

Role of Hysterosonography in the evaluation of the uterine cavity in women with recurrent miscarriage

Thesis

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By

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List of Abbreviation

2DHS	<i>Two dimensional hysterosonography</i>
D&C	<i>Dilatation and curettage</i>
gnRH	<i>Gonadotrophin releasing hormone</i>
MHz	<i>Mega hertz</i>
Mm	<i>Millimeter</i>
Hz	<i>Hertz</i>
NPV	<i>Negative predictive value</i>
PPV	<i>Positive predictive value</i>
RPOC	<i>Retained products of conception</i>
S	<i>Sensitivity</i>
SIS	<i>Saline infusion sonohysterography</i>
SP	<i>Specificity</i>
TVUS	<i>Transvaginal ultrasonography</i>

INTRODUCTION

Recurrent miscarriage is defined as three or more consecutive early pregnancy losses before the 20th week of gestation and affects about 1% of couples (**Sierra & Stephenson, 2006**).

Although the pathophysiology remains unknown in almost 50% of cases, structural uterine abnormalities, chromosomal anomalies and maternal thrombophilia have been directly associated with recurrent miscarriage (**Jauniaux et al., 2006**).

The etiology of recurrent miscarriage can be divided into first & second trimester miscarriage. According to their therapeutic potential can be divided into treatable and untreatable causes (**Ventolini et al., 2004**).

The majority of first-trimester miscarriages are attributable to chromosomal abnormalities, parental structural chromosomal abnormality, maternal medical conditions such as diabetes melleus, maternal uterine anomalies, luteal phase defect (**Regan and Rai, 2000**).

The majority of second-trimester miscarriages causes are infection (chorioamnionitis or maternal systemic infection), cervical weakness, structural uterine abnormalities and thrombophilia. Genetic causes may still play a role in second-trimester miscarriage where a genetic

abnormality is involved (15% of cases) which tends to be one that is occasionally seen in term deliveries (trisomies 13, 18 and 21 and monosomy x) or that involves a gene mutation or deletion (**Simpson, 2007**).

The prevalence of uterine malformation is estimated to be 6.7% in the general population, slightly higher 7.3% in the infertility population, and significantly higher in a population of women with a history of recurrent miscarriages 16% (**Sotirios et al., 2008**).

The uterine anomalies can be either congenital (i.e., Mullerian fusion defects) or acquired (e.g., sub mucous myomas, endometrial polyps, adhesion) (**Salim et al., 2003**).

The importance of uterine polyps and leiomyomas in recurrent miscarriage is a matter of debate; they can interfere with fertility, creating a hostile environment to embryo implantation. It is estimated that about 41% of women with liomyomata, especially sub mucous one, could abort (**Salvador et al., 2002**).

Mullerian fusion defects have been found in (8-10) % of women with recurrent miscarriage, uterine septum was the most common anomaly. Many of the defects are amenable to therapy (**Homer et al., 2002**).

Transvaginal ultrasonography (TVUS) provides valuable information in the evaluation of a wide range of gynecological disorders including; uterine and adnexal masses, inflammatory processes and neoplasm. Typical features of benign masses are reproducible even with moderately experienced examiners. It is also useful in assessing non gynecological pelvic conditions such as; masses in the urinary bladder, urinary incontinence and non gynecological pelvic masses (**Guerriero et al., 2009**).

Hysterosonography is considered a simple, effective and well tolerated technique for enhanced transvaginal sonographic imaging of the endometrial cavity. The instillation of sterile saline into the uterine cavity via a fine catheter provides both a contrast medium and an expanding agent (**Parsons and Lens, 1993**).

So, saline infusion sonohysterography can help to triage patients to (1) no anatomic pathology, (2) globally thickened anatomic pathology that may be evaluated with blind endometrial sampling, or (3) focal abnormalities that must be evaluated under direct vision (**Goldstein, 2006**).

Saline infusion sonohysterography is playing an increasing role in the evaluation of abnormal uterine bleeding in women in general and in perimenopausal women in particular. This procedure is increasingly considered, even through the abdominal route, more accurate than both transvaginal ultrasound and