

Analysis of the Effectiveness of Transcervical Resection of Endometrium in Women with Abnormal Uterine Bleeding: Follow-up of 5 Years

¹Vineet Mishra, ²Shaheen Hokabaj, ³Priyankur Roy, ⁴Rohina Aggarwal, ⁵Khushali Gandhi, ⁶Ruchika Garg

ABSTRACT

Objective: Abnormal uterine bleeding (AUB) is a clinical entity with a significant impact on physical, social, economical, and material quality of life of women. The objective of this study is to evaluate the efficacy, change in menstrual pattern, and patient satisfaction after transcervical resection of endometrium (TCRE) in women with AUB.

Study design: Fifty-five women who underwent TCRE at a tertiary care center over a period of 5 years from February 2012 to January 2017 were identified through computerized procedure coding. They were contacted either by telephone or by postcard communication. Nine women could not be contacted because of change in their address and telephone number and hence, excluded from the study. Forty-six women were included in the study. The main outcome measures were menstrual status, level of satisfaction with the procedure, and the need for repeat TCRE or hysterectomy.

Results: The average age of the patients was 47.89 ± 4.68 years with the range of 38 to 57 years. Twenty-six women (56.5%) undergoing TCRE had comorbidities which made them high risk for hysterectomy. During hysteroscopy, structural abnormalities like fibroid were found in 5 (10.87%) women, cervical polyp in 1 (2.17%) woman, and endometrial polyp in 1 (2.17%) woman. In six women, intraoperative hemorrhage was controlled using uterine tamponade with the inflated balloon of a Foley's catheter, kept for 6 to 8 hours after surgery. Of the 36 patients who had pain as a significant symptom preoperatively, 35 (97.2%) experienced either minimal or no dysmenorrhea postoperatively. One woman developed hematometra after 2 months of TCRE, for which hysteroscopic-guided cervical dilatation and repeat TCRE was done. Eight (17.39%) women had undergone hysterectomy. Out of these 8 patients, 2 (75%) of the women underwent repeat TCRE before hysterectomy. A total of 38 (82.61%) women were rendered amenorrheic, 2 (4.35%) women had only slight staining every 2 to

3 months, while 6 (13.04%) women had no improvement in their bleeding status. All those 40 (86.9%) women, who had achieved amenorrhea or oligomenorrhea, had high rate of satisfaction.

Conclusion: Transcervical resection of endometrium is a clinically effective and cost-effective alternative to medical management or hysterectomy in women with AUB in perimenopausal women. The cost-effectiveness, work performance, rapid convalescence, and improved quality of life provide TCRE a "distinct edge" over the definitive management—hysterectomy.

Keywords: Abnormal uterine bleeding, Amenorrhea, Hysterectomy, Transcervical resection of endometrium.

How to cite this article: Mishra V, Hokabaj S, Roy P, Aggarwal R, Gandhi K, Garg R. Analysis of the Effectiveness of Transcervical Resection of Endometrium in Women with Abnormal Uterine Bleeding: Follow-up of 5 Years. *J South Asian Feder Menopause Soc* 2018;6(1):17-21.

Source of support: Nil

Conflict of interest: None

Date of received: 10 January 2018

Date of acceptance: 27 January 2018

Date of publication: August 2018

INTRODUCTION

Abnormal uterine bleeding is defined as change in frequency of menstruation, duration of flow, or amount of blood loss.¹ Abnormal uterine bleeding and its subgroup, heavy menstrual bleeding (HMB), are common conditions affecting 14 to 25% of women of reproductive age.^{2,3} It is a significant health problem in perimenopausal women affecting their quality of life, and it also causes anemia. Medical therapy is often the first-line therapy that is frequently ineffective and does not confer long-term results. On the contrary, hysterectomy is the last resort, as the treatment is 100% effective in controlling menstrual problems, but it is costly and can cause severe complications.⁴

Various different techniques have been developed to ablate the endometrial lining. Transcervical resection of endometrium has become increasingly popular treatment for AUB since its introduction in 1983.⁵ It is an innovative, simple, conservative, relatively safe, and less invasive surgical technique in which uterus is preserved. The average operating time of the technique is approximately 20 minutes with complication rates of less than 2% in experienced hands.⁶ It is considered as a suitable

¹Professor and Head, ^{2,3}Consultant, ⁴Professor, ⁵Assistant Professor
⁶Associate Professor

^{1,4,5}Department of Obstetrics and Gynecology, Institute of Kidney Diseases & Research Centre, Ahmedabad, Gujarat, India

²Department of Infertility and Gynae-Endoscopy, Sneh Multispeciality Hospital & IVF Centre, Ahmedabad, Gujarat, India

³Department of Infertility and Gynae-Endoscopy, Genome Neotia Hospital, Siliguri, West Bengal, India

⁶Department of Obstetrics and Gynecology, Sarojini Naidu Medical College, Agra, Uttar Pradesh, India

Corresponding Author: Vineet Mishra, Professor and Head Department of Obstetrics and Gynecology, Institute of Kidney Diseases & Research Centre, Ahmedabad, Gujarat, India e-mail: vineet.mishra.ikdrc@gmail.com

alternative to medical management in women wishing to avoid hysterectomy for benign intracavitary pathology and AUB. The gold standard techniques like TCRE, laser, and rollerball endometrial ablation require visualization of the uterus with a hysteroscope. The main factor reducing the efficiency of endometrial ablation is either adenomyosis or incomplete removal of endometrium.⁷

Many short- and medium-term results of randomized trials comparing medical management with TCRE from that of Western countries have been published.^{8,9} But, there are very few research studies on TCRE among Indian population. Hence, this retrospective study aims to evaluate change in menstrual status, patient satisfaction, and long-term efficacy of TCRE in Indian women with AUB and whether it can be considered as a safe alternative to medical management or hysterectomy in women with comorbidities.

MATERIALS AND METHODS

Women who attended the Department of Obstetrics and Gynecology at a tertiary care center complaining of AUB were offered TCRE as an additional choice between medical treatment and hysterectomy. Fifty-five women who underwent TCRE were identified through computerized procedure coding. These women met the inclusion criteria and after obtaining written informed consent, they were included in the study.

Study outcome: To evaluate the efficacy, change in menstrual pattern, and patient satisfaction after TCRE in women with AUB.

Study design: Retrospective study.

Study period: February 1, 2012 to January 31, 2017.

Informed consent: After explaining the process of TCRE, all the patients and the attenders gave written informed consent.

Inclusion Criteria

- All the patients were in the perimenopausal age group with completed families
- Normal sized uterus (less than 6 weeks size)
- Clinical diagnosis of AUB due to endometrial cause or idiopathic
- Women with normal endometrial biopsy or histopathological diagnosis of simple hyperplasia or cystoglandular hyperplasia.

Exclusion Criteria

- Younger women with puberty menorrhagia
- Those desirous of conserving fertility
- Pelvic infection
- Women with bleeding disorders, on anticoagulant or antiplatelet therapy
- Evidence of malignancy.

Preoperatively, one dose of injectable antibiotic was given. No endometrial thinning agents were given prior to the procedure. The surgical procedure was performed under general anesthesia according to standard resection technique using loop resectoscope with 1% glycine solution as distension medium and monopolar current. Postoperatively, three doses of gonadotropin-releasing hormone agonist, leuprolide acetate, were given at 28 days interval.

Patients were called for follow-up over a period of 1 year. Data were collected from 46 patients using careful chart review and telephonic conversation. Nine women could not be contacted and hence, were excluded from the study. Patients were asked to describe their menstrual cycle, menstrual blood loss, and dysmenorrhea both prior to and following TCRE: Need for repeat TCRE, hysterectomy, interval between TCRE and further surgeries. The women were also invited to comment on the procedure, their satisfaction for the procedure, and on any benefit or disadvantage they could perceive. Statistical analysis was done using Statistical Package for the Social Sciences (version 20.0).

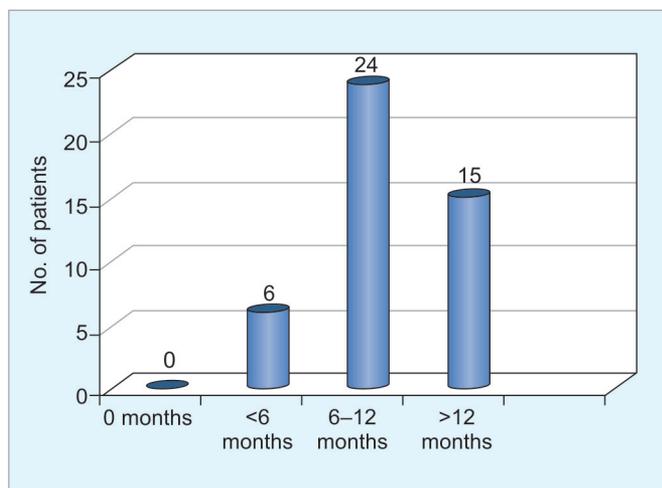
RESULTS

Out of the 55 patients, data were collected from 46 patients using careful chart review and telephonic conversation, and hence, included in the study. Nine patients could not be contacted and hence were excluded from the study. The yearly distribution of patients undergoing TCRE is given in Table 1. The average age of the patients was 47.89 ± 4.68 years with the range of 38 to 57 years. Maximum number of patients undergoing TCRE belonged to the age group of 40 to 49 years (24 patients) and another 20 patients were from the age group of 50 to 59 years.

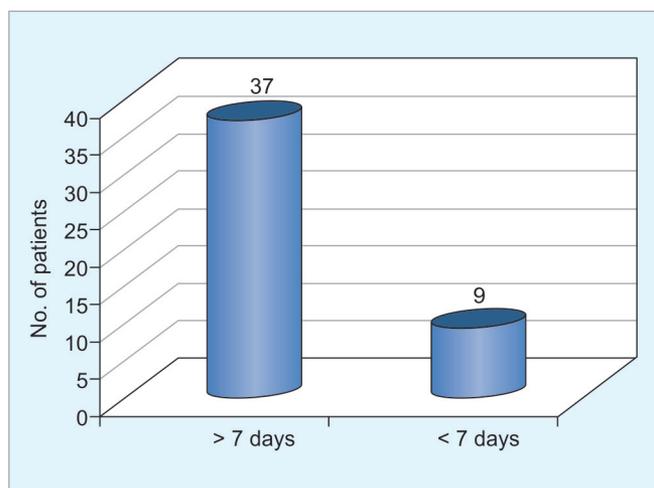
A total of 35 (76%) patients complained of both menorrhagia and dysmenorrhea. Ten patients (21.74%) had only menorrhagia and 1 (2.17%) had only dysmenorrhea. A total of 31 (67.3%) patients had cycle length of less than 24 days, 37 patients (80.43%) had bleeding for more than 7 days (Graph 1), and in 40 (87%) patients (Graph 2), the duration of menorrhagia was more than 6 months. Twenty-six patients (56.5%) undergoing TCRE had comorbidities like hypertension, diabetes, asthma, cardiac disease, chronic kidney disease, post-kidney transplant, hypothyroidism, pyeloplasty, and invasive ductal cancer which were considered as high risk for hysterectomy (Table 2).

Table 1: Yearly distribution of cases

Year	Number of patients	Frequency (%)
2012	4	8.70
2013	7	15.22
2014	10	21.74
2015	13	28.26
2016	11	23.91
2017	1	2.17



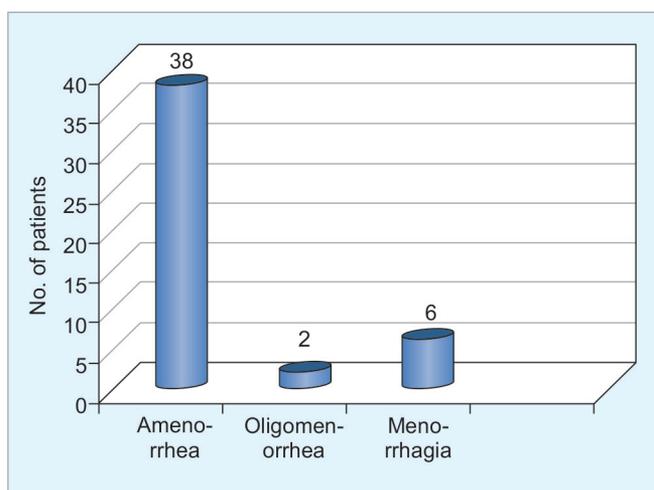
Graph 1: Duration of menorrhagia (in months)



Graph 2: Duration of bleeding per cycle (in days)

Table 2: Different comorbidities in women undergoing TCRE

Comorbidities	Number of patients	Frequency (%)
Asthma	1	2.17
Chronic kidney disease	3	6.52
Diabetes	2	4.35
Hypothyroidism	3	6.52
Hypertension	10	21.74
Invasive ductal cancer	1	2.17
Cardiac disease	2	4.35
Post kidney transplant	6	13.04
Pyeloplasty	1	2.17



Graph 3: Outcome of TCRE on follow-up

During hysteroscopy, structural abnormalities like fibroid was found in 5 (10.87%), cervical polyp in 1 (2.17%), and endometrial polyp in 1 (2.17%) patient undergoing TCRE. In six patients, intraoperative hemorrhage was controlled using uterine tamponade with the inflated balloon of a Foley’s catheter, kept for 6 to 8 hours after surgery. Total 38 (82.6%) patients were discharged on first postoperative day, while 8 (17.3%) patients went home 24 hours following surgery due to pain and minimal bleeding.

A total of 38 (82.61%) patients achieved amenorrhea, and 2 (4.35%) women had only slight staining every 2 to 3 months. Six patients (13.04%) had no improvement in their bleeding pattern (Graph 3). The duration from TCRE to amenorrhea ranges between 3 and 180 days with average of 42.67± 90 days. Of the 36 patients who had pain as a significant symptom preoperatively, 35 (97.2%) experienced either minimal or no dysmenorrhea postoperatively. One (2.7%) patient had persistent pain postoperatively. One patient had persistent white discharge per vaginum postoperatively. One patient developed hematometra after 2 months of TCRE, for which hysteroscopic guided cervical dilatation and repeat TCRE was done.

Eight (17.39%) patients had undergone hysterectomy. The reason for hysterectomy was persistent menorrhagia in 6 (75%) patients, persistent dysmenorrhea in 1 (12.5%)

Number of patients	Reasons for hysterectomy	Interval between TCRE and hysterectomy (months)
1	Endometrial cancer	1
2	Menorrhagia	6
3	Menorrhagia	12
4	Menorrhagia	36
5	Menorrhagia	24
6	Menorrhagia	6
7	Menorrhagia	18
8	Dysmenorrhea	30

patient, and endometrial cancer in 1 (12.5%) patient (Table 3). Out of these 8 patients, 2 (75%) underwent repeat TCRE before hysterectomy. The length of time from TCRE to hysterectomy ranged from 1 to 36 months with average of 16.43 ± 13.54 months. All of these patients were dissatisfied with the procedure.

Outcome was not dependent on age, duration of menorrhagia, duration of bleeding, and comorbidities (p-value: not significant; Tables 4 to 7).

Table 4: Correlation of age and improvement in AUB

Improvement in AUB	30–39 (n = 2)	40–49 (n = 24)	50–59 (n = 20)	p-value
Yes	2 (100%)	21 (87.5%)	17 (85%)	0.99 NS
No	0 (0%)	3 (12.5%)	3 (15%)	

NS: Not significant

Table 5: Correlation of duration of menorrhagia and improvement in AUB

Improvement in AUB	<6 (n = 6)	6–12 (n = 24)	>12 (n = 16)	p-value
Yes	5 (83.33%)	21 (87.5%)	14 (87.5%)	1.00 NS
No	1 (16.67%)	3 (12.5%)	2 (12.5%)	

NS: Not significant

Table 7: Correlation of comorbidities and amenorrhea

	Comorbidities		p-value
	Yes	No	
Amenorrhea	21 (80.7%)	17 (85%)	1.00 NS

NS: Not significant

Table 6: Correlation of duration of bleeding during menstruation and improvement in AUB

Improvement in AUB	<7 (n = 9)	>7 (n = 37)	p-value
Yes	7 (77.78%)	33 (89.19%)	0.58 NS
No	2 (22.22%)	4 (10.81%)	

NS: Not significant

DISCUSSION

In recent times, there is increased demand for minimally invasive surgeries as patients have become more aware of conservative surgeries and there is increased turnover of patients with less number of hospital beds in developing countries like India. Hysteroscopic surgery like TCRE is a clinically effective and safe method for the management of AUB. It is superior to hysterectomy in terms of intra- and postoperative morbidity in experienced hands. It has the advantages of rapid recovery, early resumption of normal activities, and shorter duration of procedure and stay in hospital.¹⁰

In our study, maximum number of women undergoing TCRE belonged to 40 to 49 years age group, as AUB is commonest in this age group.¹¹ However, the correlation of different age groups with success of TCRE was not statistically significant. This is in contrast with other studies in which it was found that TCRE done in younger women increases the risk of hysterectomy.¹²

The most common complaint for which patients underwent TCRE in our study was menorrhagia and only one woman had dysmenorrhea without menorrhagia. The majority of patients had symptoms for more than 6 months and bleeding lasting for more than 7 days. These patients were already managed medically with gestagens for 3 to 4 months but failed to respond to it.

In the study by Christoffersen et al,¹² the chance of treatment success is worsened with intracavitary myoma of type II or if their diameter is >3.5 cm. In our study, all five cases were of grade 0 or grade I intracavitary myoma and hence success of TCRE was obtained in all five cases. Strict selection criterion is of utmost importance

for achieving good objective results and high patient satisfaction.

As TCRE has advantage of shorter duration of procedure, rapid convalescence, and less complications as compared with hysterectomy,⁶ it can be a good alternative in those patients who are unfit for the surgery. In our study, 26 patients who had comorbidities and were at high risk for hysterectomy underwent TCRE, 21 (80.77%) patients achieved amenorrhea, and 2 (7.69%) patients had oligomenorrhea. Four patients had more than one comorbidities. Six patients were posttransplant patients on immunosuppressants and all of them had amenorrhea.

With advanced technology, careful control of infusion pressure of fluid by hysteromate and shorter time for the procedure achieved by experienced surgeons limit the risk of fluid overload. No case of fluid overload was noted in this study. Uterine hemorrhage was found in six patients, who could be managed easily with uterine tamponade. Uterine perforation, false passage, and postpartum endometritis are though rare yet recognized complications seen while performing TCRE.^{6,12} In our study, seven women had history of previous one cesarean section, but none of them developed uterine perforation.

Postoperatively, 1 (2.17%) patient had chronic white discharge per vaginum. One patient (2.17%) developed hematometra for which she underwent repeat hysteroscopic guided dilatation and repeat TCRE after 2 months of primary surgery which was in concordance with other study.⁶ The recurrence of abnormal bleeding, which has been quoted as 13.04%, is most benign complication.⁶ One of the most dreaded complications seen in our study was well-differentiated endometrial adenocarcinoma detected on histopathological examination in one patient postoperatively for which she underwent hysterectomy.

Success of TCRE depends on improvement in menstrual patterns which was achieved for transient period in 44 (95.65%) patients. A total of 38 (82.61%) patients achieved amenorrhea permanently and 2 patients (4.35%) achieved oligomenorrhea during follow-up. The average

duration of achieving amenorrhea was 42.67 ± 90.03 days. This result was consistent with other studies.¹³

Those who had recurrence of AUB, i.e., 8 women (17.39%), were the ones who required hysterectomy. The average period after which hysterectomy was needed in our study was 16.43 ± 13.54 months. In the study by Fürst et al,¹⁴ it was found that out of 120 women only 22% had undergone hysterectomy. Out of these 8 patients, 2 (25%) had repeat TCRE before hysterectomy for AUB. The main factors reducing the efficiency of TCRE are either incomplete removal of endometrium or adenomyosis.⁷

Patients who had achieved amenorrhea or oligomenorrhea, 40 patients (86.9%), had high rate of satisfaction and would recommend the procedure to other females. This was consistent with other studies.^{6,7,15}

Thus, TCRE in experienced hands is a safe and reliable procedure in perimenopausal women with HMB having decreased morbidity and shorter recovery time.

CONCLUSION

Transcervical resection of endometrium is a clinically effective, cost-effective, and safe alternative to hysterectomy for patients who are at high risk for hysterectomy or medical therapy, and those who are reluctant to accept hysterectomy, had failed medical therapy, and had coexisting other severe diseases, senility, and poor tolerance to surgery. This all gives TCRE a “distinct edge” over the widely practiced hysterectomy procedure. The outcome of TCRE is not dependent on age, duration of menorrhagia, duration of bleeding, and comorbidities.

REFERENCES

1. Khan A, Khandelwal R, Arya S, Pant H. Study of endometrial pathology in abnormal uterine bleeding. *Int J Biomed Adv Res* 2017 Feb;8(2):38-43.
2. Fraser IS, Langham S, Uhl-Hochgraeber K. Health-related quality of life and economic burden of abnormal uterine bleeding. *Expert Rev Obstet Gynecol* 2009 Mar;4(2):179-189.
3. Shapley M, Jordan K, Croft PR. An epidemiological survey of symptoms of menstrual loss in the community. *Br J Gen Pract* 2004 May;54(502):359-363.
4. Lethaby A, Hickey M, Garry R. Endometrial destruction techniques for heavy menstrual bleeding. *Cochrane Database Syst Rev* 2005 Oct;4:CD001501.
5. DeCherney A, Polan ML. Hysteroscopic management of intrauterine lesions and intractable uterine bleeding. *Obstet Gynaecol* 1983 Mar;61(3):392-397.
6. Chandel NP, Bhat VV, Bhat RS, Chandel RS. Treatment analysis of transcervical resection of endometrium (TCRE) in heavy menstrual bleeding (HMB): a prospective multicentre therapeutic study in Indian scenario. *Indian J Obstet Gynaecol* 2015 Jan-Mar;2(1):28-35.
7. Duan H, Xia EL, Yu D, Zhao Y, Zheng J, Cheng JM, Peng XB. Analysis of the efficiency of transcervical resection of endometrium for treating dysfunctional uterine bleeding and factors reducing the efficiency of the operation. *Zhonghua Fu Chan Ke Za Zhi* 2004 May;39(5):301-304.
8. Cooper KG, Parkin DE, Garratt AM, Grant AM. A randomised comparison of medical and hysteroscopic management in women consulting a gynaecologist for treatment of heavy menstrual loss. *Br J Obstet Gynaecol* 1997 Dec;104(12):1360-1366.
9. Cooper KG, Parkin DE, Garratt AM, Grant AM. Two-year follow up of women randomised to medical management or TCRE for heavy menstrual loss: clinical and quality of life outcomes. *Br J Obstet Gynaecol* 1999 Mar;106(3):258-265.
10. Stamatellos I, Koutsougeras G, Karamanidis D, Stamatopoulos P, Timpanidis I, Bontis J. Results after hysteroscopic management of premenopausal patients with dysfunctional uterine bleeding or intrauterine lesions. *Clin Exp Obstet Gynecol* 2007 Feb;34(1):35-38.
11. Mahapatra M, Mishra P. Clinicopathological evaluation of abnormal uterine bleeding. *J Health Res Rev* 2015 Jul;2(2):45-49.
12. Christoffersen C, Kahr HS, Sorensen SS. Impact of myomas on the results of transcervical resection of the endometrium. *J Minim Invasive Gynecol* 2014 Sep-Oct;21(5):811-817.
13. Ravi B, Schiavello H, Chandra P, Takeshige T. Safety and efficacy of hysteroscopic endomyometrial resection-ablation for menorrhagia. *J Reprod Med* 2001 Aug;46(8):717-723.
14. Fürst SN, Philipsen T, Joergensen JC. Ten-year follow-up of endometrial ablation. *Acta Obstet Gynecol Scand* 2007 Mar;86(3):334-338.
15. Molnár BG, Kormányos Z, Kovács L, Pál A. Long-term efficacy of transcervical endometrial resection with no preoperative hormonal preparation. *Eur J Obstet Gynecol Reprod Biol* 2006 Jul;127(1):115-122.