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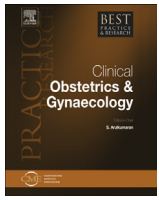

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Endometrial resection and global ablation in the normal uterus

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There are various methods that can be used to destroy the endometrium as a treatment for menorrhagia. This chapter reviews the history, rationale, evidence, indications and long-term safety and efficacy of the current techniques. It also discusses endometrial ablation in the context of its clinical utility in comparison with existing alternative treatments.

'*Make the operation suit the patient, rather than the patient suit the operation*'

Dr. Charles Mayo

'*There is nothing new under the Sun*' Ecclesiastes 1:4–11

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Introduction

Background

Menstrual disorders continue to be the leading indication for hysterectomy in premenopausal women in the United States in the current decade [2], yet as with any surgical procedure, there is associated morbidity [3]. There are many reasons that a woman may choose to keep her uterus, including cultural and personal values, a desire to avoid the long recovery time, and to minimise the risks of complications. Endometrial ablation offers an alternative to treat bleeding and preserve the uterus in women for whom medical management has failed, or as an initial treatment in selected patients.

History

The earliest global endometrial ablation techniques predate first-generation hysteroscopic endometrial resection or ablation. Case series from the 1890s report using carbolic acid, nitric acid or silver nitrate to cauterise the uterus. In 1894, Sneguireff described treating almost 500 women with steam ablation to destroy the endometrium and halt uterine bleeding. The apparatus and techniques were refined over the subsequent decade, and in 1902 Blacker described the utilisation of steam to 'vaporise' the uterus as a treatment for heavy menstrual bleeding, with histological evidence of complete endometrial destruction [4,5].

As hysterectomy became safer [6], endometrial ablation lost favour until the 1980s, when targeting the problematic part of the uterus was again considered an alternative to removing the entire organ. A number of global ablation techniques were introduced in the interim, with radiofrequency ablation introduced in 1937 and cryoablation introduced in 1967 [6,7]. During the 1980s, hysteroscopic techniques to systematically ablate or resect the endometrium became popular, and since 1994 a wide variety of global endometrial ablation devices have entered the market.

Principles of endometrial ablation

Endometrial ablation aims to destroy the basalis layer of the endometrium, which provides the tissue with its remarkable capacity for regeneration. This can be achieved through either mechanically removing the tissue (resection) or through any method that is able to induce tissue necrosis (ablation) and usually requires 4–6 mm of tissue destruction. Ultimately this is intended to result in an iatrogenic Asherman's syndrome, thereby reducing menstrual bleeding. Amenorrhoea cannot be guaranteed.

Indications for endometrial ablation

The main indication for endometrial ablation is heavy menstrual bleeding, usually that which has not responded to first-line non-hormonal or hormonal medical treatments. Underlying causes such as hyperplasia or malignancy, leiomyomata or polyps, and iatrogenic causes should be excluded.

Contraindications to endometrial ablation

Contraindications to endometrial ablation include pregnancy, endometrial hyperplasia or malignancy, planned future fertility, current pelvic infections and *in situ* intrauterine devices. Anatomical abnormalities must be considered in the context of the chosen procedure, and the likely effect on efficacy and safety [8]. Relative contraindications include previous uterine surgery, especially myomectomy, classical caesarean section or $\geq$3 previous lower-segment caesarean sections.

Given that bleeding is one of the cardinal signs of endometrial hyperplasia or malignancy, we recommend histopathological sampling of the endometrium in all women prior to ablation [9]. The suitability of the uterus for the chosen technique should be confirmed by preoperative ultrasonography or hysteroscopy to determine cavity size and the presence of intracavity pathology such as submucosal leiomyomata.

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