

Variable response of post-Mohs surgery telangiectasias to KTP laser: A case report

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Abstract

A common but under-recognized complication of Mohs micrographic surgery is the development of surgical site telangiectasias after repair. Treatment with pulsed dye laser has shown good results in treating periscar telangiectasias, while treatment with KTP laser has never been studied for this complication. We report the findings in six patients with persistent telangiectasias post-Mohs micrographic surgery and their response to treatment with KTP laser. After one treatment with KTP laser, the severity of telangiectasias, scar erythema, and patient and physician-rated improvement were recorded. Response to KTP laser was variable. However, this case series suggests that KTP laser may have the potential to improve the appearance of periscar telangiectasia after Mohs micrographic surgery.

Keywords

Mohs micrographic surgery, post-Mohs telangiectasias, telangiectasias, KTP laser

Introduction

A common but under-recognized complication of Mohs micrographic surgery (MMS) is the development of surgical site telangiectasias. In a large study of 446 Mohs defect repairs, persistent scar erythema/periscar telangiectasias was the most common complication, occurring in 13.2% of cases.¹ Adjunctive treatment with vascular lasers can diminish the appearance of conspicuous and unsightly periscar telangiectasias. In one study, 87% of patients desired adjuncts to good surgical technique that might prevent or reduce the appearance of scars.² Reported evidence on the treatment of post-MMS telangiectasias with KTP laser is scarce. To the best of our knowledge, this is the first case series of post-MMS telangiectasias treated with KTP laser. We report the findings in six patients with surgical site telangiectasias post-MMS and their response to a single treatment with KTP 532 nm laser.

Patient information and clinical findings

Six patients complaining of periscar telangiectasias 3 months following MMS were offered a single KTP laser treatment, free of charge. The majority (5/6) of patients were female (Table 1). Their ages ranged from 42 to 75 years. All but one patient had basal cell carcinomas. Four patients underwent

skin flap reconstructions. Five patients underwent repairs of the nose.

Timeline

Details of the timeline are outlined in diagnostic assessment and therapeutic intervention.

Diagnostic assessment and therapeutic intervention

The severity of periscar telangiectasias was scored on a 3-point scale (mild, moderate, or severe) before and 3 months

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Table 1. Patient characteristics and treatment outcomes.

Patient	1	2	3	4	5	6
Age	71	53	42	75	50	53
Sex	F	M	F	F	F	F
Fitzpatrick phototype	I	I	2	2	2	I
Tumor ^a	BCC	BCC	BCC	BCC	BCC	SCC in situ
Site	Nose	Nose	Nose	Nose	Nose	Forehead
Repair	Bilobed flap	Bilobed flap	Primary closure	Bilobed flap	Burow's advancement flap	Primary closure
Severity of telangiectasias (pre-laser)	Moderate	Severe	Moderate	Mild	Moderate	Moderate
Severity of telangiectasias (post-laser)	Moderate	Moderate	Mild	Mild	Mild	None
Improvement (investigator) ^b	Minimal	Good	Good	Minimal	Good	Excellent
Satisfaction (pre-laser) ^c	Rather unsatisfied	Rather unsatisfied	Somewhat satisfied	Neutral	Rather unsatisfied	Very satisfied
Satisfaction (post-laser) ^c	Very dissatisfied	Neutral	Somewhat satisfied	Very satisfied	Somewhat satisfied	Very satisfied

^aBCC: basal cell carcinoma; SCC: squamous cell carcinoma.

^bExcellent, 75%–100% clearance; good, 50%–75% clearance; fair, 25%–50% clearance; minimal, 0–25% clearance; or worse than before treatment.

^c“How do you feel about the redness of your surgical scar?” Very satisfied; somewhat satisfied; neutral; rather unsatisfied; very dissatisfied.

after laser treatment by a dermatology resident and a dermatologist. Patient satisfaction was rated on a 5-point Likert-type scale before and 3 months after laser treatment, in response to the question: “how do you feel about the redness of your surgical scar?” While “redness” may encompass scar erythema and telangiectasias, it was judged to be the most appropriate term in this setting. The percent improvement of telangiectasias was rated on a 5-point scale (minimal to excellent) by comparison of before and after treatment photographs by a dermatology resident and two dermatologists. Patient-rated improvement of telangiectasias from 0% to 100% was assessed 3 months after laser treatment.

Telangiectasias were treated with a 532-nm KTP laser (Excel V®, Cutera, Brisbane, CA) with a 5-mm spot size, 10–15 ms pulse duration, 8.6–10.0 J/cm² of fluence, and parallel contact cooling. Laser settings were adjusted to achieve persistent coagulation of telangiectasia as the biological endpoint.

Follow-up and outcomes

The response to KTP laser was variable (Table 1); two-thirds of patients (4/6) had at least a 1-point improvement in the severity of telangiectasias, as scored by a dermatologist. Half of the patients (3/6) reported at least a 1-point improvement in satisfaction. Percent improvement of telangiectasias based on comparison of before and after photographs revealed minimal clearance (0%–25%) in two patients (Figure 1),

good clearance (50%–75%) in three patients (Figure 2), and excellent clearance (75%–100%) in one patient. Patient-rated improvement ranged from 0% to 85%. All treatments were well tolerated. No adverse sequela were reported on follow-up.

Discussion

The majority (5/6) of patients were female. Interestingly, scar erythema and telangiectasias following MMS were reported as more likely in patients younger than 60 years, in women, and in repairs of the nose or cheek.¹ All but one of the patients underwent repairs of the nose.

The majority (4/6) of patients underwent skin flap reconstructions. Reconstructions with skin grafts may be less likely to develop telangiectasias. In a study of 43 flaps and 24 grafts after MMS of the nose, flaps had significantly more telangiectasias than grafts.³ Nevertheless, flaps provide several advantages over grafts, including superior color and texture match, decreased scar contracture, and greater graft survival.⁴

The mechanism by which periscar telangiectasias occurs remains unclear. Ischemic injury during surgery, wound tension, and various suture materials have been implicated as inducers of angiogenesis.⁵ Higher relative estrogen levels in younger women may contribute to the increased risk of periscar telangiectasias in this group.¹ Decreased skin laxity in younger patients may cause surgical scars to be subjected to higher wound tension.



Figure 1. Patient #4. (a) Surgical defect after Mohs surgery for basal cell carcinoma of the nasal tip. (b) Bilobed flap. (c) Periscar telangiectasias before laser. (d) Minimal clearance (0%–25%) of telangiectasias after laser.



Figure 2. Patient #5: (a) Basal cell carcinoma of the nasal tip. (b) Surgical defect. (c) Burow's advancement flap with multiple periscar telangiectasias before laser. (d) Good clearance (50%–75%) of periscar telangiectasias after laser.

Telangiectasias following facial surgery have been successfully treated with pulsed dye laser (PDL) in 16 patients following MMS and rhytidoplasty. After an average of 1.6 treatments per patient, the response was excellent in all patients (75%–100% clearance).⁵ The greater number of treatments, the greater depth of optical penetration, and the shorter pulse duration of PDL may have led to a more favorable response. Yet, KTP laser may offer a greater therapeutic index: higher fluences can be reached without causing purpura.

The response to one session of KTP laser in this study was variable, with poor and excellent outcomes. A better response might have been observed with multiple laser treatments. Higher fluences and a larger spot size may have increased the efficacy of KTP laser, but may also have increased complications. Future studies would benefit from evaluating different treatment parameters. Other limitations include the absence of scaled photographs allowing for precise measurement of vessel diameter, and short-term follow-up, which did not allow for evaluation of potential telangiectasia recurrences.

With this case series, we highlight periscar telangiectasias as a common complication of MMS, their impact on patient satisfaction, and their variable response to a single treatment with KTP laser. The potential for KTP laser to improve the appearance of post-Mohs periscar telangiectasias warrants further study.

Declaration of conflicting interests

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Informed consent

Written informed consent was obtained for all patient photographs. Institutional ethics committee approval was obtained for this study.

Patient perspective

See discussion of patient satisfaction with scar erythema, as addressed in the discussion.

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