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BACKGROUND: High resolution colour Doppler ultrasound shows intratendinous Doppler activity in patients with chronic Achilles tendinopathy. Treatment of this neovascularisation with sclerosing therapy seems to relieve the pain. However, the procedure often has to be repeated. OBJECTIVE: To investigate the effect of electrocoagulation of the neovessels on tendon pain and tendon vascularity in patients with chronic Achilles tendinopathy. METHODS: Colour Doppler ultrasound guided electrocoagulation was used on vessels in the ventral portion of the Achilles tendon in 11 patients (seven men, four women, mean age 41 years) with painful chronic mid-portion Achilles tendinosis. A unipolar coagulation device was used. RESULTS: One patient dropped out after two months (dissatisfied with the results). The remaining 10 patients (91%) were satisfied. These 10 patients were still satisfied at six months of follow up and had returned to their previous level of activity. All 10 patients were "cured" after one treatment. The patient who dropped out received two treatments because of lack of progress. There was significantly reduced pain (Likert pain scale, 0-10) during activity, from a median of 7 (range 4 to 10) at baseline to 0 (0 to 8) at six months' follow up (p<0.005); and at rest, from 1.5 (1 to 5) to 0 (0 to 8) (p = 0.005). In all patients, vascularisation was unchanged at the six months follow up, with no significant change in semiquantitative or quantitative colour scoring. CONCLUSIONS: Coagulation in the area with vessels entering the tendon appears to be effective treatment for painful chronic mid-tendinous Achilles tendinopathy. No effect on the intratendinous Doppler activity could be detected, suggesting that the effect is independent of changes in blood flow. Localisation of hyperaemia appears to be the key to the pathology and for targeting the treatment. One explanation could be that the effect is obtained by destruction of nerves accompanying the vessels.