Evaluation of the Role of Hysteroscopy in Management of Persistent Abnormal Uterine Bleeding

Thesis

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By

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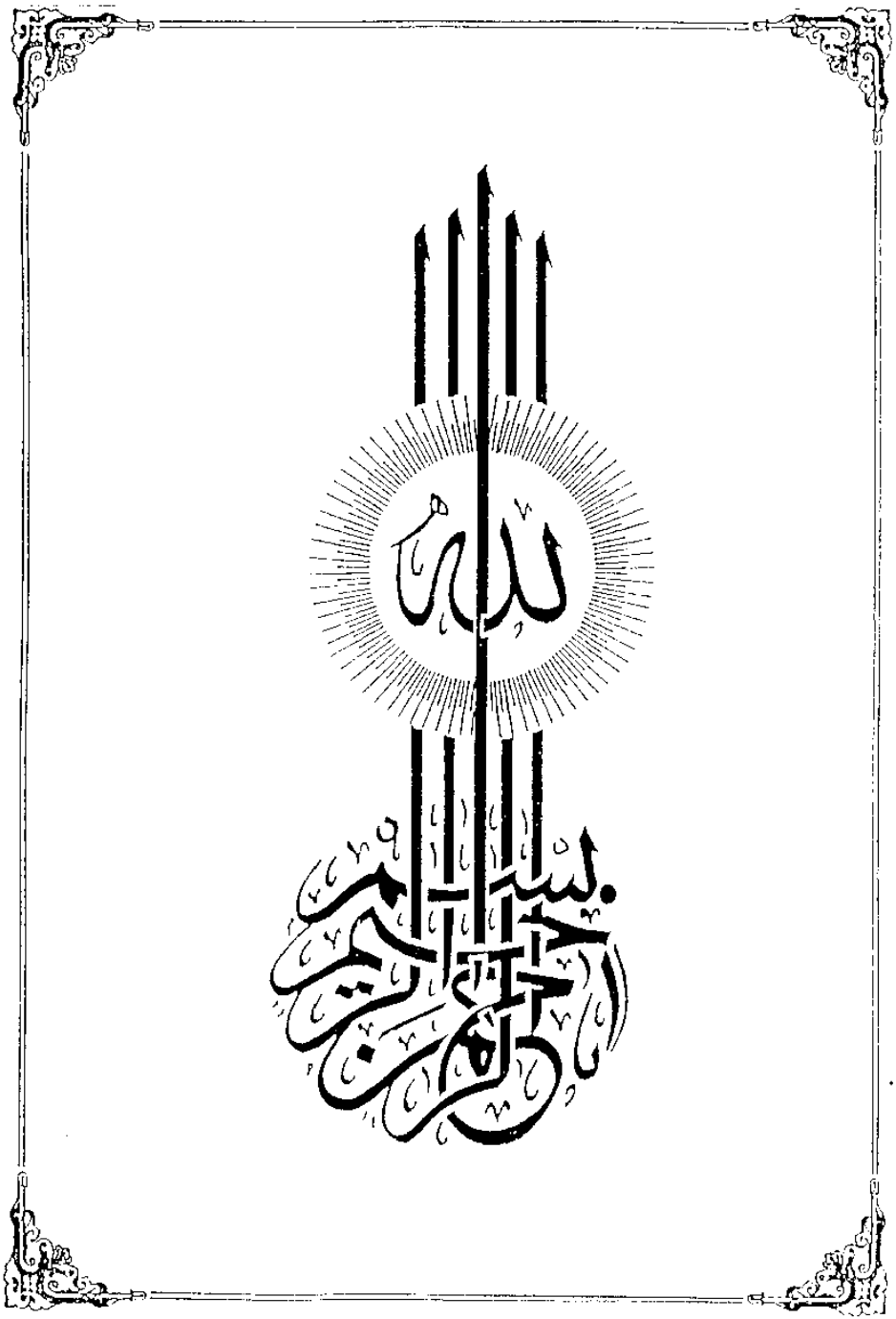

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This study will be done to evaluate the accuracy and value of intrauterine visualization, using hysteroscopy for the evaluation of patients with persistent abnormal uterine bleeding inspite of repeated dilatation and curettage (two or more times) done as a diagnostic and/or curative measure

INTRODUCTION

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Abnormal uterine bleeding is a common gynaecologic problem, traditionally investigated by means of dilatation and curettage, biopsy of the endometrium and, occasionally, hysterosalpingography. The most common procedure used to evaluate the endometrial cavity of a patient with abnormal uterine bleeding is dilatation and curettage. If a great portion of the endometrium is affected the accuracy of this procedure in diagnosing lesions of the endometrium is good. With focal lesions, however, dilatation and curettage are less accurate and reliable, as these lesions may be missed by the curette. (Valle R.F., 1981; and Brooks and Serden, 1988)

Mora et al. (1958) showed that 10% of endometrial lesions may be missed by traditional D&C since a D&C is a blind procedure. Stock & Kanbour (1975) reported 50 patients in whom a hysterectomy specimen was examined after a pre-operative D&C, in 60% of them only half the uterine cavity had been curetted. (Raju and Taylor, 1986)

The recent technologic improvements in instrumentation and the development of safe media for uterine distention have increased the applicability, simplicity, safety and effectiveness of hysteroscopy for visual exploration of the uterine cavity. Hysteroscopy permits panoramic visualization of the uterine cavity and direct biopsy of lesions, thus

increasing precision and accuracy in diagnosing intrauterine conditions which may be missed by traditional methods of evaluation and in discovering lesions previously inaccessible to the human eye. This approach permits biopsy of specific endometrial areas under visual guidance. (Valle R.F., 1981)

The choice of a diagnostic procedure should be based on diagnostic accuracy, patients acceptability and the cost. The modern hysteroscope is superior in all of these respects to the long-established procedures used to investigate patients with abnormal uterine bleeding. The use of the hysteroscope on conscious out-patients either with paracervical block or without anaesthesia, may provide a reliable technique for screening women for abnormal uterine bleeding. (Raju and Taylor, 1986)

REVIEW OF LITERATURE

Historical Aspects

Although numerous attempts at intrauterine visualization occured during the past century, hysteroscopy was not appreciated as a practical clinical procedure until the present decade. The technique evolved with the refinement of the fiberoptic endoscope and the development of effective media for uterine distention.

Following the development of the first endoscope by Bozzini in 1807, more than half a century elapsed before exploration of the uterine cavity in a living patient was achieved by Pantaleoni (Valle and Sciarra, 1979). In 1869 Pantaleoni used the cystoscope described by Desormeaux in 1865, to observe polyps in the uterus of a 60-years-old woman with intractable uterine bleeding (Hamou and Taylor, 1982). The rudimentary endoscope used in this procedure caused external light to be reflected into the uterine cavity. Uterine distention was not possible. However, visual examination was successful only because of the skill and enthusiasm of the operator (Valle and Sciarra, 1979).

The first modern endoscope was demonstrated by Nitze in 1879. His cystoscope incorporated both lenses and a source of illumination within the telescope (Hamou and Taylor, 1982). This endoscope was the prototype for the present-day hysteroscope.

David C. in 1907, developed a hysteroscope which permitted visualization by direct contact of the instrument with the surface of the endometrium. The technique was introduced for the purpose of observing the uterine interior under relatively sterile conditions in postpartum and postabortion patients. Since a distending medium was not required, the hazard of transmitting infection was minimized. (Valle and Sciarra, 1979)

Most of the endoscopes utilized in Europe during the early 20th century resembled the cystoscope, having been developed largely in parallel with instrument designed to visualize the interior of the urinary bladder. Heineberg 1914 and Seymour 1926, modified available instruments by introducing irrigation systems with inflow and outflow channels, to allow for fluid distention of the uterine cavity without interference from blood. Norment and Silander separately described a method for uterine distention using a fluid-filled rubber balloon. This approach, although successful for visualization, had limited clinical applicability. (Pas, H.V., 1983)

Other investigators during the early and mid 20th century experimented with various designs in instrumentation and with various techniques for distention, irrigating and rinsing the uterine cavity; taking biopsies; measuring intrauterine pressure; and photographing the intrauterine environment. (Sciarra and Valle, 1977)

The use of viscous solutions for uterine distention began with Menken's introduction of polyvinylpyrrolidone, a mixture of linear polymers of different chain lengths and molecular weights. The fact that the substance is not biodegradable and is yellow in solution, however, limited its usefulness for hysteroscopy. In the late 1960s and early 1970s, 10% dextrose in water and low molecular weight dextran solutions (dextran 40, 6% and 10%) were used sporadically, without great success. In some instances, these latter substances produced allergic reactions. (Valle and Sciarra, 1979)

In 1970, East röm and Fernström successfully utilized a high molecular weight dextran for uterine distention. This substance permitted clear visualization of the uterine cavity and intrauterine manipulations such as biopsies or removal of small lesions under direct visual control. The excellent results achieved with this medium allowed hysteroscopy to take its place as a practical clinical procedure. (East röm and Fernström, 1970)

Also in 1970, Quinones-Guerrero et al. initiated the practical use of dextrose 5% in water, delivered under pressure, for uterine distention. At about the same time, Lindemann and Porto and Serment separately introduced the technique of CO_2 gas insufflation for uterine distention. This technique had been pioneered by Rubin in 1925, but it did not become safe and practical until the commercial

introduction of special CO_2 gas insufflators specially designed for hysteroscopy. (Valle and Sciarra, 1979)

TABLE 1 : Milstones in the Development of Hysteroscopy

(Valle and Sciarra, 1979)

Year	Investigator	Contribution
1807	Bozzini	First endoscope (light conductor)
1869	Pantaleoni	First hysteroscopic examination in a living patient
1879	Nitze	Cystoscope with distal illumination
1907	David	First contact hysteroscope
1914	Heineberg	System for irrigating uterine cavity.
1925	Rubin	CO_2 for uterine distention
1926	Seymour	Hysteroscope with inflow and outflow channels
1927	Mikulicz-Radecki and Freund	Biopsy-taking capability; cornual electrocoagulation
1928	Gauss	Intrauterine photography
1934	Schroeder	Measurement of intrauterine pressures
34-43	Segond	Irrigating system and biopsies
1936	Schack	Identified applications
42-[illegible]	Norment	Rubber balloon; practical irrigating system; cutting loops; fiberoptics
53-[illegible]	Mohr and Mohr	Fiberhysteroscope for intrauterine visualization; tubaloscopy.
1962	Salanger	Studied endometrial carcinoma using Silastic balloon
1968	Menken	Tubal cannulation; polyvinyl pyrrolidone
1970	Edström and Fernström	Dextran 32%

Indications

Hysteroscopy is indicated in any situation in which intrauterine visualization will enhance diagnostic accuracy and define therapy (Valle, 78). The following situations are those in which hysteroscopy is more frequently employed:

1. Investigation and management of abnormal uterine bleeding:

Abnormal uterine bleeding is probably the most common indication for the performance of panoramic hysteroscopy. In a series of 374 hysteroscopies performed by Sciarra and Valle (1977), 158 (42.2%) were complaining of bleeding.

The rate of hysteroscopic detection of intrauterine lesions in abnormal bleeding states varies from 43% to 85% (Sugimoto, 1978; and Cooper et al., 1983). The exact nature of the abnormalities detected in patients with abnormal uterine bleeding in a comparative series is shown in table (2). Polyps, submucous myomata, and endometrial hyperplasia are the most common lesions which are detected. In 115 postmenopausal patients polyps, endometrial atrophy, and endometrial carcinoma which occured in 28,12 and 18 patients respectively were the most common lesions (Barbot et al., 1980; and Hamou and Taylor, 1982).

Using panoramic hysteroscopic visualization, polyps, and submucous myomata must be differentiated. Submucous myomata bulge into the uterine cavity under a thin endometrium. They