Cairo University

Diagnostic accuracy of three dimensional sonohysterography versus hysteroscopy in the evaluation of the uterine cavity in cases of premenopausal bleeding with suspected intracavitary lesions with correlation to histopathological findings

Thesis
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ABSTRACT

Aim of the work: to compare the diagnostic accuracy of three dimensional sonohysterography versus hysteroscopy in the evaluation of the uterine cavity in cases of premenopausal bleeding with suspected intracavitary lesions with correlation to the histopathological findings, and to see if (3D-SHG) is superior or comparable to hysteroscopy in the diagnosis of these lesions.

Methods: 50 women with premenopausal bleeding with suspected intracavitary lesions either by 2D transvaginal ultrasound or by hysterosalpingography were subjected to three dimensional saline infusion sonohysterography, office hysteroscopy and subsequent surgical procedures (fractional curettage, hysterectomy, polypectomy or myomectomy) followed by histopathological examination of the specimens

Results & Conclusions: three dimensional saline infusion sonohysterography is comparable to diagnostic hysteroscopy in diagnosis of intracavitary lesions, the sensitivity, specificity, PPV, NPV and overall accuracy were; 97.83%, 100%, 100%, 80% & 98% respectively for (3D-SIS), and 100%, 100%, 100%, 100% &100% respectively for (OH).

Keywords: premenopausal bleeding - intracavitary lesions - three dimensional saline infusion sonohysterography - hysteroscopy - histopathology.

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Amal Mohsen Ahmed Al- qaisi

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LIST OF ABBREVIATIONS

Abbreviation	Detail
2D	Tow dimensional
2D-SHG	Two dimensional sonohysterography
2D-SIS	Tow dimensional saline infusion sonohysterography
2D-TVS	Tow dimensional transvaginal ultrasound
3D	Three dimensional
3D-SHG	Three dimensional sonohysterography
3D-SIS	Three dimensional saline infusion sonohysterography
AUB	Abnormal uterine bleeding
BMI	Body mass index
CI	Confident interval
CM	Centimeters
CO2	Carbon dioxide
DH	Diagnostic hysteroscopy
DUB	Dysfunctional uterine bleeding
E	Eosin
E.g.	For example
EMP	Endometrial polyp
ET	Endometrial thickness
FN	False negative
FP	False positive
FSH	Follicular stimulating hormone
H	Haematoxylin
HP	Histopathology
HSP	Hysterosalpingography
IU	International unite
IUD	Intrauterine device

IUI	**Intrauterine insemination**
Mg	**Milli-gram**
Min	**Minute**
MIU	**Milli-international unite**
Ml	**Milliliter**
Mm	**Millimeter**
MMHG	**Millimeter mercury**
MMMT	**Malignant mixed mesodermal tumor**
MMPs	**Matrix metalloproteinases**
NPV	**Negative predictive value**
NSAID	**Non steroidal anti-inflammatory drugs**
OH	**Office hysteroscopy**
P	**Probability**
PCOS	**Poly cystic ovary syndrome**
PPV	**Positive predictive value**
SD	**Standard deviation**
SHG	**Sonohysterography**
SIS	**Saline infusion sonohysterography**
SPPS	**Statistical package for the social science**
TN	**True negative**
TP	**True positive**
TURP	**Trans-urethral resection of prostate**

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INTRODUCTION

INTRODUCTION

Abnormal uterine bleeding (AUB) is the most common cause of many gynecological visits in premenopausal period and can occur due to the presence of intracavitary lesions, which is either benign conditions e.g., leiomyoma, endometrial polyps and endometrial hyperplasia, or the presence of endometrial cancer **(Ascher & Reinhold., 2002)**, so it is very important to assess the uterine cavity in women who sought medical advice for premenopausal bleeding with suspected intracavitary lesions either by 2D transvaginal ultrasound (2D-TVS) or by hysterosalpingography (HSG) **(Valle., 2005)**.

The gold-standard tool for the evaluation of the interior of the uterus is hysteroscopy **(Revel et al., 2002)**, but it is an invasive procedure, relatively expensive, it does not provide information about the adnexa or myometrium, it only provides subjective assessment for the size of a lesion and the depth of myometrial extension of myomas **(Makris et al., 2006)**, and it is associated with many risks such as uterine perforation and ascending genitourinary infection **(Dueholm et al., 2001)** and it is not always available in low resource settings and many gynecologists lack expertise in interpreting the findings **(Gunes et al., 2008)**.

Saline-infusion sonohysterography (SIS) is an attractive and minimally invasive, cheap, relatively safe procedure that can be used in the evaluation and detection of pelvic pathology. But it does not give a

satisfactory evaluation of small localized lesions and it does not allow easy differentiation between endometrial and myometrial abnormalities **(Widrich et al., 1996)**. The addition of three-dimensional transvaginal ultrasound provides better visualization and improves the accuracy in the evaluation of adnexa, pelvic pathologies, uterine contour and focal lesions **(Glanc et al., 2008)** and their myometrial depth **(Makris et al., 2006)**, as it allows Simultaneous display of the three perpendicular planes that give access to plane that can't be obtained by the two-dimensional sonohysterography (2D-SHG). Also, in three dimensional sonohysterography (3D-SHG), after distending the uterine cavity with saline there is clear visualization of the inner surface of both sides of the endometrium **(Salim et al., 2005)**.

Being able to distinguish between the different conditions allows the physician to determine the appropriate treatment method.

In this study, the premenopausal women with abnormal uterine bleeding with suspected intracavitary lesions either by (2D-TVS) or by (HSG) were subjected to both (3D-SIS) & office hysteroscopy (OH), subsequent surgical procedures such as fractional curettage, polypectomy, myomectomy and hysterectomy were done, histopathological study of specimens was done and the results were compared to those of both (3D-SIS) & (OH) to detect their diagnostic accuracy in diagnosis of intracavitary lesions, and to see if (3D-SIS) is comparable or superior to (OH) in diagnosis of such lesions.

AIM OF WORK

AIM OF THE WORK

Evaluate the role of three dimensional sonohysterography (3D-SHG) versus hysteroscopy in detection of the uterine cavity lesions in premenopausal bleeding.

REVIEW OF LITERATURE