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"HOW I DO IT" — HEAD AND NECK AND PLASTIC SURGERY.
A Targeted Problem and Its Solution.

NEW TECHNIQUE FOR THE ARGON LASER IN THE TREATMENT OF PORT WINE STAINS.*

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One of the most successful treatments of port wine stains is the argon laser, a blue-green coherent light beam with a wavelength of 0.48 μm that is absorbed by water and the color red.[1,2]

When directed at a port wine stain, the light energy of the argon laser beam, absorbed by the red hemoglobin, becomes heat energy, which coagulates the blood vessels, blanching the hemangioma.

Several techniques exist for using the argon laser to blanch port wine stains. The newest and most effective of these is the concentric circle continuous technique, which has been used successfully in 16 cases over the past two years. This technique combines the best elements of other commonly used techniques. Of the 16 patients (all have been followed up for at least a six month period), only two had any scarring at all. Both scars were less than 1 cm^2; one of them responded well to 0.25% Kenalog® cream.

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The original argon laser technique, the intermittent pulsed technique, which uses a 1 or 2 mm probe, 1.25 W of power, with the laser set at 0.2 seconds, is the slowest yet most precise method. The laser, set on "pulse" mode, blanches the hemangioma one point at a time. Thus, the procedure is complete when all of these blanched "points" cover the entire hemangioma. Because only one dot at a time is blanched by the laser beam, this technique is extremely precise. Unfortunately, for the same reason, this procedure is very slow: a hemangioma measuring 6 cm by 8 cm could take several hours (Figs. 1-A, 1-B).

The zebra stripe technique is faster than the intermittent pulsed technique, but less precise. The laser beam (on continuous mode) is directed in alternating rows of parallel stripes; the remaining stripes left unblanched are filled in at a later time. Apfelberg, *et al.*,[3] showed the stripe technique to be consistent with but not superior to other methods of treating port wine stains. Clearly, since a whole "stripe" is blanched with one movement of the hand, as opposed to one "point," the stripe technique is much faster than the point technique. However, the stripe tech-

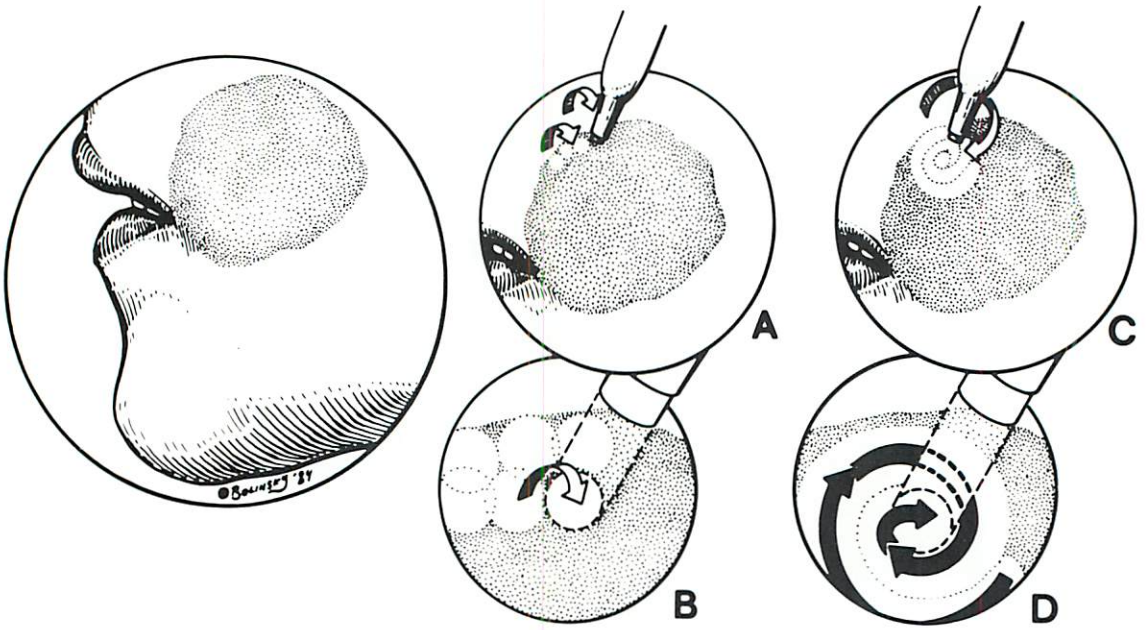

Fig. 1.

nique requires the surgeon to move his entire arm — elbow, wrist, hand, and fingers — thus causing inaccuracies. Furthermore, the stripe technique can leave the patient with residual stripes, requiring touch-ups, or even leave permanent stripes.

The latest technique, the concentric circle technique, combines the precision of the pulsed technique with the speed of the stripe technique. The argon laser beam is directed in circles of approximately 1.15 cm in diameter which are then filled in. The hemangioma is eventually blanched by the sum of these large circles, as opposed to many stripes or several points. Unlike the striping technique, the upper extremity does not need to be moved; only a slight movement of the wrist is required, allowing the hand to be braced and stabilized, which minimizes errors and inaccuracies. Furthermore, unlike the pulsed technique, a hemangioma of 6 cm by 8 cm would take only 30 to 45 minutes (Figs. 1-C, 1-D).

The concentric circle continuous technique has been found to be the easiest, fastest, and most accurate method for argon laser treatment of port wine stains to date.

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