HYSTEROSCOPY

ESSAY

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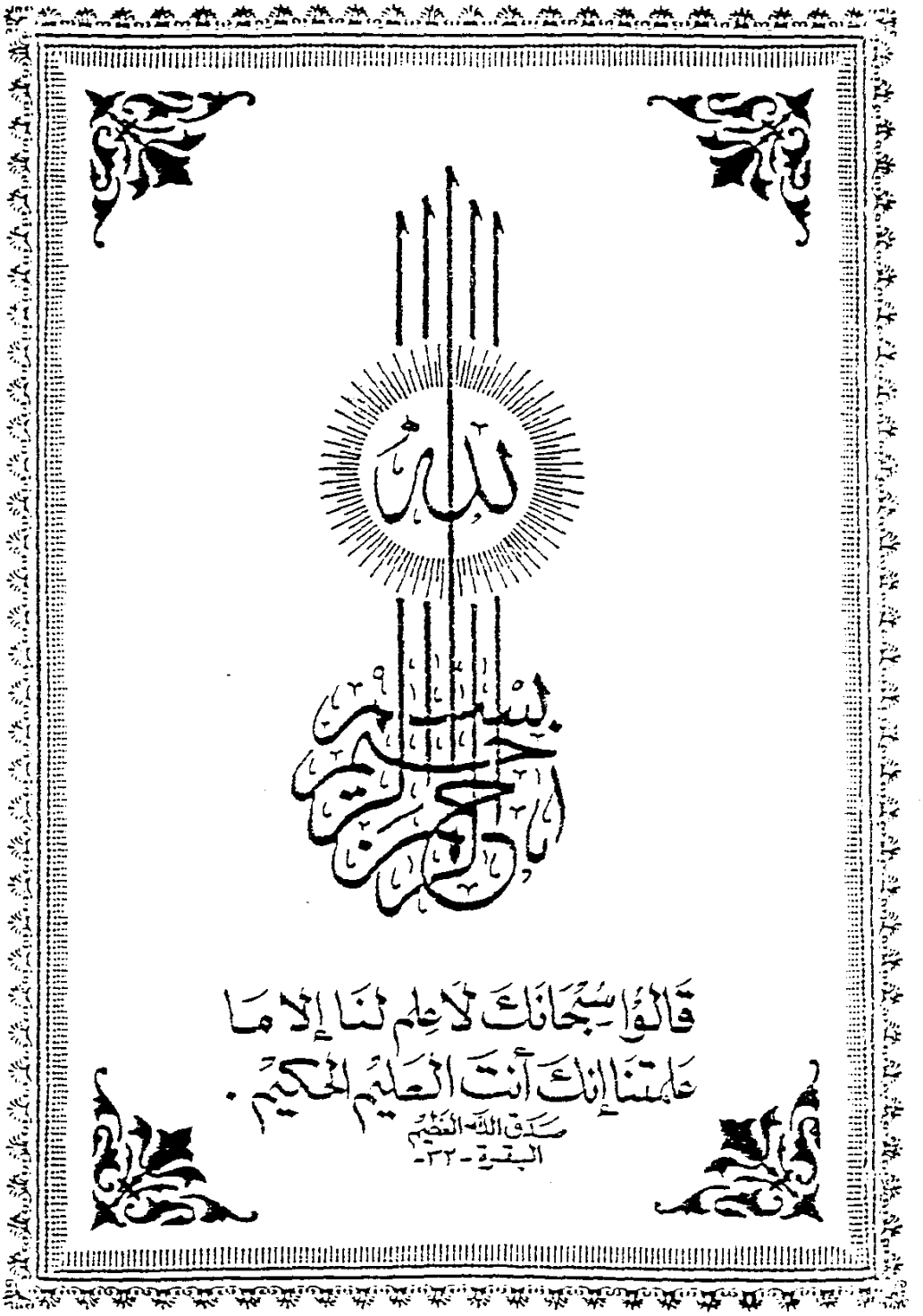

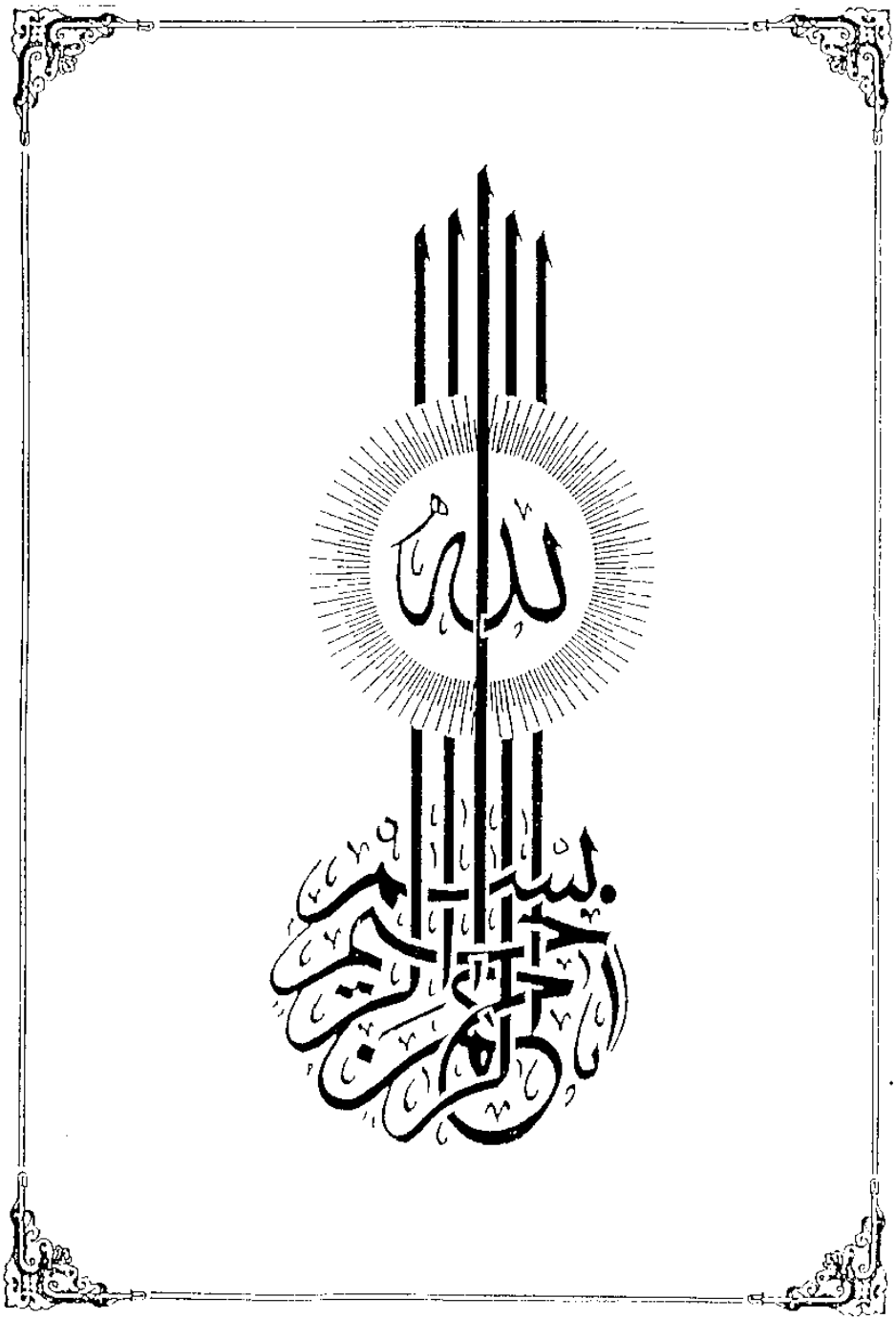

TO MY PARENTS
MY HUSBAND
AND
MY DAUGHTER

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INTRODUCTION

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Visual examination of the uterine cavity is an old technique. Pantaleoni in 1885 was the first to examine the uterus using a small tube inserted through the external os of the cervix using a kerosene lamp or a candle for light source (Lindmann, 1974).

Many technical advances in the optical systems were developed in Europe at the turn of the centurey (Frangenheim, 1988), but only in the last 25 years have fiberoptic light sources and the Hopkins lens system made hysteroscopy a practical diagnostic outpatient procedure (Hamou and Lewis, 1990).

Nearly all hysteroscopies are performed using a rigid 4 mm diamter telescope with a Hopkins rod lens optical system consisting of special glass rods placed along the length of the telescope rather than conventional small lenses placed at intervals. The Hopkins rod lens system allows a much larger portion of the object to be seen in a single viewing field because of the wider viewing angle. The resolution and contrast is also superior because more light is transmitted than with the conventional system and the colour contrasts are more natural (Hamou and lewis, 1990).

A low risk endoscopic technique, hysteroscopy, uses natural passages to enter the endometrial cavity by way of the endocervical canal. Refinement of optical and fiberoptic instrumentation, together with accessories have elevated the hysteroscopic view to a high order of resolution and has allowed excellent visual documentation (Baggish, 1992).

Hysteroscopy can be performed in all patients in whom a curettage is indicated, indeed it is probable that the traditional dilatation and curettage (D and C) should be replaced now by hysteroscopy and curettage (H and C). Thus hysteroscopy is indicated in menstrual irregularities due to dysfunctional bleeding and postmenopausal bleeding. In dysfunctional uterine bleeding, the uterine cavity looks normal. Specific indications for hysteroscopy include recurrent abortion to exclude congenital abnormality or a submucous fibroid and suspected Asherman's syndrome (Lewis, 1989).

Hysteroscopy provides the physician with a direct view of the uterine cavity. Its goals are to confirm or to exclude a diagnosis, to evolve a therapy and to verify the results of treatment. The physician can search a suspected intrauterine lesion because of signs and symptoms or evaluate suggestive shadow seen on hysterography. In addition, the topography and extent of gross intrauterine lesions can be ascertained and

directed biopsies are possible (Gomerre et al., 1984).

The uterine cavity is surrounded by a thick myometrium, and in the non pregnant women the normal cavity can hold 4 ml to 6 ml of fluid. For thorough observation, the cavity should be adequately distended. The endometrium bleeds easily from slight trauma, but constant pressure created by the distending medium creates a haemostatic mechanism, facilitating a clear operative field (Afsari, 1984).

Hysteroscopy should not be done in the presence of acute or chronic salpingitis, endometritis, pregnancy or more than minimal uterine bleeding. A history of recent uterine perforation is another contraindication. Physicians should be aware of the possible complications from hysteroscopy so that they can select patients carefully (Roland, 1984).

More recently the indications for hysteroscopy have been extended to include examination under magnification of the transformation zone in cases of incomplete colposcopy and in operative hysteroscopy for sterilization or laser ablation of the endometrium (Lewis, 1989).

Until recently, hysteroscopy have been considered a specialist technique only available in a few centers. Today, hysteroscopy should be regarded as simple method of examination of the uterine cavity which is easily performed and which should be readily available in district hospitals.

Teaching aids are essential so that trained gynaecologist and nursing staff can observe the operation. More operations are now being peformed using a television system and a camera attached to the telescope. Over the last few years hysteroscopic surgery has advanced considerably, coinciding with technical developments by the instruments maker (Hamou and Lewis, 1990).

HISTORICAL BACKGROUND

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Endoscopy had its beginings in the early 19th century when Bozzini in 1805 invented a hollow tube to observe natural human cavities such as the nose, the urethera, the vagina and the rectum. The source of illumination was the light of a candle reflected by a mirror. The first satisfactory endoscope was presented by Desormeaux (1853) to the Imperial Academy of Medicine in Paris (Desormeaux, 1865).

Desormeaux used his apparatus mainly for the examination of the urethera and the bladder, but he also mentioned a possible use in the uterus. However, the first success in hysteroscopy was reported by Pantaleoni in the "Medical Press and Circular" of Jully 14, 1969. He described the examination of a 60-year old woman and diagnosis of an endometrial polyp. He was able to destroy the polyp and cure the woman of her postmenopausal bleeding. It is amusing to note that 3 years earlier, in the same woman, by using the same endoscope, he destroyed a nasal polyp from which she had suffered for 30 years (Baggish and Barbot, 1983).

Unfortunately Pantaleoni's success did not lead to the promising future that he had anticipated. Although the uterus appeared to be an accessible organ for the new hysteroscope, others using the endoscope of Desormeaux (more or less

modified) complained that they hardly saw anything mainly because of the opposing muscular wall (Baggish and Barbot, 1983).

To separate the uterine walls, Blondel in 1893 used two tubes one fitting into the other (Blondel, 1907). The outer tube was opened and designed to separate the walls, while the inner tube was reserved for vision. With the exception of this purely mechanical attempt, the uterine cavity must be inflated with a gas or a liquid under pressure in order to see through the instrument. Substantial improvement in optics and illumination were made by Nitze, (1879) who may be considered the father of modern endoscopy. He published an article in the "Wiener Medizinsche Press" describing his new instrument : a uretheroscope and a cystoscope. He used a platinum loop that was energized by electric current for distal illumination and he cooled instrument with circulating water (Nitze, 1879).

An optical system was built into the tube, the bladder was inflated with water or air. Unfortunately the new principle of Nitze that led to rapid world wide success of cystoscopy were not applied to hysteroscopy because of the different anatomy of the organ (Baggish and Barbot, 1983).

A year later, Nitze presented a refined instrument and demonstrated its applications to the "Royal and Imperical

Doctors Association in Vienna". Nitze's instrument enjoyed several significant advantages over earlier endoscope :

1. Usig a water cooled filament of platinum for the light source, Nitze was able to bring the light directly into bladder.
2. Lenses were employed to improve the image.
3. The field of vision was widened through the use of a system of lenses provided by Bendeiche, The Berlin optic specialist.

Despite these advantages, the Nitze principle of endoscopy was not adapted for hysteroscopy and early practitioners of uteroscopy proceeded without initially distending the uterus and the instrument were straight tubes of varying lengthes and diameters. The light come from candles, kerosene lamps or incondescent bulbs directed by a reflector to produce satisfactory results (Baggish and Barbot, 1983).

In 1880, Munde published an account of his experience with hysteroscopy and wrote "if one compares informations derived in this way with which can be obtained by using the tip of the index fingers, the proverbial' eye of the gynaecologist", then it has to be said that fleeting glimpse of the endometerium is of little clinical value (Munde, 1880).