

Fasciotomy for chronic compartment syndrome

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During 1977 and 1978, we operated on 34 patients with chronic anterior tibial compartment syndrome. Surgery consisted of subcutaneous fasciotomy of the anterior crural compartment under local anesthesia. Twenty-three patients were operated on bilaterally. The mean follow-up was 10 years. One patient was lost to follow-up, leaving a total of 56 legs for assessment. The long-term result was excellent in 31 legs, good in 10, fair in 11, and poor in 4. There was one recurrence. This was relieved by refasciotomy.

Subcutaneous fasciotomy is well established for chronic anterior tibial compartment syndrome (Allen and Barnes 1986, Due and Nordstrand 1987, Qvarfordt et al. 1983, Sanzen et al. 1986, Wallensten 1983). Most reports have dealt with the immediate or short-term results of this operative procedure. We report the long-term effect of subcutaneous fasciotomy for lower leg anterior compartment syndrome.

Patients and methods

During 1977 and 1978, 34 patients, all young servicemen, were operated on at our hospital for chronic anterior compartment syndrome of the lower leg. Twenty-three patients were operated on bilaterally.

All the patients had a history of at least 3 months of pain in the anterior tibial compartment induced by marching or running. The pain necessitated interruption of these activities.

All the patients had tenderness over the anterior tibial muscle. They were made to run in order to provoke the pain, and subsequent examination revealed increased tenderness over the anterior tibial compartment. No disturbances of sensibility or arterial or venous circulation were observed. One patient had a

muscle hernia of the anterior compartment. Intramuscular pressures were not recorded.

In local infiltration anesthesia, a 2-cm skin incision was made about 2 cm lateral to the anterior tibial crest midway on the leg. The crural fascia was opened and a fasciotome was introduced. The fascia was cut distally to the retinaculum of the superior extensor muscle and proximally to the tibial origin of the fascia. A compressing elastic bandage was applied from the toes to the knee, and the patients were encouraged to resume ambulation immediately. The procedure has been described in detail by Due and Nordstrand (1987).

A questionnaire was sent to all the patients during the middle part of 1987 constituting an average observation time of 10 years. We obtained replies from all but 1 patient. Thus, there were 56 legs for long-term follow-up.

Results

Thirty-one legs were permanently and completely painless even during extensive athletic activities (excellent). In 10 legs, pain occurred only during extreme exercise (good), and 11 legs were improved compared with the preoperative condition (fair). In the remaining four legs in 3 patients, the symptoms were unchanged (poor).

One patient who had a bilateral fasciotomy was asymptomatic for 6 years. Symptoms then recurred on the left side, and he was refasciotomized. During the subsequent 3 years, he has been free from pain even during strenuous athletic activities.

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Discussion

Some authors claim that history and clinical findings are insufficient to establish the diagnosis lower leg compartment syndrome and that intramuscular pressure recordings during and/or after exercise are necessary (Wallensten and Eriksson 1984, Styf and Kørner 1987, Styf et al. 1987). This conclusion is in contrast to Sudmann (1979) and Reneman (1975), who questioned the diagnostic value of pressure measurements,

and to those who claim that clinical criteria alone are sufficient for diagnosis (Leach et al. 1967).

Our explanation of the failure in 3 patients could be incomplete fasciotomy. This can occur if the fasciotome slides under or in front of the fascia (Nordstrand et al. 1986). One of our patients seemed to have a true recurrence cured by refasciotomy. This indicates that the anterior compartment syndrome, although rarely, might relapse after successful primary surgery. Reoperation may offer immediate relief of symptoms.

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