



Does Previous Uterine Scar (S) Affect the Outcome of Novasure Endometrial Ablation for the Management of Heavy Menstrual Bleeding: A Retrospective Case- Controlled Study

Shamma Al-Inizi

Consultant Gynaecologist and Obstetrician, South Tyneside & Sunderland NHS Foundation Trust, South Shields, UK

Abstract

Objective: To identify if the presence of previous caesarean section (CS) scar (s) can affect the outcome of women with heavy menstrual bleeding (HMB) undergoing Novasure endometrial ablation compared to women with unscarred uterus.

Design: A retrospective case review study comparing women with scarred and unscarred uterus undergoing Novasure endometrial ablation for HMB.

Material and Methods: A retrospective case note review was conducted from November 2015- December 2019 at South Tyneside Hospital on all women with HMB who underwent Novasure endometrial ablation. Women with scarred and unscarred uterus were compared and data collected.

Results: 179 women were included in the study. 33 had previous C/S scar(s), the majority of whom had one C/S scar. A control group of 145 women with unscarred uterus was included with comparable demographics. The procedure was completed in 91% of women with scarred uterus and was abandoned in the rest, whereas it was completed in 97% of women with unscarred uterus. Success rate was 67% in the scarred uterus group and 33% needed hysterectomy due to continuing heavy periods or pain. In the unscarred uterus group; 95% had a successful procedure and only 5% needed hysterectomy. One woman in the scarred uterus group had uterine perforation (procedure abandoned) needing overnight admission, all the rest of cases were performed as a day procedure. Histology of removed uterus in both groups found fibroids and adenomyosis.

Conclusions: Novasure endometrial ablation was found to be significantly more successful in women with unscarred uterus compared to those with previous C/S scars with higher procedure completion rate, less complications and less need for hysterectomy for failed procedure. Caution should be taken in selecting patients with fibroids and adenomyosis as success rate might decline regardless of the presence or absence of a uterine scar.

Keywords

Endometrial ablation; Heavy menstrual bleeding; Late Onset Endometrial Ablation Failure; Caesarean section

Introduction

Heavy menstrual bleeding (HMB) is a common gynaecological problem affecting around 20% of women of reproductive age. It has a major adverse effect on the physical, mental wellbeing and quality of life of many women [1]. It also contributes considerably to medical care costs in addition to its significant effect on quality of life and reproductivity of sufferers [2].

Endometrial ablation (EA); introduced first in the late 19th century; a minimally invasive gynaecologic tool to control profuse vaginal bleeding avoiding hysterectomy and it has been widely used in the developed world filling the gap between medical therapy and hysterectomy.

EA is a safe procedure, requires nominal training and enjoys a substantial rate of success which has contributed to some extent to a significant reduction in hysterectomy rates in the United States & the UK between the years 1998 and 2010 [3,4].

According to a recently published Cochrane review, no apparent differences between 1st and 2nd generation methods of EA were found in women with HMB including patient's satisfaction, inability to work, quality of life or requirement for further surgery [5].

The impedance bipolar radiofrequency ablation (Novasure) is a second-generation non-resectoscopic technique which has been used since more than 15 years with over 2.5

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*Corresponding author:

Shamma Al-Inizi

Consultant Gynaecologist and Obstetrician
Department of Obstetrics and Gynaecology
South Tyneside Hospital
Harton Lane, South Shields
NE34 0PL, UK
Tel +01914041000 Ext 4020
Shamma.al-inizi@stft.nhs.uk

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Scarred uterus with HMB (N=33)	Previous 1 CS N=23	Previous 2 CS N=7	Previous 3 CS N=1	Previous 4 CS N=2	Unscarred uterus N=145
Completed procedure N=30	21 (2 abandoned) 1 perforation 1 machine problem	7	1	1 1 abandoned Acutely anteverted cavity	Completed procedure 141 (4 abandoned) 1 small cavity 1 synechia 2 machine problem
Age (32-53)	Mean 42 ± 8	Mean 44±-9	44	46	Mean 42 ± 9
Parity 1-4	1-3	2-3	3	4	0-4 (mean 2)
Operation time in minutes	10-18	11-16	17	11	10-18
Complications	1 perforation/abandoned	0	0	0	0
Successful procedure 20/30 (67%)	11/21	7	1	1	134/141 (95%)
Failed 10/30 (33%) procedure	10/21	0	0	0	7/141 (5%)

Table 1: Demographics and Novasue outcome of women with scarred & unscarred uterus

	Unscarred uterus N=145cases	Scarred uterus N=33 cases
Procedure completion	97% (141/145)	91% (30/33)
Complications	0	1/33
Successful procedure	95% (134/141)	67% (20/30)
Hysterectomy for failed procedure	5% (7/141)	33% (10/30)

Table 2: Outcome of Novasure ablation in scarred and unscarred uterus

	Scarred uterus N=10	Unscarred uterus N=7
Fibroid	3	4
Adenomyosis	3	2
Normal histology	4	1

Table 3: Histological findings in the hysterectomy specimens in failed cases

million women treated. It is quick and Simple with no pre-treatment required, performed at any time during the menstrual cycle and can be learnt easily with less complications and shorter operation time . It utilises unique patented technology to deliver customised ablation to each patient [6]. It has a favourable safety profile with patient satisfaction rate reaching 90% and amenorrhoea rate at 12 months acceding 55% [7].

Late Onset Endometrial Ablation Failure (LOEAF) has been previously published to indicate that about a quarter of women who undergo the procedure will eventually require a hysterectomy while an unknown number have less than satisfactory results [8]. The author recommended understanding the etiology and risk factors that predispose to LOEAF. Different reasons leading to LOEAF were reported excluding uterine scar (s) as a possible leading cause for LOEAF [8]. There is only scarce data indicating the influence of having a scarred uterus on the outcome of EA [9,10]. There are no previous data comparing the outcome of Novasure ablation in women with scarred and unscarred uterus, hence this study was conducted.

Material and Methods

Case notes of women with HMB who underwent Novasure endometrial ablation from November 2015- December 2019 at South Tyneside Hospital were reviewed and information collected. Women with scarred and unscarred uterus were compared and data regarding procedure completion, complications, hospital stay, follow up indicating success rate and failure of procedure needing further surgery was obtained.

Ethical committee approval was not required for this study being a retrospective case review study.

Results

179 women were included in the study. 33 had previous C/S scar(s) the majority of whom had one C/S scar (Table 1). A control group of 145 women with unscarred uterus was included with comparable demographics (Table 1). The procedure was completed in 91% of women with scarred uterus and it was abandoned in the rest (Table 1), whereas it was completed in 97% of women with unscarred uterus (Table 1). One woman in the scarred uterus group had uterine perforation needing overnight admission, all the rest of cases were done as a day procedure.

Procedure success was evaluated at 6 and 12 months follow up appointments. Women with complete amenorrhoea and /or satisfactory reduction in menstrual flow at 12 months appointment with no significant pelvic pain, were considered to have a successful Novasure ablation. Success rate was found in 67% of cases of scarred uterus and in 95% of cases of unscarred uterus and failed in the rest who needed hysterectomy due to continuing heavy periods or cyclical pelvic pain (Tables 1 and 2). All the failed cases in the scarred uterus group had one C/S. Histology of the removed uterus in both groups (60% in the scarred and 86% in unscarred uterus group) indicated leiomyomas or adenomyosis, which might have correlated to the failed ablation (Table 3).

Novasure ablation is more successful in women with HMB and unscarred uterus with higher completion rate and less complications compared to women with scarred uterus. Failure of the procedure in women with scarred uterus was unrelated to the number of the C/S scars. Caution should be taken when selecting patients having uterine fibroids/adenomyosis as the success rate might decline in both groups.

Discussion

Prognostic factors for the success of endometrial ablation for the treatment of HMB were published before with thermal balloon ablation indicating young age, retroverted uterus, increased endometrial thickness and prolonged menstruation were associated with an increased risk of treatment failure [9].

The presence of a CS scar and its associated effect on the outcome of endometrial ablation was not directly tested before. A study comparing failed and successful endometrial ablative techniques and then identifying how many women in each group had a scarred uterus, found the outcome to be comparable. It concluded that previous caesarean delivery is not associated with an increased risk of failure of endometrial ablation, however; dysmenorrhoea, the presence of submucous myoma and longer uterine depth were associated with higher failure rate [10].

Success rate of Novasure endometrial ablation was not previously tested against the presence of uterine scar (s). In this study despite its small sample size and being retrospective; which could limit its outcome; we found that the number of uterine scars did not affect the outcome of endometrial ablation, operation time, complication rate and procedure completion especially most cases had one previous CS scar (Table 1). We also found that having a scarred uterus reduced significantly the success rate of the ablation (67% vs 95%). We tried to correlate this failure to the possible association of adenomyosis with previous CS scars according Panganamamula et al. [11], However; looking at the histology of the removed uterus in both groups did not show any significant correlation between adenomyosis and having a scarred uterus where both groups confirmed fibroids/adenomyosis in the histology samples (60% in scarred vs 86% in the unscarred uterus) indicating that the presence of uterine scar can be an independent factor for failed Novasure endometrial ablation. LOEAF was also reported previously to be apparent in young age and submucous leiomyoma and accounts for around 25% of these cases ending in hysterectomy [8,12,13].

Conclusion

Novasure endometrial ablation is significantly less successful in women with HMB and scarred uterus compared to women with unscarred uterus. Caution should be taken in selecting patients with fibroids and adenomyosis as success rate might decline necessitating hysterectomy regardless of the presence or absence of a uterine scar.

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