RESECTION OF THE LATERAL PLANTAR NERVE IN SPASMODIC FLAT-FOOT AND METATARSALGIA

BY

Dr. HERMAN WAHREN, M.D.

During recent years it has become more usual to resort to operative measures for the relief of pain. I have in mind the proposed cutting of the 4th lumbar root as suggested by Sjöquist in hip pains, an operation which, theoretically, seems to be well founded but which in actual practice does not always give the desired results. Further, nevrosurgeons have begun more to resort to tractotomy in different forms of pains in the extremities. Operation of the sympathetic nerve system has also been carried out both peripherally and in the ganglial chain.

The two conditions of pain which I would like to discuss are metatarsalgia and spasmodic flat-foot.

There is no need for me to touch upon the symptomatology or diagnosis of metatarsalgia. The majority of the painful conditions within the region of the metatarsal bones are favourably influenced by a reconstruction of the anterior arch and by otherwise resorting to conservative measures. There remains, however, a group of cases which are rebellious to conservate treatment and this group usually goes under the name of Morton's disease from the said author's work of 1876. The etiology is still uncertain; Morton's original opinion that the pain arose from a compression of the nerves between the metatarsal bones has not been possible to confirm. A new suggestion has arisen through the investigations of Baker, Kuhn and Swarts that, in relatively many instances, neurinoma in the plantar nerve has been the cause of the pains.

When it has not been possible to achieve results from the conservative therapy one has tried to treat these cases operatively. Resection of the metatarsus has been suggested and even tried. I don't know what results have been obtained by this operation, but to my mind it does not seem to be very tempting to imitate it.

Nerve resection has been performed by he authors mentioned above with, from information received, good results.

Personally I have treated 3 cases by resection of the lateral plantar nerve. I have only been able to follow up two of them. In both cases the results were so far satisfactory that the patients were free from pain but nevertheless had to have an arch support. In neither of the cases has a neurinoma been encountered during the operation.

As these operations gave good results I thought that it might be possible to treat spasmodic flat-foot in a similar manner.

This disease is also somewhat discussed as to its etiology.

The essential point about the term spasmodic flat-foot is a contracture in the subtalus joint which, in the majority of cases, has its cause in that joint itself. This idea, that the change in the joint between the talus and the calcaneus is the point of origin, is also encountered in literature both in the work of Haglund as well as in the younger Anglo-American authors and which, as far as I can understand, also corresponds to the general experience. In this special case it is possible, by means of an injection of novocaine in the joint, to convince oneself wether the pronationary and supinationary movements of the foot becomes free in this manner.

The conservative treatment of spasmodic flat-foot is not especially gratifying and the operative treatment, subtalus arhrodesis, demands a lengthy fixation. It can therefore be considered permissable to find a way out by simpler means.

Nerve supply to the subtalus joint comes exclusively from the lateral plantar nerve. I recollect that the plantar nerve passes behind the medial malleolum and goes off immediately below the ligamentum laciniatum into a medial and lateral

branch. The latter supplies the tarsal joint system by means of its ramus profundus besides giving branches to the quadratus plantae, interossei and and the other short foot muscles. The ramus superficialis supplies a number of muscle branches and also supplies the lateral side of the planta with sensitive branches.

A resection of the lateral branch of the plantar nerve therefore severs sensitive perception from the tarsal joints, especially the subtalus joint, as well as from the lateral part of the planta pedis and the under side of the lateral toes. Equally a great part of the short foot muscles are put out of function. These muscles are nevertheless usually overstretched and degenerated in these cases for which reason their functional value should be rather negligible.

During the past two years I have performed 5 resections of the lateral plantar nerve on 4 patients. In two cases the cause of their foot-trouble was purely static, that is to say it was not known. In one case it is possible that there was a trace of polyarthritis; the 4th case followed an old calcaneus fracture. One of the cases was double-sided whilst the others were one-sided.

The results of all the operated cases have been good to the extent that they have all shown considerable improvement. In no case can I say that an absolute freedom from symptoms has been reached, but the patients have nevertheless, and without exception, been especially satisfied.

There has been very little trouble on account of disturbance in the sensitivity of the sole of the foot. A slight paresthesia in the toes has been manifest.

It is obvious that the method cannot be unreservedly recommended. Despite the fact that the immediate results have been good one cannot say how it will be in the long run. Naturally there is a certain risk of neuromatuous formation.

Although I have had a rather scanty personal material within this sphere to work upon, I nevertheless wish to report the results which I have achieved in the hope that someone else with a larger material might wish to test it.

In conclusion I would like to say a few words about the operation itself which was performed under local anesthesia. The incision is placed suitably behind and below the medial malleolus. One immediately finds the ligamentum laciniatum which is partially divided. The vessels then lie nearest, and under these the nerve which is followed in a plantar direction as far as the point of division where it is cut. In the hope of avoiding neuromatuous formations I have sewn the proximal nerve-end in a loop with fine silk.

SUMMARY

A method of treating spasmodic plat-foot with neurotomy of the lateral plantar nerve. Five cases with good results are reported.

LITERATURE

Haglund: Principen der Orthopädie.

Baker and *Kuhn:* South M. J. 37, 123. 1944.

Swart: West Virginia M. J. 40, 13, 1944. Ref. Year Book of Orthop. Surg., 1944.