaglandins
PROM	: Premature rupture of membranes
PTD	: Preterm delivery
T.V.S	: Transvaginal ultrasound.
TNF	: Tumor necrosis factor

## List of Tables

<i>Table</i>	<i>Subject</i>	<i>Page</i>
1	Description of general data among the studied cases (demography)	69
2	Sonographic and Histologic Diagnostic Criteria of the Uterine Pathologies	70
3	Hysteroscopic finding	71
4	Description of saline infusion sonohystrography findings among the studied cases	72
5	Comparison between hysteroscopic finding and saline infusion sonohysterography among the studied cases	73
6	Comparison between TVUS and SIS diagnosis results	74
7	Accuracy of SIS versus TVUS among the studied cases	74
8	Diagnostic performance of TVS, TV-SH, HSG and HSC in Endometrial hyperplasia (70 patients)	75
9	Comparison between Premenopausal and Postmenopausal	75

## List of Figurers

<i>Fig.</i>	<i>Subject</i>	<i>Page</i>
1	Hysteroscope	6
2	Rigid hysteroscope	7
3	Comparison of diagnostic hysteroscopes of different diameter	9
4	Operative hysteroscope.	9
5	Hysteroscopy with the vaginoscopic approach	10
6	Major uterine abnormalities	22
7	(f) and (g). Different types of polyps: (h) functional polyp; (i) sessile polyp; (j) myoma-like polyp. Adenocarcinoma: (k)	25
8	Photograph shows equipment used for sonohysterography	33
9	Normal SIS with Balloon Inflated	34
10	Focal endometrial lesion: endometrial polyp	34
11	Diffuse endometrial lesion: endometrial hyperplasia.	35
12	Normal premenopausal endometrium	37
13	Normal postmenopausal endometrium.	38
14	Typical endometrial polyp	39
15	Typical endometrial polyp.	40
16	Cystic endometrial polyp	41
17	Multiple endometrial polyps	41
18	Flat endometrial polyp	42
19	Hypoechoic endometrial polyp	43
20	Typical fibroids with submucosal extent	45
21	Typical fibroids with submucosal extent.	46
22	Pedunculated submucosal fibroid	47
23	Fibroid prolapse	48
24	Fibroid prolapse	48
25	Lobulated fibroid	49

## List of Figurers (Cont.)

<i>Fig.</i>	<i>Subject</i>	<i>Page</i>
26	Typical endometrial hyperplasia	50
27	Atypical endometrial hyperplasia	51
28	Typical endometrial cancer	53
29	Atypical endometrial cancer	54
30	Thin endometrial adhesions	55
31	Thick endometrial adhesions	56
32	Endometrial cavity obliterated by adhesions	56
33	Endometrial cavity obliterated by adhesions	57
34	Endometrial scar	57
35	Endometrial scar	58
36	Retained products of conception	59
37	Retained products of conception	59
38	Tamoxifen-associated endometrial lesion	61
39	Tamoxifen-associated endometrial lesion	61
40	Tamoxifen-associated subendometrial lesion	62
41	Tamoxifen-associated subendometrial lesion	62
42	Algorithm for a patient presenting with postmenopausal bleeding (PMB)	62
43	Algorithm for a patient receiving estrogen replacement therapy (ERT) with an abnormal endometrial appearance at transvaginal US (TVUS)	63
44	Algorithm for a patient receiving tamoxifen	64
45	Hysteroscopic finding diagnosis	71
46	Description of saline infusion sonohystrography findings among the studied cases	73
47	Comparison between SIS vs histroscope final diagnosis among the studied cases	73

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# Contents

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	<i>Page</i>
<b>List of Abbreviations</b> .....	--
<b>List of Tables</b> .....	--
<b>List of Figures</b> .....	--
<b>Introduction and Aim of the Work</b> .....	1
<b>Review of Literature</b> .....	4
* Anatomy of the Cervix .....	4
* Induction of labor.....	33
* Ultrasound in Obstetrics .....	59
<b>Patient and Methods</b> .....	65
<b>Results</b> .....	69
<b>Discussion</b> .....	77
<b>Summary and Conclusion</b> .....	83
<b>References</b> .....	85
<b>Arabic Summary</b> .....	--

## Introduction

Abnormal uterine bleeding is frequently caused by pathologic processes that involve the endometrium and the myometrium until recently, evaluation of this problem places paramount importance on the exclusion of endometrial carcinoma, although a malignancy is found in less than 10% of the time. (*Robert et al.,2000*)

Routine office endometrial biopsy and transvaginal ultrasonography performed to evaluate double- layer thickness of the endometrium were the only tests available for work-up of patient with postmenopausal bleeding and dysfunctional uterine bleeding, these procedures were often inadequate for evaluation because approximately 50% of cases of abnormal uterine bleeding are caused by focal lesion such as polyps, submucosal fibroids, and focal endometrial hyperplasia. (*Patricia et al., 2002*)

These lesions are underdiagnosed at transvaginal ultrasonography because of limitation of the double-layer thickness evaluation, and in endometrial biopsy because of sampling error, office hysteroscopy significantly increase the sensitivity for detection of sessile and pedunculated intraluminal masses, however, the most common finding include atrophic and proliferative changes in such patient. (*Bree et al., 2000*).

For these reasons, numerous studies has been done found that ultrasonography technique in which endometrial



cavity is distended with saline, allows evaluation of the single layer of the endometrial lining and reliably distinguish focal from diffuse endometrial pathologic conditions, focal lesions are defined as lesions occupying less than 25% of the endometrial surface area, and diffuse lesions involve a larger percentage of the endometrial surface area (*Valenzano et al., 2006*).

Sonohysterography enables triage of symptomatic postmenopausal patients to the appropriate means of endometrial sampling, in premenopausal patient population, Sonohysterography is a valuable tool for assessing endometrial cavity in patients with dysfunctional uterine bleeding, recurrent pregnancy loss, and retained products of conception, in patients with focal endometrial abnormalities, the biopsy must be performed with hysteroscopic assistance to obtain representative tissue for diagnosis, the findings at Sonohysterography determine whether a blind biopsy, hysteroscopically guided biopsy, or hysteroscopically guided dilatation and curettage is the appropriate diagnostic procedure (*Psarija et al., 2004*).

Sonohysterography is easily performed, well tolerated, and a cost-effective means of directing the work-up for patients with pre- and postmenopausal bleeding, in premenopausal patients. Sonohysterography is preferably performed during the early proliferative phase (day 4-6) of the patient's menstrual cycle, when the endometrium is at its thinnest, in women with irregular bleeding. Sonohysterography is well performed after

cessation of bleeding never performed in the secretory phase. (*Sohaey et al.,1999*).

In this study, we compare Sonohysterography, in the exploration of the uterine cavity, with classical transvaginal Sonography, and office hystero-graphy.

## **Aim of the work**

Prospective observational study To compare saline infusion sonohysterography, with hysteroscopy, and transvaginal ultrasonography as an investigative modality in abnormal uterine bleeding in pre. and postmenopausal patient.

## Historical Background

Hysteroscopy evolved over the last two centuries the early large, crude optical light conducting tubes have been replaced by small diameter endoscopes using cold light fiber optic technology .these microhysteroscopes can be rigid or flexible and provide high-resolution ,high-quality video images .the use of outer sheaths with additional instillation ports ,enables the continuous flow of distention media ,which facilitate the use of finally engineered surgical instrument and energy sources that can be employed down tiny operating channels.

### History of the Procedure

The development of hysteroscopy is rooted in the work of **Pantaleoni**, who first reported uterine endoscopy in 1869 (*Marlow, 1995*). However, at that time, instrumentation was elementary, and expansion of the uterine cavity was insufficient. In 1925, **Rubin** first used CO<sub>2</sub> to distend the uterus (**Marlow, 1995**). Around the same time, **Gauss** was experimenting with the use of fluids to achieve uterine expansion. (*Marlow, 1995*).

Hysteroscopy did not become popular until the 1970s, when technology afforded more practical and usable instruments than before .The use of liquid distention media became routine by the 1980s, and many new hysteroscopic procedures, including endometrial ablation, were developed. (*Marlow, 1995*).

Initially used by urologists for transurethral resection of the prostate, the resectoscope was modified for hysteroscopic procedures, allowing for resection of intrauterine pathology with monopolar cautery. By the mid-1980s, hysteroscopic procedures had nearly replaced dilation and curettage (D&C) for diagnosing intrauterine pathology. (*Jansen, 2000*).

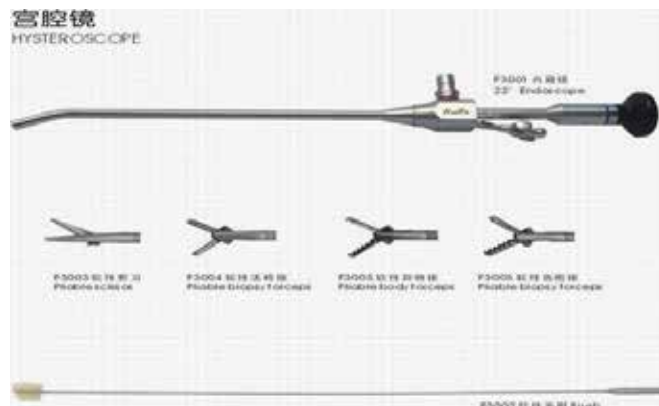
Over the past few decades, refinements in optic and fiberoptic technology and inventions of new surgical accessories have dramatically improved visual resolution and surgical techniques in hysteroscopy. Many hysteroscopic procedures have replaced old, invasive techniques. Now, as instruments become smaller than before, office hysteroscopy is replacing operating-room procedures. One of the most recent hysteroscopic procedures approved by the US Food and Drug Administration (FDA) is female sterilization (Essure, Conceptus, Incorporated, Mountain View, Calif), which can be performed in the gynecologist's office. Novel instruments and techniques continue to emerge, and the prospects for improvement seem unlimited. (*John2006*)

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## Equipment

### 1-Hysteroscopes

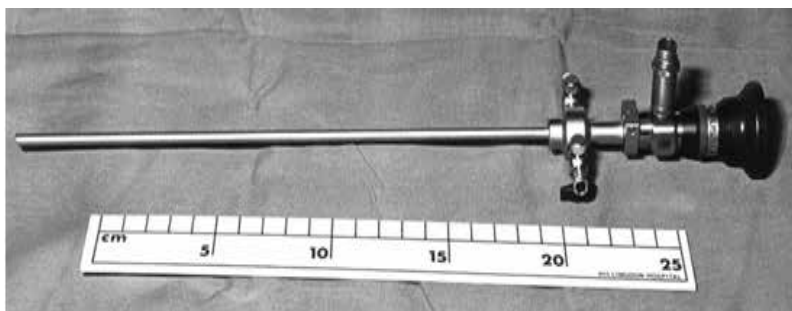
The telescope consists of 3 parts: the eyepiece, the barrel, and the objective lens. The focal length and angle of the distal tip of the instrument are important for visualization (as are the fiberoptics of the light source). Angle options include 0°, 12°, 15°, 25°, 30°, and 70°. A 0° hysteroscope provides a panoramic view, whereas an angled one might improve the view of the ostia in an abnormally shaped cavity.



**Fig.(1) Hysteroscope**

Hysteroscopes are available in different styles, including rigid and flexible(used most commonly in clinical settings) hysteroscopes, contact hysteroscopes, and microhysteroscopes.

The diameter of each instrument varies and is an important consideration. The requirement of a sheath for input-outflow of distention media increases the size of the hysteroscope. **(John2006).**



**Fig.(2) Rigid hysteroscope**

### **2-Rigid hysteroscope**

Rigid hysteroscopes are the most commonly used instruments their wide range of diameters allows for in-office and complex operating-room procedures of the narrow options (3-5 mm in diameter), the 4-mm scope offers the sharpest and clearest view. It accommodates surgical instruments but is small enough to require minimal cervical dilation. In addition, patients tolerate this instrument well with only paracervical block anesthesia. (*John2006*).

Rigid scopes larger than 5 mm in diameter (commonly 8-10 mm) require increased cervical dilation for insertion. Therefore, they are most frequently used in the operating room with intravenous (IV) sedation or general anesthesia. Large instruments include an outer sheath to introduce and remove media and to provide ports to accommodate large and varied surgical instruments. (*John2006*)

### **3-Flexible hysteroscope**

The flexible hysteroscope is most commonly used for office hysteroscopy. It is notable for its flexibility, with a tip that deflects over a range of 120-160°. Its most appropriate use is to accommodate the irregularly shaped uterus and to navigate around intrauterine lesions. It is also used for diagnostic and operative procedures. During insertion, the flexible contour accommodates to the cervix more easily than does a rigid scope of a similarly small diameter. The view is often described as having a ground-glass quality, which is markedly less desirable than the view obtained with rigid scopes (*Corfman, 1988*). New, digitally enhanced scopes improve image quality.