

30 year audit of transcervical resection of endometrium (TCRE) for Heavy Menstrual Bleeding performed in 988 women – lessons learned

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Abstract

Introduction: Heavy Menstrual Bleeding (HMB) affects almost one quarter of women. Surgical management in women who have completed families can include Endometrial Ablation (EA). There are varying techniques for endometrial ablation including first generation (1st gen) techniques such as TransCervical Resection of Endometrium (TCRE) followed by Rollerball (RB). Whilst second generation (2nd gen) techniques are more common, 1st gen techniques are still widely performed and equally demonstrate good surgical outcomes. Despite this, recent literature on individual types of 1st gen data is sparse. This research aims to report the outcomes and complications of this TCRE+ RB technique and discusses comparisons to 2nd gen non-resectoscopic EA (NREA) techniques.

Methods: Retrospective case series on 988 women with HMB who underwent TCRE + EA by one surgeon in Vic, Aust, between 1990 and 2018.

Results: The mean operation time was 18mins. Overall patient satisfaction was 94.2%. Repeat endometrial ablation was performed in 16.8% of participants and 40% of those ultimately had a hysterectomy. 14.9% of the population had fibroids and 29.4% had adenomyosis. Patient satisfaction was higher in patients older than 40 years (>40=95.5% compared to 91.0% in those ≤40 years). Both repeat Endometrial ablation and hysterectomy were higher in women younger ≤40 years. There was a higher incidence of fibroids and adenomyosis in women >40 years. The most common complication was infection (n=38), following by heavy bleeding (n=9). Serious complications were rare and included Uterine perforation (n=3), Fluid Overload (n=1) and Pulmonary Embolus (n=1).

Discussion: TCRE + RB EA is a successful treatment for HMB in terms of patient satisfaction, requirement for repeat surgery and a low complication profile. This technique has advantages compared to 2nd gen techniques in that it enables direct visualisation, is not limited by uterine cavity size/shape or presence of intrauterine lesions and compared to the literature of reported outcomes of 2nd gen techniques has a lower side effect profile.

Conclusion: TCRE + RB EA is a successful method of surgically treating HMB and should be included in standard training for the management of HMB.

Introduction

Hysteroscopic guided transcervical endometrial resection followed by rollerball ablation (TCRE RB) is a 1st gen method of endometrial ablation (EA), a surgical HMB treatment option.(5, 6) The TCRE + RB involves applying an electrosurgical current through an operative hysteroscope, resecting and destroying down to the basal layer of the endometrium then rollerball desiccation over the whole cavity. (2) This technique has been shown to be effective and a safe alternative to hysterectomy, aiming to reduce HMB and dysmenorrhea and either cause oligomenorrhea or amenorrhea. (2, 6) Whilst the literature has well-defined that 1st gen EA is an acceptable treatment for HMB longer operating times and increased surgical skill and training compared to the 2nd gen techniques have been reported.(1, 7-9)

Whilst 2nd gen and first generation techniques have been compared within multiple RCTs and systematic reviews, (7-9) studies often combines different 1st gen techniques. There is a paucity of data on success of hysteroscopic endometrial resection followed by rollerball endometrial ablation, despite TCRE+RB being quite different to the other 1st gen techniques which are thermal ablation methods .

Objective

This research aims to report the outcomes and complications of this TCRE+ RB technique and discusses comparisons to 2nd gen non-resectoscopic EA (NREA) techniques.

Methods

Retrospective case series of patients who underwent endometrial ablation via hysteroscopic resection and rollerball technique between 1990 and 2018 from three Private hospital facilities in Victoria, Australia. Data was collected from patient records and analyzed using SPSS Version 26

Results

Table One - a comparison of baseline and outcome data

| | Results |
|-----------------------------|-------------|
| Mean operation time | 18 mins |
| No. of patients | 812 |
| Age | 43.41 years |
| Range | 23-55 |
| Patient satisfaction | 94.2% |
| Repeat Endometrial Ablation | 16.8% |
| Fibroids on pathology | 14.9% |
| Adenomyosis on pathology | 29.4% |
| Overall Hysterectomy* | 20.2% |

Table Two - A Comparison of baseline characteristics and outcomes by age group

| | ≤40 years | >40 years |
|--|-----------|-----------|
| Patient Satisfaction | 91.0% | 95.5% |
| Repeat EA | 21.6% | 12.9% |
| Hysterectomy* | 27.7% | 16.9% |
| Fibroids on pathology | 5.2% | 18.5% |
| Adenomyosis on pathology | 23.0% | 32.0% |
| *Combined hysterectomy either post second Endometrial Ablation, post first Endometrial ablation or due to other reasons such as prolapse | | |

Table Three – Complications

| |
|---|
| Heavy bleeding n = 9 |
| Blood transfusion = 1 |
| Fluid overload (> or = to 1000 mls) n = 1 |
| Superficial burn n = 1 |
| Post-operative infections n=38 |
| Pulmonary embolus n = 1 |
| Uterine Perforation n=3 |
| Cervical Lacerations n=2 |
| Equipment failure n=1 |

Limitations

- Standardized measures were not used to measure patient satisfaction thus reducing inter-rater reliability
- Missing data occurred in > 20% of participants in some variables

Discussion

Mean duration of surgery was less than previous reports but 4 minutes longer than second generation techniques.(9) In discussing overall procedural time, consideration should also be given to the reported higher rates of equipment failure with 2 gen vs. 1 gen (9.1% vs. 1.6%) and higher rates of post-operative pain and nausea/vomiting with 2 gen techniques (21).Overall, there was a high satisfaction rate within this data set across range of characteristics including age categories,uterine cavity variety, and presence or absence of fibroids or adenomyosis. (9-11) Patients with resection of intracavity fibroids were included, unlike most studies of EA where the presence of fibroids was an exclusion criteria (& reduces success rates) (9). Women with adenomyosis had high levels of satisfaction but also higher levels of repeat EA and hysterectomy compared to those who did not, consistent with known literature for EA.(12-14). This HMB population had a high proportion of women (14.9%) with fibroids (consistent with previous research)(15). Given that endometrial thermal ablation (NREA)for fibroids is controversial, this highlights the importance of the role TCRE + RB has in management for the sizeable population that do have intracavity pathology.(16-18) Consistent with previous research, repeat EA and hysterectomy was common.(9)Repeat EA has been shown to reduce the hysterectomy rate. Given this high rate in both first and second generation techniques(13, 16), as well as the inability to repeat NREA after the first failed EA, this highlights the importance of educating gynaecological surgeons to be competent in both techniques. Younger women (<40 years) in this dataset had a higher rate of repeat surgery, a trend observed previously.(12, 13) The most common complication in this procedure was infection, but more serious complications were less frequently observed in this dataset compared with the literature, such as uterine perforation and haemorrhage.(19)In this series, haemorrhage requiring intervention occurred in 9 patients with only 1 patient requiring blood transfusion. The other 8 were managed with Foley balloon tamponade.Importantly the rate of thermal injury were very low, with one burn being recorded. This supports the assertion that first generation techniques have an ongoing role in surgical management of HMB due to the safety profile.

Uterine perforation occurred in 3 cases which is less than reported rates.(20, 21). Cervical laceration, which occurred rarely in this data, is also reported to occur more frequently, which is another disadvantage compared to NREA.(9, 21) Given that previous research has outlined that cervical tears and perforation are largely related to entry technique, methods such as straight Hegar dilators can be used to provider better haptic feedback compared to graduated dilators. Equipment failure was very low within this dataset which is less than NREA techniques which a recent Cochrane review reported as 9.1%.(9) Fluid over overload occurred in one case in this dataset. Whilst this is an extremely rare complication as reported, (9, 20-22) this is a disadvantage compared to NREA which does not use irrigation fluid. TCRE+RB allows a full histological specimen to be obtained. In our series, there were 4 cases found on histology of the endometrial resection chippings showing neoplasia. All patients had undergone endometrial sampling prior to EA (as per College guidelines) and these histologies were missed on the sampling. All patients received definitive treatment immediately.

Advantages of TCRE+RB

- high patient satisfaction rate demonstrated in patients with a wide range of baseline characteristics,- low complication profile,
- direct visualisation,
- able to concurrently resect intrauterine pathology,
- not limited by cavity size/shape,
- less equipment failure compared to 2nd gen
- full histological specimen

Disadvantages (compared to NREA)

- longer operation time
- technically more demanding

Conclusions

- TCRE + RB EA has high satisfaction rates and low complications
- TCRE + RB EA has a wider range of application and advantages compared with 2 gen techniques and therefore is an important surgical procedure that all gynaecologists should be skilled in.

Further surgery is required in approx. 20% therefore risk factors need to be considered and ablation method chosen appropriately.

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