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**Functional Treatment of Acute Achilles Tendon Rupture: An Observational Study of Two Different Treatment Regimes**

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**Summary:**
The treatment of acute Achilles tendon rupture remains controversial. Non-operative, functional treatment of Achilles tendon rupture has been the focus of much attention. We present our outcomes from the use of a VACOped functional orthosis using two different regimes in the management of acute achilles tendon rupture.

**Introduction:**
The treatment of acute Achilles tendon rupture remains controversial. The benefits and complications of surgical versus conservative treatment remain debatable. Non-operative, functional treatment of Achilles tendon rupture has been the focus of much attention. However, no study till date has looked at the optimum duration of functional treatment for acute Achilles tendon rupture.

Over the past three years, patients with acute Achilles tendon rupture presenting to our department are treated non-operatively for either 11 or 8 weeks. We use a functional weight bearing orthosis boot called the VACOped boot (Oped AG Ltd). It contains a self-adjusting vacuum cushion which conforms to the patient’s leg. The ankle joint can be locked in varying degrees of plantarflexion or mobilised between the chosen range of movements. The patient is able to weight bear from the first day of using this orthosis.

**Methods:**
During 2010-11, all the patients with acute Achilles tendon ruptures were treated for 11 weeks (group 1) and in 2011-12 for 8 weeks (group 2) in line with current evidence from other published functional regimes. Patients with confirmed diagnosis of acute Achilles tendon rupture were placed in a VACOped boot after informed consent. At fixed time points during the treatment regimes, patients were followed up in clinic for skin checks and for adjustment of the degree of ankle plantarflexion. At the end of the functional regime duration, patients were clinically assessed for Achilles tendon healing and referred to physiotherapy on discharge.

The outcome measures used were a) Achilles Tendon Rupture Score (ATRS) which is a patient outcome measure and b) review of complications including Achilles tendon re-rupture. Local ethics approval was obtained.

**Results:**
In a three year period from 2010-12, 118 consecutive patients with confirmed tendo-Achilles rupture were treated with the VACOped boot. There were 59 patients (M=52, F=7) in group 1 and 59 patients (M=53, F=6) in group 2. The average age at the time of injury in group 1 was 47.4 years and 43.5 years in group 2. Mean follow up duration for group 1 was 27 months and 15 months for group 2.

74% (n=44) of patients in group 1 and 81% (n=48) patients in group 2 had valid responses to the ATRS questionnaire. The combined ATRS score was 70.6 (group 1 = 75.9, group 2 = 65.2; p< 0.05).The total number of re-ruptures was 6 (group 1 =2 (3.4%), group 2 = 4 (6.8%). All patients who sustained re-ruptures were male. Complications included 6 cases of deep vein thrombosis (3 in each group, one resulting in non fatal pulmonary embolism in group 1), and 19 episodes of skin problems which all resolved spontaneously.

**Conclusion:**
We conclude VACOped functional mobilisation is a viable and safe option with good patient satisfaction and a low re-rupture rate (5.1%) in the management of acute tendo Achilles rupture. It seems that the functional outcome is better in patients who were treated in boot for longer duration. This however, could be due to lower re-rupture rate and longer follow up duration of patients treated in VACOped boot for 11 weeks in this study.