



# Clinical Whitepaper

## New Short Pulse Possibilities with Nordlys

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**nordlys**  
by Ellipse

### Comparison I: between PDL and short pulsed SWT treatment of PWS

A resistant port wine stain situated on the right cheek of a 40 year old female treated previously several times with PDL as well as IPL (Figure 1). The lower part was treated with a Pulse Dye Laser (V-beam emitting 585nm) with 1.5ms pulse duration and a fluence of 7 J/cm<sup>2</sup>. The upper part was treated with Ellipse short pulse SWT system using a VL555 applicator (emitting 555-950nm) with 2ms pulse duration and 9J/cm<sup>2</sup>. Significantly higher immediate vessel response could be registered in the Ellipse short pulse SWT treated area.

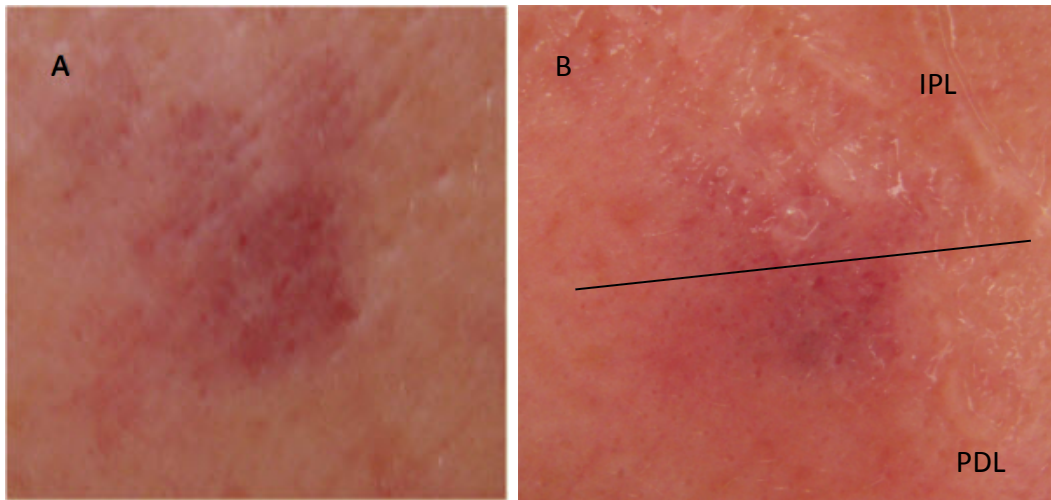


Figure 1: A: PWS prior to treatment. B: Immediate response after treatment with PDL (lower part) and Ellipse short pulse SWT (upper part). PDL treatment was performed with 1.5ms pulse duration and a fluence of 7 J/cm<sup>2</sup>. Short pulse SWT treatment was performed with VL555 applicator with 2ms pulse duration and a fluence of 9J/cm<sup>2</sup>. (Courtesy of Agneta Troilius Rubin)

### Comparison II: between PDL and short pulsed SWT treatment of PWS

A 33 year old female suffering from Port Wine Stain, had the uppermost part of the cheek treated with VL555 using Ellipse short pulse of 2ms and a fluence of 7J/cm<sup>2</sup> resulting in purpura. The lower part was treated with a Pulse Dye Laser (V-beam emitting 585nm) using 1.5ms pulse duration and same fluence as the SWT treated area, but no purpura could be registered in this area. This indicates Ellipse short pulse can be as efficient as PDL treatment of PWS.

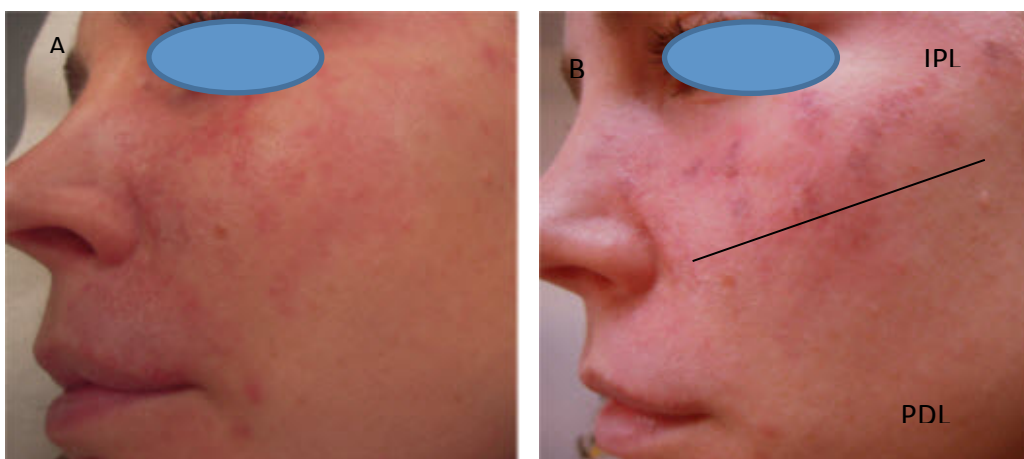
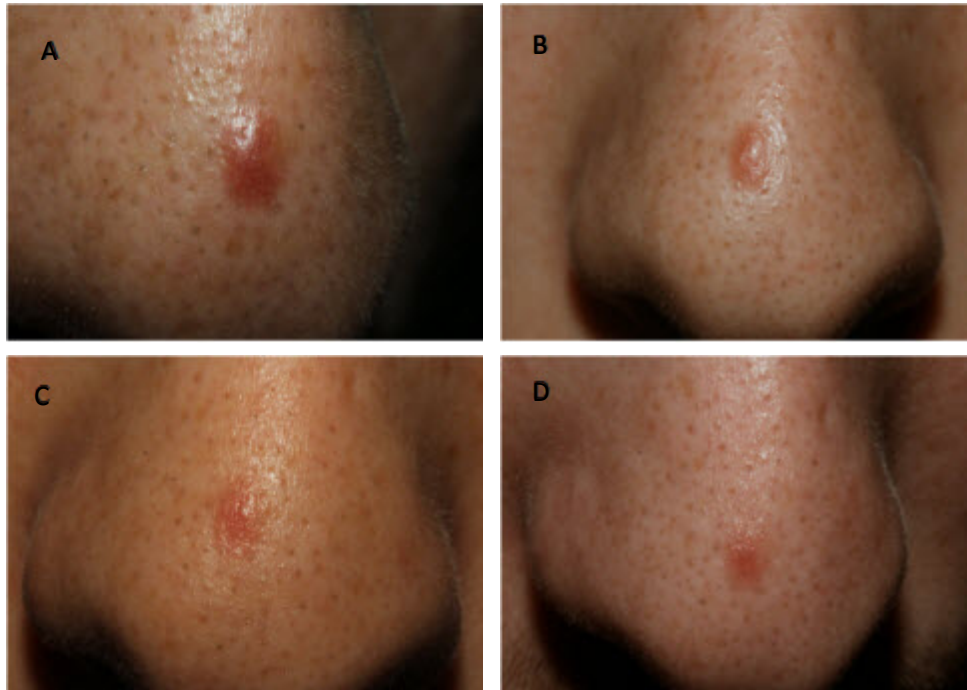


Figure 2: PWS prior to treatment. B: Immediate response after treatment, with purpura in the Ellipse short pulse treated area in the uppermost part of the cheek, and no purpura in the PDL treated lower part of the cheek. (Courtesy of Agneta Troilius Rubin)

## Short pulse improve treatment of angiofibroma

A 22-year-old Caucasian man presented to the private clinic for the evaluation of red blood-filled lesion located on the tip of his nose, shown before treatment in Fig 3A. Based on physical examination with dermascope (Fig 3A) the lesion was diagnosed as an angiofibroma.



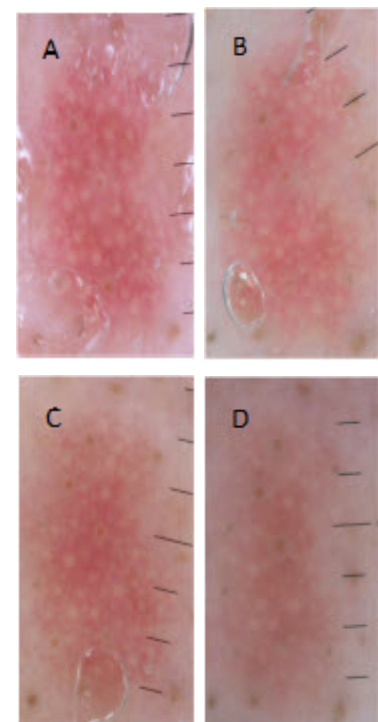
**Figure 3: Angiofibroma on the tip of the nose. A: before treatment, B: 1 month after a single treatment with PWS settings with VL555 applicator. C: One month after additional treatment with VL555 applicator using 3ms pulse duration, 15 J/cm<sup>2</sup>. D: Two weeks later after additional treatment with Ellipse short pulse and PR530 applicator with 2.1ms pulse duration and 8.1 J/cm<sup>2</sup>. (Courtesy of Michael Drosner)**

In the first treatment the patient was treated with setting close to that of treatment of red Port Wine Stain. A VL555 applicator used a single pulse with pulse duration of 5.5ms and a fluence of 13.5 J/cm<sup>2</sup>, followed by another single pulse of 4ms and 14 J/cm<sup>2</sup>. Some effect could be observed, both by the naked eye as well as by dermascope (Figures 3B and 4B).

Next treatment was performed one month later, again with VL555 applicator, but this time the pulse duration was decreased to 3ms and the fluence increased to 15J/cm<sup>2</sup>, and a positive effect can be seen one month later (Figures 3C and 4C).

One month later the third treatment was performed with Ellipse short pulse settings and the PR530 applicator with 2.1ms pulse duration and 8.1J/cm<sup>2</sup>. Two pulses were delivered with one minute interval. A reduction in size as well as reduction in vascularisation was registered two weeks later (Figures 3D and 4D).

At the last visit the pulse duration was further decreased to 1.5ms and the angiofibroma was treated with a single shot with the PR530 applicator and 6.1 J/cm<sup>2</sup>. Result is not yet known, but further reduction is expected.

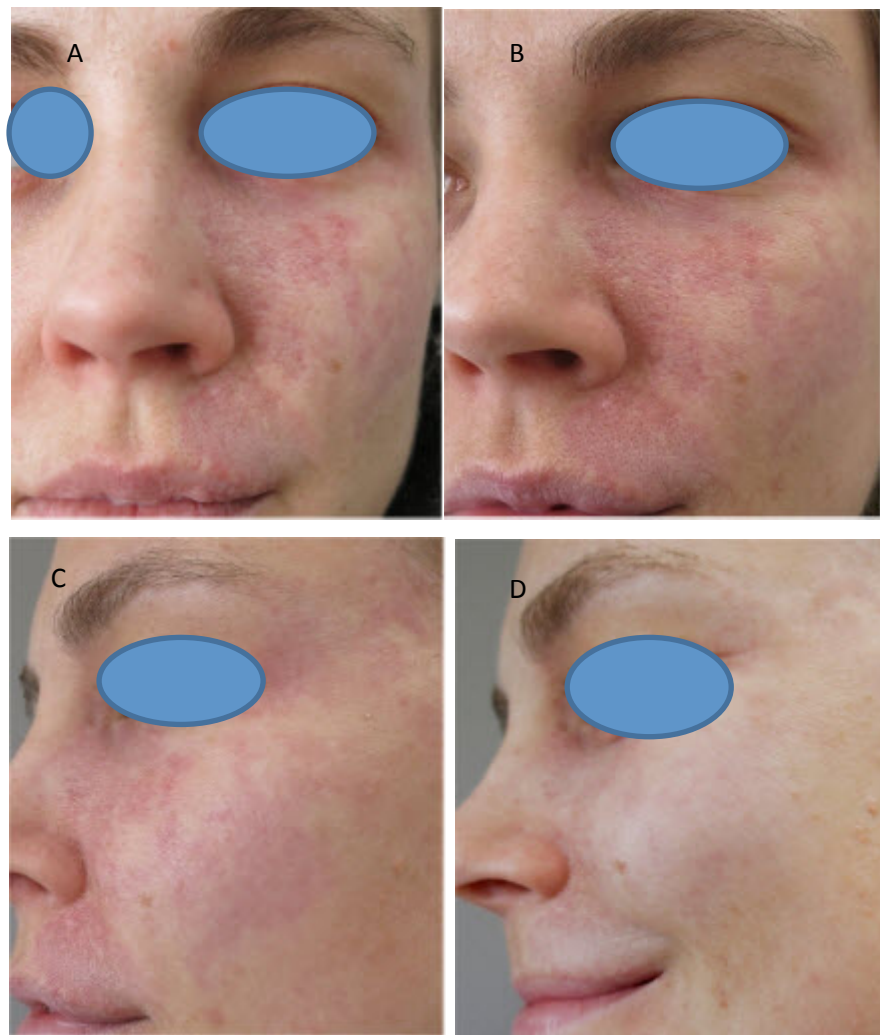


**Figure 4. Dermoscope image vasculisation of the haemangioma A: Before treatment, B: one month after first VL555 treatment. C: One month after second VL555 treatment, D: two weeks after Ellipse short pulse treatment with PR530 applicator. (Courtesy of Michael Drosner)**

### Port Wine Stain in adult, short pulsed SWT treatment

A 34 year old female with Port Wine Stain situated on the most of left cheek was treated several times in the past with PDL as well as IPL (Figure 5). First treatment was performed with the VL555 applicator using 2ms pulse duration and  $7\text{J}/\text{cm}^2$ . Only slight improvement could be registered 2 months after treatment (Figure 5 B and C).

Even though the PWS was purple, it was decided to change to the more aggressive PR530 applicator (emitting 530-750nm) and a significant improvement could now be registered 1.5 month after treatment with 3ms pulse duration and  $7\text{J}/\text{cm}^2$ , figure 3D



**Figure 3: 34 year old female with Port Wine Stain. A: Before treatment with Ellipse short pulse SWT. B and C: After a single Ellipse short pulse treatments with VL555 applicator 2ms pulse duration  $7\text{J}/\text{cm}^2$ . D: One and half month after Ellipse short pulse treatment with PR530 applicator using 3ms pulse duration and a fluence of  $7\text{J}/\text{cm}^2$ .**

## Granulomatous Rosacea, Short pulsed SWT treatment

A 40 years old female patient suffering from granulomatous rosacea previously treated several times with IPL is seen in Figure 6. Rosacea is a chronic acneiform disorder of the facial pilosebaceous units and therefore cannot be cured, but SWT treatment can reduce the outbreaks significantly. Granulomatous rosacea is known to special difficult to treat. The VL555 applicator was used with a pulse duration of 3ms and fluence of 7J/cm<sup>2</sup>.



Figure 4. Patient suffering from granulomatous rosacea, A: before treatment and B: one month after a single treatment with VL555 and Ellipse short pulse of 3ms and 7J/cm<sup>2</sup>.