Centre hospitalier affilié universitaire de Québec

LOEX
Laboratoire d'organogénèse expérimentale
Centre de recherche FRSQ du CHA

Clinical study of 27.12-MHz Radiofrequency treatment for Cutaneous Vascular lesions

Convention de recherche LOEX 2013-001

Entre le LOEX et Dectro International

Chercheurs principaux :
Dong Hyun Kim, M.D.
Danielle Larouche, Ph.D.
Lucie Germain, Ph.D.

2013-09-19

Report

Summary

Radiofrequency (RF) provides adequate hemostasis with minimal tissue injury. As surgical and/or ablative modalities, RF has been known to produce good clinical outcomes in dermatology. RF ablation is easy to undertake, with a high rate of excellence in the results and without the complications.

A new 27.12-MHz RF device was introduced and has been studied for hair removal. This new RF device has several advantages over conventional 4- or 6-MHz in terms of the precise ablation and lesser pain perception. So far, there is no clinical study of 27.12-MHz RF device for the treatment for vascular lesions.

This study aimed to evaluate the clinical efficacy and safety of 27.12-MHz RF device for the treatment of cutaneous vascular lesions. Seventeen female subjects with cutaneous vascular lesions, including telangiectasia (19), cherry angioma (10) and spider angioma (4), were enrolled. The subjects took one session of treatment with 27.12-MHz RF (Eclipse device, Dectro International, QC, Canada). No anesthetic procedure was used. Digital photograph and USB microscope was used to monitor the clinical results before treatment and 1 week, 3 weeks after the treatment.

The clinical results was described as excellent (complete reduction); good (more than 75% reduction), moderate (more than 50% reduction), poor (less than 50% reduction). The clinical results indicated that excellent (27 cases, 82%), good (2 cases, 6%), moderate (2 cases, 6%). Two cases showed equivocal results, which was described as ‘Not Determined’ for the further decision. Relative pain scores associated with the treatment was evaluated using 10-cm visual analogue scales, with 0 being ‘no pain’ and 10 being ‘extremely painful’. The mean pain score was 3.24. In most subjects, minimal discomfort was reported during the procedure and it disappeared immediately after the procedure. The serious adverse event was not reported and crusting and erythema at the end point of follow-up were found in two cases (6%). The subjects were surveyed on the last follow-up to determine their overall levels of satisfaction with treatment results using the following scale: very satisfied, satisfied, slightly satisfied and unsatisfied. 23 cases (70%) were very satisfied and 10 cases (30%) were satisfied.

In conclusion, 27.12-MHz RF can be a highly effective and safe modality for the treatment of small-sized cutaneous vascular lesions.

Introduction

Numerous devices have been introduced in dermatology as surgical and/or ablative modalities in order to combine adequate hemostasis with minimal tissue injury. These include electrosurgery and radiosurgery. These surgical/ablative devices use high-frequency alternating current, which is converted to heat diffused within the tissue.

Radiofrequency (RF) was known to produce a highly efficient thermal effect on skin tissue, which makes RF as a good modality for permanent hair removal. There are devices that generate different RF, the most common is 4-MHz.

In this study, we used a device generating 27.12-MHz RF, which has several advantages over conventional 4-MHz RF. Because the sensation perceived by the patient seems to be less intense as the frequency increases, a frequency of 27.12-MHz will be better for pain control. Also, the 27.12-MHz frequency has a more efficient power absorption by water molecules, meaning that less power is needed to ablate the target (Appendix 1). A new 27.12-MHz RF device has been studied for hair removal. Previously, we conducted the histological evaluation of thermal effect of 27.12-MHz RF on ex vivo human hair follicle tissue. The results showed that thermal damage was lance-shaped and extended over several hundred micrometers (100-400 μm) (unpublished data). So far, there is no clinical study of 27.12-MHz RF device for the treatment for vascular lesions.

This study aimed to evaluating the clinical efficacy and safety of 27-MHz generating RF instrument for the treatment of a variety of cutaneous vascular lesions, including telangiectasia, cherry angioma, spider angioma.

Materials and method

We conducted a clinical study of 27.12-MHz RF treatment for cutaneous vascular lesions. This study was approved by the "comité d'éthique de la recherche du Centre hospitalier universitaire (CHU) de Québec" for the protection of human subjects.

Subjects

Seventeen female subjects (mean age 48 years, range 18-72; Fitzpatrick skin type II-III), with cutaneous vascular lesions were enrolled (Table 1). Subjects who had undergone concomitant treatments including laser, IPL and electrosurgery/radiosurgery within the previous 6 months were excluded. The subjects with keloid, bleeding tendency and immunosuppression were also excluded.

Table 1. Characteristics of subjects

Subject No.	Gender/ Age(yrs)	Fitzpatrick skin type	Past medical history	Treated lesions
1	F/60	II	Osteoporosis, Depression	Telangiectasia
2	F/40	III	N-C	Cherry angioma(2), Spider angioma, Telangiectasia
3	F/56	III	Varicose vein in legs	Cherry angioma, Telangiectasia
4	F/45	III	N-C	Cherry angioma, Telangiectasia
5	F/54	III	Photodamaged skin, Varicose vein in legs	Telangiectasia
6	F/34	III	Rosacea	Telangiectasia
7	F/18	III	N-C	Cherry angioma
8	F57	III	Contact dermatitis to latex	Cherry angioma(2)
9	F/18	III	N-C	Spider angioma, Telangiectasia
10	F/54	III	N-C	Cherry angioma(3)
11	F/72	III	N-C	Telangiectasia(2)
12	F/33	III	N-C	Spider angioma, Telangiectasia
13	F/41	III	Rosacea, Allergy (cat, dust)	Spider angioma, Telangiectasia
14	F/71	III	N-C	Telangiectasia(2)
15	F/50	III	Varicose vein in legs	Telangiectasia(2)
16	F/53	III	Rosacea	Telangiectasia(3)
17	F/62	III	Varicose vein in legs	Telangiectasia

*N-C; non-contributory

RF treatment

After physical examination, lesions to be treated were decided with the consent of subjects. The total number of treated lesions was 33, including 19 telangiectasia, 10 cherry angioma, 4 spider angioma (Table 2). The subjects took one session of treatment with 27.12-MHz RF device (Eclipse, Dectro International, QC, Canada). The treatment protocol, including parameters (tip size, mode, time, intensity), was provided by Dectro International (Table 3). No anesthetic procedure was used in this study. Subjects were instructed to use a moisturizer (Action De Gala, Dectro International, QC, Canada) several times for a few days after treatment to promote wound healing and to minimize dryness.

Table 2. Characteristics of treated lesions

Diagnosis		No.	
Vascular lesion	Telangiectasia	19	33
	Cherry angioma	10	
	Spider angioma	4	

Objective and subjective evaluations

Photographs were taken using identical digital camera (Nikon D3100) and USB Microscope (M2, Scalar Corporation, Tokyo, Japan) with same settings, lighting and subject positioning at baseline, 1 week and 3 weeks after the treatment. The clinical results was described as excellent (complete reduction); good (more than 75% reduction), moderate (more than 50% reduction), poor (less than 50% reduction).

The subjects were surveyed on the last follow-up to determine their overall levels of satisfaction with treatment results using the following scale: very satisfied, satisfied, slightly satisfied and unsatisfied. Relative pain scores associated with the treatment was evaluated using 10-cm visual analogue scales (VAS), with 0 being ‘no pain’ and 10 being ‘extremely painful’. The occurrence of adverse events was evaluated each visits.

Table 3. The Settings of Parameters

Subject No.	Case No.	Treated lesions			Treatment parameters			
		Site	Diagnosis	Description	Tip	Mode	Time (Sec)	Intensity(%) (Start-Final)
1	1	Lt. lateral thigh	Telangiectasia	Linear red telangiectasia	K6	MultiCoagul	1.0	30-35
2	2	Lt. forehead	Cherry angioma	A 1mm-sized red papule	K6	MultiCoagul	9.9	35
	3	Nose	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	K3	TeleFlash	0.020	50
	4	Rt. malar	Telangiectasia	Linear telangiectasia	K3	TeleFlash	0.020	50
	5	Lt. thigh	Cherry angioma	A 1mm-sized red papule	K6	MultiCoagul	9.9	35
3	6	Chin	Telangiectasia	Linear purple telangiectasia	K3	TeleFlash	0.020 - 0.022	50
	7	Abdomen	Cherry angioma	A 1mm-sized red papule	K6	MultiCoagul	9.9	35
4	8	Nostril	Telangiectasia	Linear purple telangiectasia	K3	TeleFlash	0.018	50
	9	Lt. malar	Cherry angioma	A 1mm-sized red papule	K3	MultiCoagul	9.9	35
5	10	Nose	Telangiectasia	Linear purple telangiectasia	K3	TeleFlash	0.018 - 0.020	50
					K6	TeleFlash	0.020	50
6	11	Nasal ala furrow	Telangiectasia	Linear red telangiectasia	K3	TeleFlash	0.016	50
7	12	Anterior chest	Cherry angioma	A 1mm-sized red papule	K6	MultiCoagul	9.9	25
8	13	Abdomen	Cherry angioma	A 3mm-sized red papule	K6	MultiCoagul	9.9	40
	14	Upper back	Cherry angioma	A 2mm-sized red papule	K6	MultiCoagul	9.9	40
9	15	Lt. nasal dorsum	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	K3	TeleFlash	0.018	50
	16	Nasal ala	Telangiectasia	Linear red telangiectasia	K3	TeleFlash	0.016	50
10	17	Lt. upper eyelid	Cherry angioma	A 2mm-sized red papule	K6	MultiCoagul	9.9	30
	18	Forehead	Cherry angioma	A 1mm-sized red papule	K6	MultiCoagul	9.9	30
	19	Lt. flank	Cherry angioma	A 2mm-sized red papule	K6	MultiCoagul	9.9	30
11	20	Nasal ala furrow	Telangiectasia	Linear purple telangiectasia	K2	TeleFlash	0.016	50
	21	Lt malar area	Telangiectasia	Linear red telangiectasia	K2	TeleFlash	0.016	50
12	22	Forehead	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	K3	MultiCoagul	9.9	25
	23	Nasal ala	Telangiectasia	Linear red telangiectasia	K3	TeleFlash	0.016	50
13	24	Lt. malar area	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	K6	MultiCoagul	9.9	25
	25	Nasal ala	Telangiectasia	Linear purple telangiectasia	K6	TeleFlash	0.018	50
14	26	Malar area	Telangiectasia	Linear red telangiectasia	K3	TeleFlash	0.017	50
	27	Cheeks	Telangiectasia	Linear red telangiectasia	K6	TeleFlash	0.018	50
15	28	Nasal ala furrow	Telangiectasia	Linear purple telangiectasia	K3	TeleFlash	0.018	50
	29	Upper lip	Telangiectasia	Linear red telangiectasia	K3	TeleFlash	0.018	50
16	30	Nasal ala	Telangiectasia	Linear purple telangiectasia	K3	TeleFlash	0.016	50
	31	Rt. malar area	Telangiectasia	Linear red telangiectasia	K3	TeleFlash	0.016	50
	32	Lt. cheek	Telangiectasia	Linear red telangiectasia	K3	TeleFlash	0.016	50
17	33	legs	Telangiectasia	Linear red telangiectasia	K6	TeleFlash	0.500-0.200	30

Results

The clinical results of the treatment with 27.12-MHz RF device indicated that 27 cases (82%) showed excellent, 2 cases (6%) showed good, and 2 cases (6%) showed moderate results (Table 4, Figures). The lesion in the face showed the good response to the treatment. Subjects showing moderate result have photodamaged skin and rosacea, respectively. Two cases with telangiectasia on the lower extremities showed crust and erythema at the end follow-up, which was described as 'Not Determined' for the further decision.

In this study, no anesthetic procedure was used. The treated area usually became erythematous and swollen within several minutes. Relative pain scores associated with the treatment was evaluated using 10-cm visual analogue scales, with 0 being 'no pain' and 10 being 'extremely painful'. The mean pain score was 3.24 (Table 5). Subjects reported higher pain score in the pain-sensitive area such as nostril, nasal ala and eyelid. During the procedure, subjects reported the gradual decrease of pain intensity.

In most subjects, minimal discomfort was reported during the procedure and it disappeared immediately after the procedure. The serious adverse event was not reported and crusting and erythema were found at the end point of follow-up in two cases (6%) (Table 6).

Surveys evaluating overall satisfaction with treatment revealed that 23 cases (70%) were very satisfied and 10 cases (30%) were satisfied (Table 7).

Table 4. The Clinical Results

Subject No.	Case No.	Treated lesions			Clinical Results
		Site	Diagnosis	Description	
1	1	Lt. lateral thigh	Telangiectasia	Linear red telangiectasia	ND
2	2	Lt. forehead	Cherry angioma	A 1mm-sized red papule	Excellent
	3	Nose	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	Excellent
	4	Rt. malar	Telangiectasia	Linear telangiectasia	Excellent
	5	Lt. thigh	Cherry angioma	A 1mm-sized red papule	Excellent
3	6	Chin	Telangiectasia	Linear purple telangiectasia	Good
	7	Abdomen	Cherry angioma	A 1mm-sized red papule	Excellent
4	8	Nostril	Telangiectasia	Linear purple telangiectasia	Good
	9	Lt. malar	Cherry angioma	A 1mm-sized red papule	Excellent
5	10	Nose	Telangiectasia	Linear purple telangiectasia	Moderate
6	11	Nasal ala furrow	Telangiectasia	Linear red telangiectasia	Moderate
7	12	Anterior chest	Cherry angioma	A 1mm-sized red papule	Excellent
8	13	Abdomen	Cherry angioma	A 3mm-sized red papule	Excellent
	14	Upper back	Cherry angioma	A 2mm-sized red papule	Excellent
9	15	Lt. nasal dorsum	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	Excellent
	16	Nasal ala	Telangiectasia	Linear red telangiectasia	Excellent
10	17	Lt. upper eyelid	Cherry angioma	A 2mm-sized red papule	Excellent
	18	Forehead	Cherry angioma	A 1mm-sized red papule	Excellent
	19	Lt. flank	Cherry angioma	A 2mm-sized red papule	Excellent
11	20	Nasal ala furrow	Telangiectasia	Linear purple telangiectasia	Excellent
	21	Lt malar area	Telangiectasia	Linear red telangiectasia	Excellent
12	22	Forehead	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	Excellent
	23	Nasal ala	Telangiectasia	Linear red telangiectasia	Excellent
13	24	Rt. malar area	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	Excellent
	25	Nasal ala	Telangiectasia	Linear purple telangiectasia	Excellent
14	26	Malar area	Telangiectasia	Linear red telangiectasia	Excellent
	27	Cheeks	Telangiectasia	Linear red telangiectasia	Excellent
15	28	Nasal ala furrow	Telangiectasia	Linear purple telangiectasia	Excellent
	29	Upper lip	Telangiectasia	Linear red telangiectasia	Excellent
16	30	Nasal ala	Telangiectasia	Linear purple telangiectasia	Excellent
	31	Rt. malar area	Telangiectasia	Linear red telangiectasia	Excellent
	32	Lt. cheek	Telangiectasia	Linear red telangiectasia	Excellent
17	33	legs	Telangiectasia	Linear red telangiectasia	ND

* Clinical results were assessed by physical examination, photographic follow up and USB Microscope (M2, Scalar Corporation, Tokyo, Japan). The results was described as excellent (complete reduction); good (more than 75% reduction), moderate (more than 50% reduction), poor (less than 50% reduction). When the result was equivocal at the time of assessment, it was described as ND (Not Determined) for the further decision.

Table 5. The Pain Score

Subject No.	Case No.	Treated lesions			Visual Numeric Pain Distress Scale
		Site	Diagnosis	Description	
1	1	Lt. lateral thigh	Telangiectasia	Linear red telangiectasia	2
2	2	Lt. forehead	Cherry angioma	A 1mm-sized red papule	2
	3	Nose	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	0
	4	Rt. malar	Telangiectasia	Linear telangiectasia	1
	5	Lt. thigh	Cherry angioma	A 1mm-sized red papule	2
3	6	Chin	Telangiectasia	Linear purple telangiectasia	1
	7	Abdomen	Cherry angioma	A 1mm-sized red papule	1
4	8	Nostril	Telangiectasia	Linear purple telangiectasia	5
	9	Lt. malar	Cherry angioma	A 1mm-sized red papule	3
5	10	Nose	Telangiectasia	Linear purple telangiectasia	2
6	11	Nasal ala furrow	Telangiectasia	Linear red telangiectasia	5
7	12	Anterior chest	Cherry angioma	A 1mm-sized red papule	3
8	13	Abdomen	Cherry angioma	A 3mm-sized red papule	7
	14	Upper back	Cherry angioma	A 2mm-sized red papule	0
9	15	Lt. nasal dorsum	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	1
	16	Nasal ala	Telangiectasia	Linear red telangiectasia	3
10	17	Lt. upper eyelid	Cherry angioma	A 2mm-sized red papule	7
	18	Forehead	Cherry angioma	A 1mm-sized red papule	5
	19	Lt. flank	Cherry angioma	A 2mm-sized red papule	8
11	20	Nasal ala furrow	Telangiectasia	Linear purple telangiectasia	1
	21	Lt malar area	Telangiectasia	Linear red telangiectasia	3
12	22	Forehead	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	2
	23	Nasal ala	Telangiectasia	Linear red telangiectasia	4
13	24	Rt. malar area	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	5
	25	Nasal ala	Telangiectasia	Linear purple telangiectasia	4
14	26	Malar area	Telangiectasia	Linear red telangiectasia	5
	27	Cheeks	Telangiectasia	Linear red telangiectasia	3
15	28	Nasal ala furrow	Telangiectasia	Linear purple telangiectasia	5
	29	Upper lip	Telangiectasia	Linear red telangiectasia	5
16	30	Nasal ala	Telangiectasia	Linear purple telangiectasia	2
	31	Rt. malar area	Telangiectasia	Linear red telangiectasia	2
	32	Lt. cheek	Telangiectasia	Linear red telangiectasia	2
17	33	legs	Telangiectasia	Linear red telangiectasia	6
Mean					3.24

*Relative pain scores associated with the treatment was evaluated using 10-cm visual analogue scales (VAS), with 0 being 'no pain' and 10 being 'extremely painful'.

Table 6. The Adverse Events

Subject No.	Case No.	Treated lesions			Adverse events
		Site	Diagnosis	Description	
1	1	Lt. lateral thigh	Telangiectasia	Linear red telangiectasia	Crust, Erythema
2	2	Lt. forehead	Cherry angioma	A 1mm-sized red papule	None
	3	Nose	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	None
	4	Rt. malar	Telangiectasia	Linear telangiectasia	None
	5	Lt. thigh	Cherry angioma	A 1mm-sized red papule	None
3	6	Chin	Telangiectasia	Linear purple telangiectasia	None
	7	Abdomen	Cherry angioma	A 1mm-sized red papule	None
4	8	Nostril	Telangiectasia	Linear purple telangiectasia	None
	9	Lt. malar	Cherry angioma	A 1mm-sized red papule	None
5	10	Nose	Telangiectasia	Linear purple telangiectasia	None
6	11	Nasal ala furrow	Telangiectasia	Linear red telangiectasia	None
7	12	Anterior chest	Cherry angioma	A 1mm-sized red papule	None
8	13	Abdomen	Cherry angioma	A 3mm-sized red papule	None
	14	Upper back	Cherry angioma	A 2mm-sized red papule	None
9	15	Lt. nasal dorsum	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	None
	16	Nasal ala	Telangiectasia	Linear red telangiectasia	None
10	17	Lt. upper eyelid	Cherry angioma	A 2mm-sized red papule	None
	18	Forehead	Cherry angioma	A 1mm-sized red papule	None
	19	Lt. flank	Cherry angioma	A 2mm-sized red papule	None
11	20	Nasal ala furrow	Telangiectasia	Linear purple telangiectasia	None
	21	Lt malar area	Telangiectasia	Linear red telangiectasia	None
12	22	Forehead	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	None
	23	Nasal ala	Telangiectasia	Linear red telangiectasia	None
13	24	Rt. malar area	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	None
	25	Nasal ala	Telangiectasia	Linear purple telangiectasia	None
14	26	Malar area	Telangiectasia	Linear red telangiectasia	None
	27	Cheeks	Telangiectasia	Linear red telangiectasia	None
15	28	Nasal ala furrow	Telangiectasia	Linear purple telangiectasia	None
	29	Upper lip	Telangiectasia	Linear red telangiectasia	None
16	30	Nasal ala	Telangiectasia	Linear purple telangiectasia	None
	31	Rt. malar area	Telangiectasia	Linear red telangiectasia	None
	32	Lt. cheek	Telangiectasia	Linear red telangiectasia	None
17	33	legs	Telangiectasia	Linear red telangiectasia	Crust, Erythema

Table 7. The Satisfactions Score

Subject No.	Case No.	Treated lesions			Satisfaction
		Site	Diagnosis	Description	
1	1	Lt. lateral thigh	Telangiectasia	Linear red telangiectasia	Satisfied
2	2	Lt. forehead	Cherry angioma	A 1mm-sized red papule	Very Satisfied
	3	Nose	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	Very Satisfied
	4	Rt. malar	Telangiectasia	Linear telangiectasia	Very Satisfied
	5	Lt. thigh	Cherry angioma	A 1mm-sized red papule	Very Satisfied
3	6	Chin	Telangiectasia	Linear purple telangiectasia	Very Satisfied
	7	Abdomen	Cherry angioma	A 1mm-sized red papule	Very Satisfied
4	8	Nostril	Telangiectasia	Linear purple telangiectasia	Very Satisfied
	9	Lt. malar	Cherry angioma	A 1mm-sized red papule	Very Satisfied
5	10	Nose	Telangiectasia	Linear purple telangiectasia	Very Satisfied
6	11	Nasal ala furrow	Telangiectasia	Linear red telangiectasia	Satisfied
7	12	Anterior chest	Cherry angioma	A 1mm-sized red papule	Very Satisfied
8	13	Abdomen	Cherry angioma	A 3mm-sized red papule	Satisfied
	14	Upper back	Cherry angioma	A 2mm-sized red papule	Satisfied
9	15	Lt. nasal dorsum	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	Very Satisfied
	16	Nasal ala	Telangiectasia	Linear red telangiectasia	Very Satisfied
10	17	Lt. upper eyelid	Cherry angioma	A 2mm-sized red papule	Satisfied
	18	Forehead	Cherry angioma	A 1mm-sized red papule	Satisfied
	19	Lt. flank	Cherry angioma	A 2mm-sized red papule	Satisfied
11	20	Nasal ala furrow	Telangiectasia	Linear purple telangiectasia	Very Satisfied
	21	Lt malar area	Telangiectasia	Linear red telangiectasia	Very Satisfied
12	22	Forehead	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	Very Satisfied
	23	Nasal ala	Telangiectasia	Linear red telangiectasia	Very Satisfied
13	24	Rt. malar area	Spider angioma	A 1mm-sized red papule with radiating telangiectasia	Satisfied
	25	Nasal ala	Telangiectasia	Linear purple telangiectasia	Satisfied
14	26	Malar area	Telangiectasia	Linear red telangiectasia	Very Satisfied
	27	Cheeks	Telangiectasia	Linear red telangiectasia	Very Satisfied
15	28	Nasal ala furrow	Telangiectasia	Linear purple telangiectasia	Very Satisfied
	29	Upper lip	Telangiectasia	Linear red telangiectasia	Very Satisfied
16	30	Nasal ala	Telangiectasia	Linear purple telangiectasia	Very Satisfied
	31	Rt. malar area	Telangiectasia	Linear red telangiectasia	Very Satisfied
	32	Lt. cheek	Telangiectasia	Linear red telangiectasia	Very Satisfied
17	33	legs	Telangiectasia	Linear red telangiectasia	Satisfied

Conclusion

In this study, we conducted the clinical study to evaluate the effectiveness and the safety of 27.12-MHz RF device (Eclipse, Dectro International, QC, Canada) for the treatment of small-sized cutaneous vascular lesions.

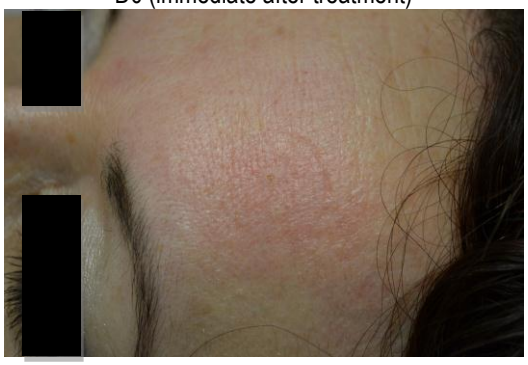
Clinical results showed high effectiveness for the ablation of small-sized telangiectasia and angioma. No anesthesia was needed during procedures and all procedures were well tolerated. At the end of follow-up, no complication was reported. Collectively, 27.12-MHz RF can be a highly effective and safe modality for the treatment of small-sized cutaneous vascular lesions.

Figures

Case 2(Photograph evaluation)

D0 (Before treatment)

D0 (immediate after treatment)

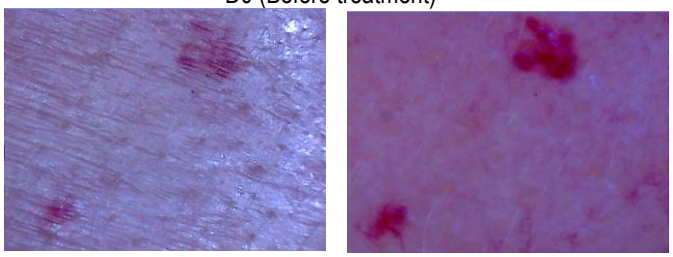


D7 (7 days after treatment)

D21 (21 days after treatment)

Case 2 (Digital Microscope evaluation)

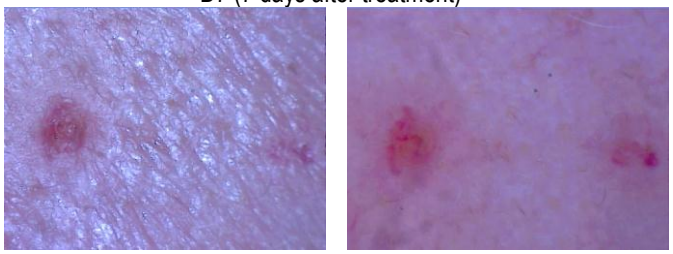
D0 (Before treatment)



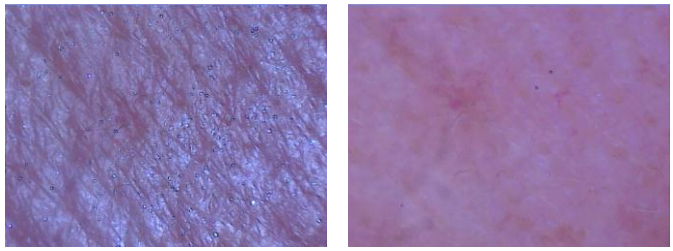
D0 (immediate after treatment)

Absent

D7 (7 days after treatment)



D21 (21 days after treatment)



Case 3 (Photograph evaluation)

D0 (Before treatment)

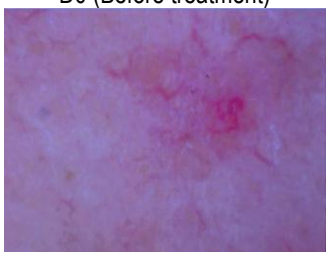
D0 (immediate after treatment)

D7 (7 days after treatment)

D21 (21 days after treatment)

Case 3 (Digital Microscope evaluation)

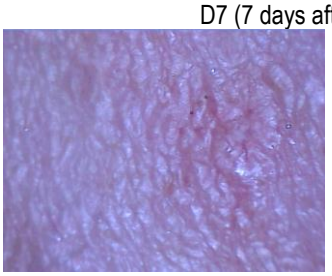
D0 (Before treatment)

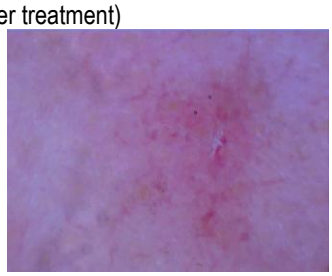


D0 (immediate after treatment)

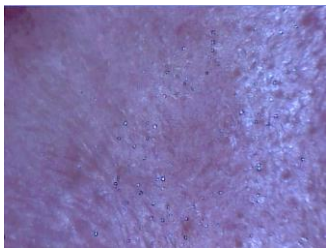
Absent

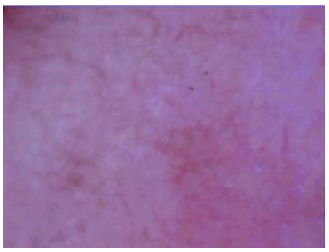
D7 (7 days after treatment)





D21 (21 days after treatment)





Case 4 (Photograph evaluation)

D0 (Before treatment)

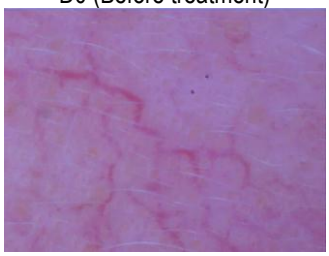
D0 (immediate after treatment)

D7 (7 days after treatment)

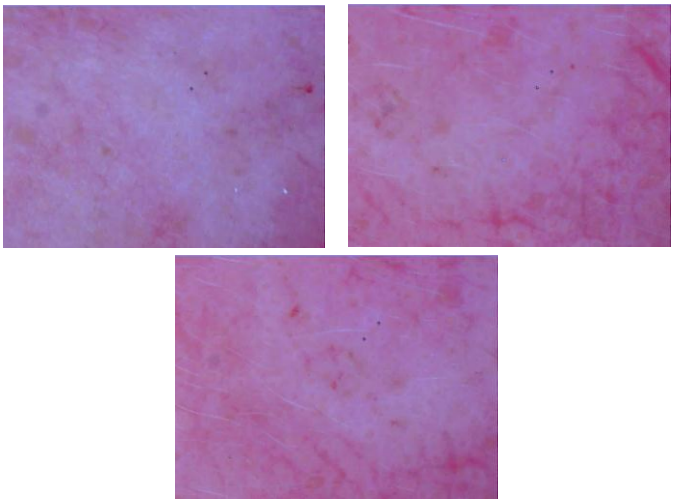
D21 (21 days after treatment)

Case 4 (Digital Microscope evaluation)

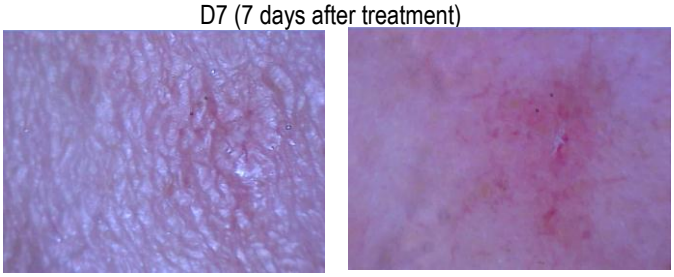
D0 (Before treatment)



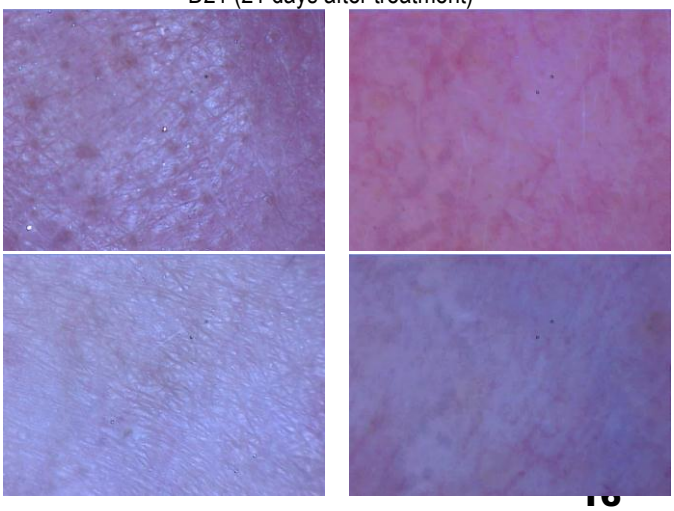
D0 (immediate after treatment)



D7 (7 days after treatment)



D21 (21 days after treatment)



Case 5 (Photograph evaluation)

D0 (Before treatment)

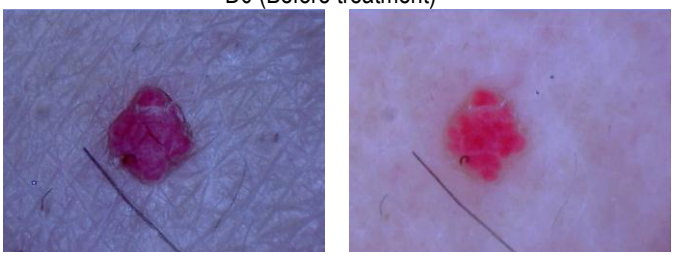
D0 (immediate after treatment)

D7 (7 days after treatment)

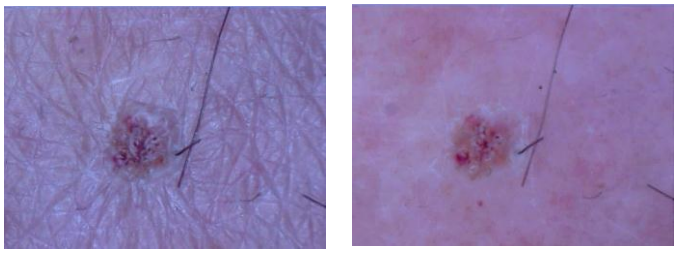
D21 (21 days after treatment)

Case 5 (Digital Microscope evaluation)

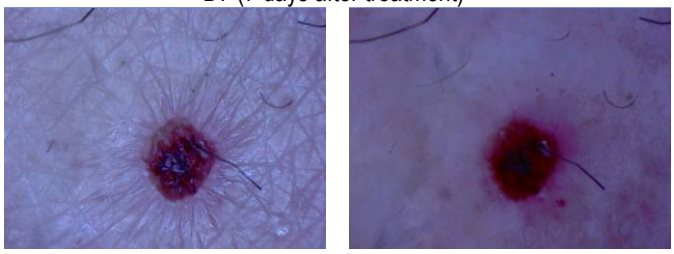
D0 (Before treatment)



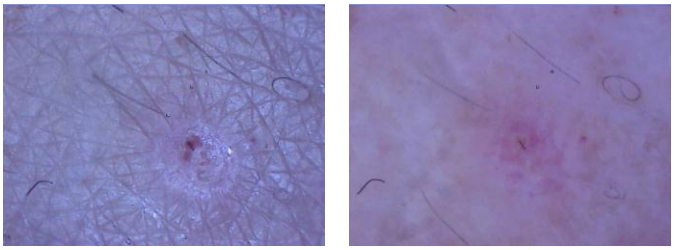
D0 (immediate after treatment)



D7 (7 days after treatment)

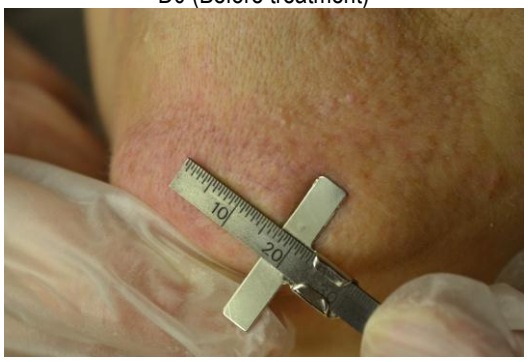


D21 (21 days after treatment)



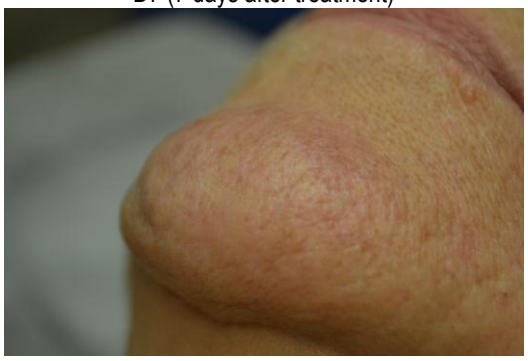
Case 6 (Photograph evaluation)

D0 (Before treatment)



D0 (immediate after treatment)

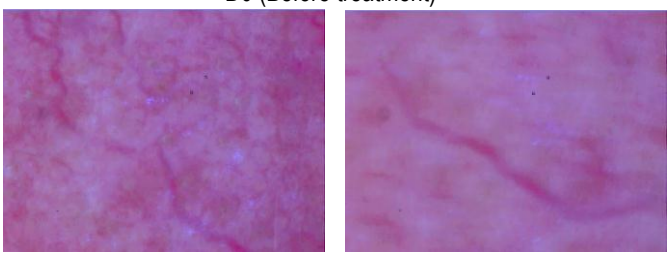
D7 (7 days after treatment)



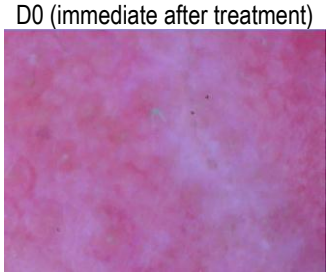
D21 (21 days after treatment)

Case 6 (Digital Microscope evaluation)

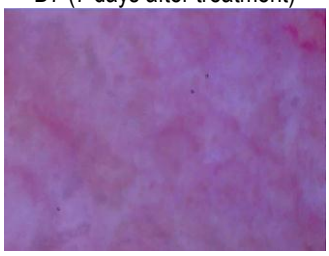
D0 (Before treatment)



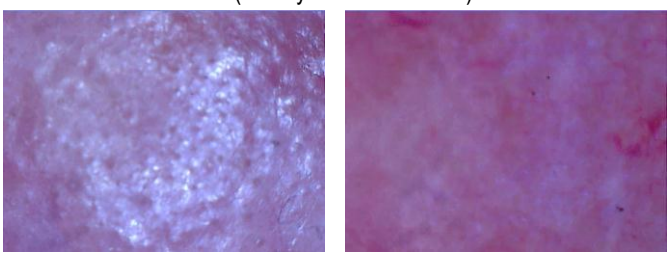
D0 (immediate after treatment)



D7 (7 days after treatment)



D21 (21 days after treatment)

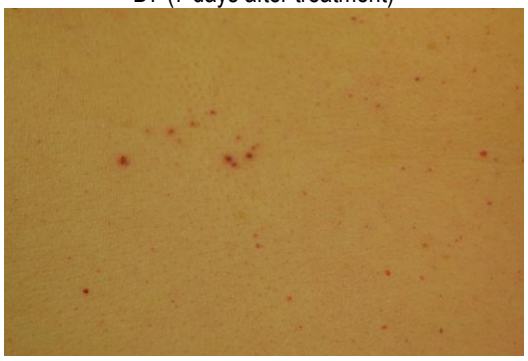


Case 7 (Photograph evaluation)

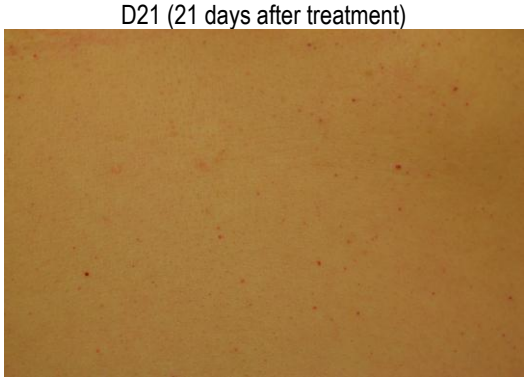
D0 (Before treatment)

D0 (immediate after treatment)

D7 (7 days after treatment)

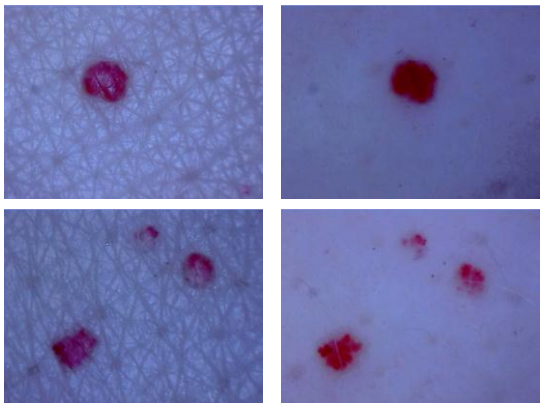


D21 (21 days after treatment)

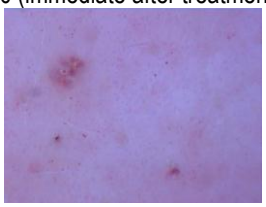


Case 7 (Digital Microscope evaluation)

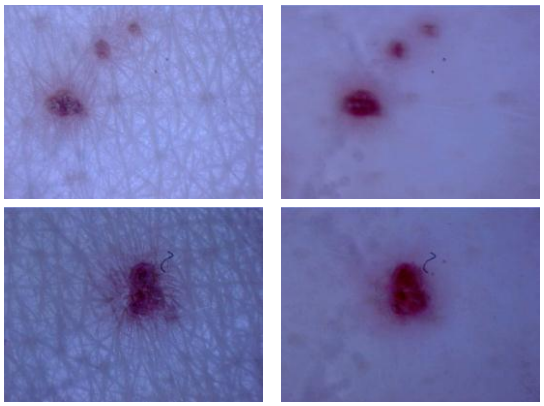
D0 (Before treatment)



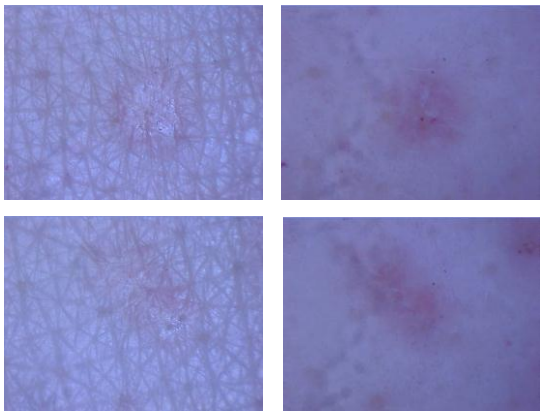
D0 (immediate after treatment)



D7 (7 days after treatment)



D21 (21 days after treatment)



Case 8 (Photograph evaluation)

D0 (Before treatment)

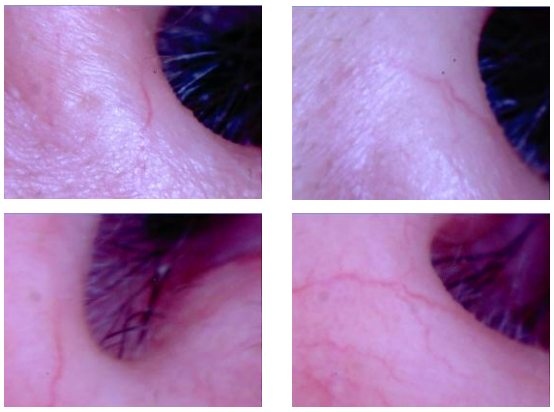
D0 (immediate after treatment)

D7 (7 days after treatment)

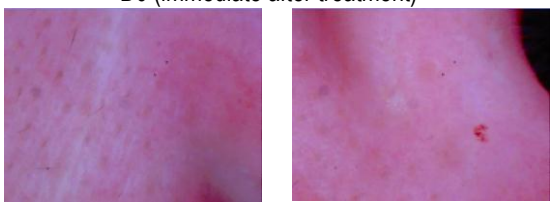
D21 (21 days after treatment)

Case 8 (Digital Microscope evaluation)

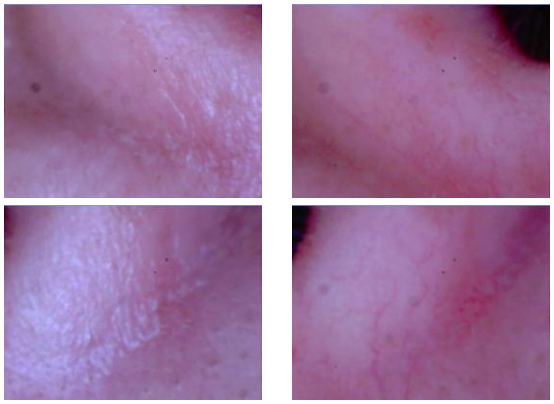
D0 (Before treatment)



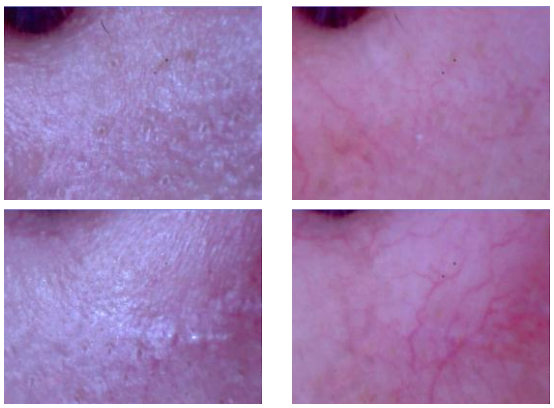
D0 (immediate after treatment)



D7 (7 days after treatment)



D21 (21 days after treatment)



Case 10 (Photograph evaluation)

D0 (Before treatment)

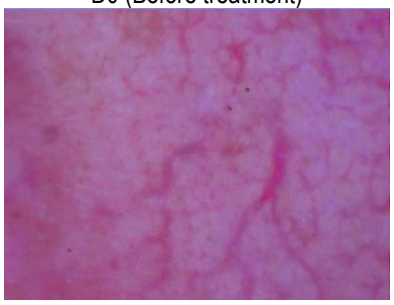
D0 (immediate after treatment)

D7 (7 days after treatment)

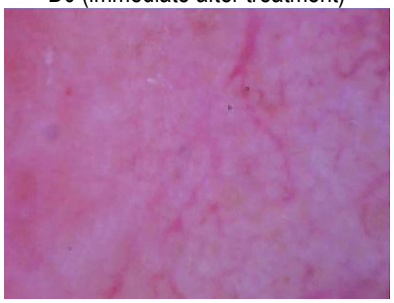
D21 (21 days after treatment)

Case 10 (Digital Microscope evaluation)

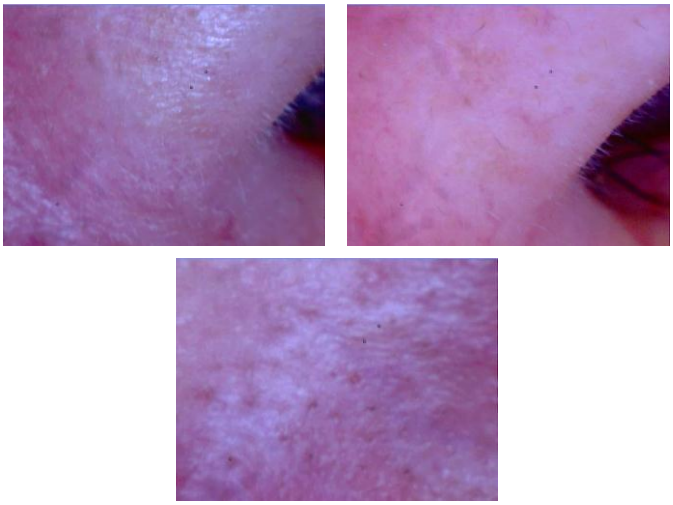
D0 (Before treatment)



D0 (immediate after treatment)



D7 (7 days after treatment)



D21 (21 days after treatment)