



The Helica Thermal Coagulator in the Management of Endometriosis

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Summary:

The Helica Thermal Coagulator represents a novel treatment modality in the management of endometriosis, which when used by Clinicians with appropriate training, provides a safe and rapid means of destroying diseased tissue.

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Introduction

Endometriosis, defined as the presence of glandular and stromal endometrial tissue outside the uterus, is a common condition. It is estimated to be present in 3 – 10% of women of reproductive age. In women with pelvic pain or infertility, its reported incidence ranges from 20% to 90% (1- 4). Although large randomised trials of the management of endometriosis are lacking, it is clear that laparoscopic surgery has a place in providing both symptom relief and increasing fecundity (5). Laparoscopic modalities may be ablative or excisional and include traditional electrocautery, laser and Ultracission. Each of these may be time consuming, may convey significant risk of damage to surrounding structures and can be expensive.

The Helica Thermal Coagulator (Helica) combines electrical energy with helium gas. The operating power is much lower than conventional diathermy, yet sufficient to ionise the helium, thereby allowing tissue fulguration. The operating power of the Helica can be precisely regulated in order to vary the depth of penetration of the beam. As the maximum depth of penetration of the beam is only 1.1 mm, the instrument can be used to treat endometriosis near the ureter or bowel. Any tissue contact that occurs, carries less potential for unwanted damage, which appears to make the technique safer than electrocautery or laser.

This study was a retrospective review of the use of Helica in the management of endometriosis by a single surgeon, in an attempt to define the particular place of this instrument in the management of this common disorder.

Patients and Method

Following acquisition, use of the Helica Thermal Coagulator was logged prospectively and the records of fifty consecutive patients whose endometriosis was treated were analysed. The patients were laparoscoped, using a standard technique in a modified Trendelenberg position. After passage

of the telescope, a further 5mm incision was made supra-pubically on either side, just medial to the obliterated umbilical artery. The lower portals were inserted under direct vision to avoid damage to the inferior epigastric vessels. After testing the Helica outside the abdomen, the instrument was introduced through one of the lower portals. The Helica was directed towards the affected tissue to be treated, maintaining an angle of 90 degrees. Once the tip of the Helica was approximately 6mm from the endometriosis, the instrument was activated using a foot pedal and the endometriosis was vaporised using a paintbrush technique. In this manner, all areas of endometriosis were treated. The power setting was usually 6 watts, but this was reduced to 4 watts near the ureter or bowel. Any adhesions present at time of surgery were divided with the combined coagulating and cutting Helica probe. The disease stage of the endometriosis was determined according to the revised American Fertility Society Classification. (6). All patients were seen for follow-up, three months after surgery when they were assessed for symptom improvement.

Results

Fifty women, mean age 29.4 years (range 18 – 47 years) presenting with symptoms suggestive of endometriosis underwent laparoscopy during the study period. Sixty-seven per cent of patients were nulliparous. The commonest presenting symptoms were abdominal pain and dysmenorrhoea that occurred in 52% and 30% respectively. In 25%, dyspareunia was a significant problem, however, infertility was reported in only 7.5%. Sixty-two per cent presented with a single symptom, 27% had two symptoms and 10% had more than two symptoms.

According to the revised American Fertility Society Classification: 65% had stage 1 disease; 17.5% stage 2 disease; 5% stage 3 disease and 12.5% stage 4 disease. In 17.5%, the ureter was in close proximity to diseased peritoneum. In 7.5% of patients, the uterovesical peritoneum was treated, and in 5% patients bowel was present in adhesions divided using the Helica.

There were no intraoperative or postoperative complications in the study group. When the patients were seen for follow-up, 3 months post surgery; 65% were

asymptomatic; a further 27% were much improved. Only 1 patient with stage 4 disease remained unchanged at review.

Discussion

In many respects, endometriosis remains an enigma. It is now accepted that its variety of appearances may make diagnosis difficult and that histological confirmation of visually diagnosed endometriosis may vary from 9 to 90% (7-9). Classical "powder burn" lesions probably represent inactive endometriosis whilst those lesions that have previously been easily overlooked are most likely to be associated with significant symptoms. Regardless of the treatment method used, there is a significant risk of disease recurrence, with many women undergoing multiple operative laparoscopies. For this reason, many regard palliation of symptoms until the time when definitive surgery can be performed as an achievable aim.

The Helica Thermal Coagulator with its combination of helium gas and low AC current, allows highly selective tissue coagulation and haemostasis. The power setting can be modified to achieve tissue destruction to a depth of one cell thickness. It is proposed that in addition to ablation of deposits, coagulation of abnormal vasculature associated with endometriosis results in ischaemia and necrosis of superficial as well as deeper deposits and those not immediately apparent to the naked eye (10). This novel mechanism of action allows large areas of peritoneum to be destroyed rapidly and safely, although trials of long term follow-up are awaited to determine whether this might reduce disease recurrence.

The Helica combines the advantages of a disposable, single use instrumentation with low cost. The move to disposable instrumentation has been recently highlighted by concerns relating to the theoretical transfer of diseases such as new variant Cruetzfeld Jacob Disease from infected surgical instruments. The infective prion agent is refractory to sterilization procedures. It appears to be present particularly in lymphoreticular tissues and this concern had led to a government recommendation for the use of disposable instruments during

tonsillar operations. It is likely that this move to non re-usable instruments may become more widespread across medical specialities.

This study demonstrates that the Helica Thermal Coagulator can be used as a first line tool in a “see and treat” manner for women with all stages of endometriosis. The reliable depth of tissue penetration achieved allows disease around vulnerable structures such as bowel, bladder and ureter to be treated with more confidence. The overall success rate from treatment of 92% is comparable with other treatments for the management of mild to moderate endometriosis. Randomised trials comparing the Helica against conventional laser treatment for the management of mild to moderate endometriosis are recommended in order to further investigate the importance of this instrument.

Conclusions

The Helica Thermal Coagulator represents a novel treatment modality in the management of endometriosis, which when used by clinicians with appropriate training, provides a safe and rapid means of destroying diseased tissue.

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