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## Facial Veins

### Background

Aesthetic practitioners are often asked to remove both facial veins and leg veins. The pulsed dye laser (PDL) has been traditionally used for facial veins and smaller leg veins and a Nd:YAG laser for leg veins and facial veins greater than 0.6mm.<sup>1-5</sup> The limited penetration depth of the PDL makes this laser suitable for removing superficial blood vessels while the longer, 1064-nm wavelength of the Nd:YAG laser reaches the deeper, larger facial and leg veins. To be effective, the PDL must be used at doses that cause purpura and the Nd:YAG laser must be used at high fluences that cause edema.

### MultiPlex™ Technology

Available only in the Cynergy™ laser (Cynosure, Inc.), MultiPlex™ technology combines PDL with a high-powered 1064-nm Nd:YAG laser. The MultiPlex feature allows practitioners to treat vascular lesions with two different wavelengths sequentially from the same handpiece with a selectable delay between the two pulses. The PDL energy first converts hemoglobin to methemoglobin and micro-clots which, in turn, absorb more 1064-nm energy than hemoglobin. This conversion allows practitioners to use lower Nd:YAG fluences, reducing scarring, pitting, and other adverse effects while improving outcomes. The delay between the two pulses is set based on the flow rate of the vessel. The delay allows the converted methemoglobin to flow within the structure while being contained in the area of treatment.

### Methods

A healthy 65-year-old man (Figure 1a and b) presented with a desire to remove facial telangiectasias from both cheeks for cosmetic reasons. The patient agreed to be treated on the right cheek with the Nd:YAG alone (3-mm spot size, 120 J/cm<sup>2</sup> fluence, 20 ms pulse width) and on the left cheek with the

Cynergy with MultiPlex system using a 7 mm spot size (PDL: 7.5 J/cm<sup>2</sup>, 20 ms; Nd:YAG: 25 J/cm<sup>2</sup>, 20 ms; delay: short). Treatments were administered without anesthesia, pretreatment care, or posttreatment care. The SmartCool was set at fan

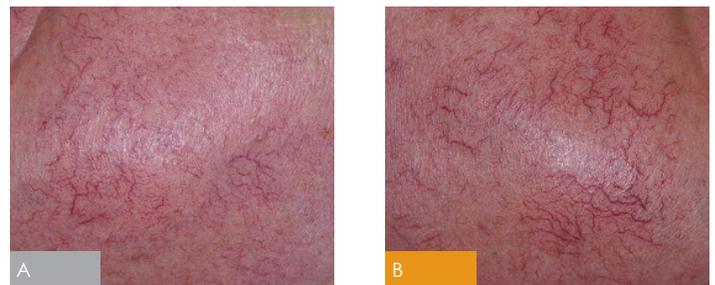


Figure 1. A 65-year old man with telangiectasias on the left cheek (a) and right cheek (b).

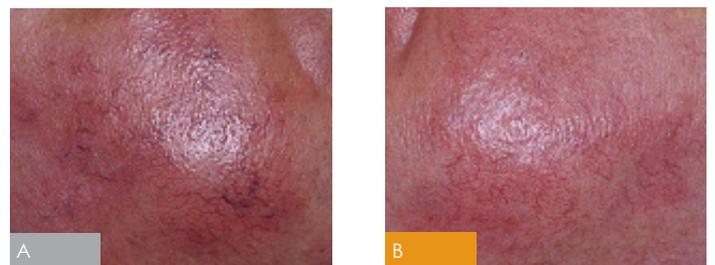


Figure 2. A 65-year old man immediately after a single treatment with the Nd:YAG alone (a) (3 mm spot size, 120 J/cm<sup>2</sup> fluence, 20 ms pulse width) and with the Cynergy with MultiPlex system (b) using a 7 mm spot size (PDL: 7.5 J/cm<sup>2</sup>, 20 ms; Nd:YAG: 25 J/cm<sup>2</sup>, 20 ms; delay: short). Adverse effects are less pronounced on the cheek treated with the MultiPlex dual sequential wavelength device.



Figure 3. A 65-year old man 1 month after the second treatment session with the Nd:YAG alone (a) (3 mm spot size, 120 J/cm<sup>2</sup> fluence, 20 ms pulse width) and with the Cynergy with MultiPlex system (b) at 7 mm spot size (PDL: 7.5 J/cm<sup>2</sup>, 20 ms; Nd:YAG: 25 J/cm<sup>2</sup>, 20 ms; delay: short). Improvement is greater on the cheek treated with the MultiPlex.

speed 4 during all treatments. The patient received two treatments 1 month apart on each cheek.

The left cheek (Nd:YAG alone) was treated to immediate contraction of the vessels as shown by the vessels turning slightly gray. The right cheek (MultiPlex) was treated similarly with a 7 mm spot size (PDL: 7.5 J/cm<sup>2</sup>, 20 ms; Nd:YAG: 25 J/cm<sup>2</sup>, 20 ms; delay: short. The short intra pulse delay on the MultiPlex was chosen due the high flow rate of facial vessels.

### Results

Both cheeks immediately after a single treatment session are shown in Figure 2. The cheek treated with the Nd:YAG alone (Figure 2a) shows more edema and more purpura than the MultiPlex-treated cheek (Figure 2b). The results 1 month after the second and final treatment session are shown in Figure 3. The cheek treated with the Nd:YAG alone (Figure 3a) shows more purpura, redness, inflammation, and edema than the MultiPlex-treated cheek. (Figure 3b). These results after two sessions are typical in approximately 80% of patients treated by the author in this manner.

### Conclusions

The dual sequential wavelength MultiPlex provides superior removal of facial telangiectasias with fewer adverse effects than the single-wavelength Nd:YAG alone.

### Bibliography

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