

The Use of the AFO and PTB Orthoses for Severe Pes Planus

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When the severely deformed pes planus foot is rigid, the deformity fixed, and the arch totally dropped, to provide the patient with a conventional molded arch "support" is an exercise in futility. Placement of a shoe insert under the non-existent long arch cannot prevent further dropping on weight-bearing if the talar head is already in contact with the floor and the intertarsal joints are immobile.

It is the purpose of this paper to report the use of the Ankle Foot Orthosis and Patellar Tendon Bearing Orthosis for such a situation.

Because it would not be feasible to attempt to raise the arch of a rigid foot with an orthosis, the authors decided to employ an orthosis to decrease stresses on the foot and ankle by transferring push-off forces to an AFO.¹ This was to be accomplished by fabricating the orthosis with a solid ankle and modifying the shoe to incorporate a long steel spring and a rocker bar. Since it was anticipated that this approach might not provide adequate relief, it was considered that the next procedure would be to introduce partial unweighting with a Patellar Tendon Bearing Orthosis.² This would also be fabricated with a solid ankle and include a shoe with a long steel spring and a rocker bar.

CASE REPORT

B.L., age 62, was initially referred to the VA Prosthetic Center on June 14, 1982, with a history of painful feet since World War II, which had become worse in recent years. The patient stated that "my feet are going to col-

lapse and I can hardly walk and barely make it when I stand and walk." He had a cerebral vascular accident on January 18, 1982, but had made an almost complete recovery. There was also a history of aortic valve insufficiency and gout. The patient was receiving coumadin, inderal, digoxin, and allopurinol for his medical problems. He had not had relief of his foot pain from arch supports in the past.

On examination there was noted medial downward dislocation of the talar heads, abduction of the forefeet, absence of the long arches, marked restriction of joint motion, marked splaying of the forefeet and severe hallux valgus, bilaterally (Figure 1). The dorsalis pedis and posterior tibial arteries were palpable.



Figure 1. The severe bilateral pes planus noted when patient was first seen at VAPC.

X-Rays confirmed the clinical findings of severe pes planus and hallux valgus bilaterally. The patient's private orthopedic surgeon had fit



Figure 2. Orthosis prescribed by patient's private orthopedic surgeon.



Figure 3. Bilateral AFO's and shoe corrections prescribed at the VAPC.

him with short AFO's (Figure 2). These were a significant improvement over previous arch supports, but were bio-mechanically inefficient. Bilateral solid ankle AFO's and shoes with long steel springs and rocker bars were prescribed (Figure 3).

On July 16, 1982 the patient reported that he was much more comfortable.

When re-evaluated on October 21, 1982 it was indicated that the left side was subjectively worse than the right. He was experiencing very painful weight-bearing directly on the talar head. The "comfort" that he had reported in the previous note was relative. A PTB orthosis was prescribed for the left side (Figure 4), in accordance with the originally outlined plan of procedure.

On April 19, 1983 the patient stated that the PTB was an improvement over the AFO.

On August 7, 1984 he returned for a new orthosis because of loss of fit. The patient had lost weight following cardiac surgery for aortic valve replacement and triple bypass in March, 1984.

On October 4, 1984 he reported that the new orthoses were "comfortable, that he feels much better with them, and is able to ambulate." He and his wife both stated that he "would not be able to walk" without these orthoses.

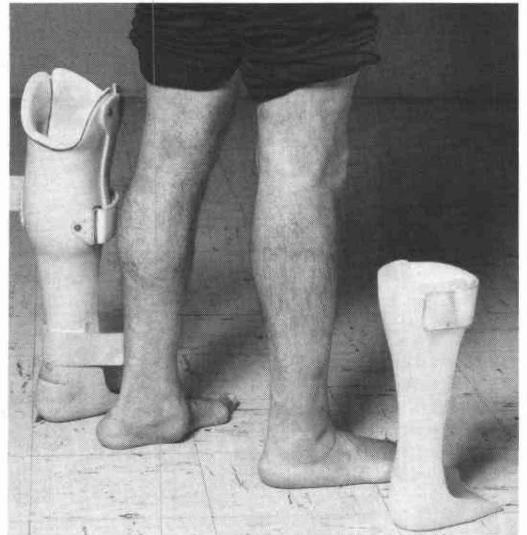


Figure 4. The final prescription included an AFO on the less symptomatic right side and a PTB orthosis for the left side.

DISCUSSION

Severe pes planus of the type described in this report can only be helped to a limited degree by orthoses. However, if a maximally efficient approach is employed, the limited degree of relief can be significant and allow an almost non-ambulatory patient to achieve a useful degree of ambulation.

A solid ankle AFO not only functions to stabilize the ankle and foot, but when combined with shoe corrections (rocker bar and long steel spring), it acts to diminish the stresses on the foot and ankle. The PTB provides, in addition, partial unweighting, while retaining the features that permit transfer of forces to the orthosis.

We have employed the AFO in other similar instances, but this was the first occasion in which we employed the PTB for severe pes planus.

REFERENCES

¹ Rubin, Gustav; Dixon, Malcolm; and Danisi, Michael, "VAPC Prescription Procedures for Knee Orthoses," *Orthotics and Prosthetics*, 31:3: pp. 9-25, September, 1977.

² Rubin, Gustav, "Patellar-Tendon-Bearing (PTB) Orthosis," *The Bulletin of the Hospital for Joint Diseases*, XXXIII:2: pp. 155-172, October, 1972.

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