PLANTAR FASCITIS – STUDY OF DIFFERENT MANAGEMENT PROGRAMME WITH SPECIAL REFERENCE TO UC-BL SHOE INSERT

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Plantar fascitis is a common condition seen by Physiatrists and Orhtopaedic Surgeons in their practice. Since the genesis of condition is not very clear, many treatment modalities are being used and none is in isolation. UC-BL shoe insert is the latest addition to this long list. 95 patients of plantar fascitis were included in this study and were divided into four groups from treatment point of view, one group was treated by UC-BL shoe insert. Results of various conservative programmes and effectiveness of UC-BL shoe insert has been presented.

The term plantar fascitis has often been used to designate a clinical condition in which the patient usually complains of pain on the anteromedial side of plantar aspect of the heel, characteristically worse in the morning and after a period of rest. Other eponyms like calcaneodynia (Shilinikor, 1933), periostitis of oscalcis (Chang, 1934), sub-calcaneal bursitis (Eggers, 1957) and plantar spur syndrome have also been suggested for this condition, but painful heel syndrome seems to be a better term for this condition, the aetiology of which is still shrouded in mystery.

Since the genesis of condition is not very clear many treatment modalities are in vogue and none of them is infallible. It is also true that none of the modalities is used in isolation. Conservative treatment modalities being used are –

– Hot fomentation, contrast bath, ultra sonic therapy, analgesics/anti-inflammatory, paraffin wax bath, heel elevation, cushion heel, faradic bath and local hydrocortisone infiltration etc.

The latest addition to this long list is use of UC-BL foot support. In present study we used UC-BL foot support for treatment of plantar fascitis in socio-cultural realities of our country and compared its results with above mentioned modalities.

Pathogenesis of plantar fascitis and biomechanics of UC-BL foot support

In 1954, Hicks[1] described the powerful contribution of the plantar fascia in stabilising the foot from heel raise to toe off. Since the attachment of plantar fascia is distal to the metacarpophalangeal joints, extension of these joints as occurs with dorsiflexion of toes causes tension on the fascia, Hicks called this mechanism 'The Wind-Lass Effect' of the plantar fascia. As the toes are dorsiflexed, arch of foot rises and affective length of the truss (intrinsic musculature & plantar fascia) is shortened. At this high arch position the tension on the truss required to support the arch is less than that it would be in a low arch position. Generally agreed view regarding causation of plantar fascitis is that it develops as a result of strain on the calcaneal attachment of plantar fascia. The resultant inflammatory process may stimulate a proliferation of bone into the fascia to secure the attachment leading to development of a heel spur. The continuing pull of the fascia in weight bearing position perpetuates the inflammation and a chronic pathology develops. So, to treat a case of plantar fascitis we need to elevate the arch so as to relax the plantar fascia to avoid chronic strain.

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UC-BL shoe insert meets all these requirments.

The UC-BL shoe insert was developed at Biomechanic Laboratory in San Franscisco (California) as a part of several research projects on mechanics of foot. It was considered that UC-BL shoe insert should be able to take over, at least in part, the contribution of plantar aponeurosis to longitudinal arch stability by holding the foot in a position that relieves tension on the plantar fascia and by holding the heel in inversion and by applying forces against navicular and the outer side of the forefoot, without direct pressure on the soft tissue under the longitudinal arch[2].

Material & Method

For the present study 96 patients were selected. Clinical history was carefully taken specially regarding pain, its site, duration and severity for symptoms suggesting a definite aetiology, to find out associated diseases, and trauma etc. In local examination considerable attention was paid to foot abnormalities like depressed longitudinal arch and to fact whether it was mobile or rigid. A careful examination of tender area, ankle and subtaloid joint, blood examination for erythrocytic sedimentation rate and X-ray studies were done. For treatment patients were kept in 4 groups and the following treatment programme followed :

Group – I : 25 patients i.e. 36 heels were treated by
- Analgesics
- Heel elevation to a total heel height of 1 & 1/2"
- Heat in form of contrast bath

we were able to follow 33 heels.

Group – II : 25 patients i.e. 27 heels treated by
- Analgesics
- Ultrasonic therapy 1.5 watts/cm^2
- An elevated heel in shoes or in chappals.
- 26 heels of this group could be followed.

Group – III : 25 patients i.e. 27 heels treated by
- Analgesics
- Heel elevation

Inj. Triamcilone 10 mg. with 2 ml. of 1% Xylocaine. 3 injections were given in the tender area at the intervals of 1 week

25 heels could be followed

Group – IV : 20 patients i.e. 26 heels & treated by
- Analgesics

OBSERVATIONS

TABLE

Results of Individual groups

Group	No. of heels followed up for 6 months	Results					
		Good		Fair		Poor	
		No. of heels	%	No. of heels	%	No. of heels	%
I	33	17	51.51%	5	15.15%	11	33.34%
II	26	15	57.69%	4	15.38%	7	26.93%
III	25	13	52.00%	6	24.00%	6	24.00%
IV	26	22	84.62%	4	15.38%	0	–

– UCBL support in leather sole shoes.

Good = complete relief
Fair = partial relief
poor = no relief or worsening of symptoms

The table shows that good results were maximum in group IV (84.62%) & poor results in first group.

In group IV none of the patient showed poor results.

On analysing the good results obtained with various treatment programme in our study, it is evident that group-IV programme was most effective, next in order of good results was group II, while there was not much difference in group III & I. The results of various group were as follow:

Group IV – 84.62%
Group II – 57.69%
Group III – 52.00%
Group I – 51.51%

The overall results of conservative methods of treatment in present series were as follows :

Good : 60.90%
Fair : 17.27%
Poor : 21.27%

DISCUSSION

Benefit of relieving tension in plantar fascia in cases of plantar fascitis has been studied in the past using various methods. Rose[3] obtained good results in his cases of painful heel syndrome by using a wedge shaped insole. In the study conducted by Furey[4] (1975) 71 percent excellent or good results were claimed with combined use of analgesics (Phenylbutazone) and shoe modifications in form of raised heel, thick sorbo rubber heel pad and arch support. It was felt that the beneficial results were because of support to the arch provided by this modified insole.

Hick[1] (1954) discussed the windlass effect of plantar-fascia and confirmed that elevation of arch of foot relaxes the plantar fascia because with decreased angle of truss, length of tie is reduced and hence tension required by tie to support truss is proportionately reduced. Compbell & Inman[5] (1954) recommended UC-BL shoe insert and reported 33 resistant cases of painful heel (not responded to phenylbutazone, heel cushion, arch support, and local injection of steroids) which were fitted with UC-BL shoe insert and good results were obtained in 31 cases, 2 cases which did not respond were later diagnosed to be suffering from Reiter's disease. Discussing the role played by heel elevation, Rene Cailliet[6] (1983) in his book on "Foot & Ankle Pain" maintains that raising the heel removes the tension placed on the calcaneum by Achillis tendon and releases the tension of the fascia by plantar flexing the forefoot. The results in the present study series although comparable to those obtained by Furey[4] (1975) i.e. 71% seem to be less successful to those claimed by Lapidus at (1965)[7]. The explanation for this difference in his percentage of successful results, according to this study, appears to be that shoe modifications in the form of heel elevation were resented & refused by some females. When these patients reported for follow up they were found wearing usual flat heel chappals and on being closely questioned came up with the assertion that they had been using the modified version at home. This is difficult to believe for a patient who did not use the modified version when reporting for follow up, would be hardly making use of it, away from the eyes of treating physician.

Another factor which may be responsible for the poor results in his present study was that once the patient had some initial relief with a particular programme of treatment he or she may have ceased to follow the advice fully which may have resulted in a recurrence of symptoms.

As far as the beneficial role of injections of Triamcilone Acetonide is considered, it was observed in present study that although immediate relief was there, but pain recurred in quite a number of cases within 4-8 months (8 cases). Furey[4] (1975) made use of a combination of Prednisolone acetate 50 mg., Dexamethasone 4 mg. & Lidocain 10 mg. & reported long lasting

excellent to good results with only one inj. in most cases, though he had to repeat the injections second time and rarely third time in some of the cases. Since such a combination was not used in present work, it is beyond the competence of this study to make any comments.

CONCLUSION

The study showed that the strategy regarding treatment should be individually tailored. It is worth while to try analgesics, heel elevation and contrast bath or ultrasound alongwith heel elevation in the 1st 15 days of the treatment. If the patient is not having desired relief then UC-BL shoe insert should be prescribed. Although this study is in a preliminary stage even then it created an impression that in place of trying empirical treatment based on unproven hypothesis, UC-BL foot support should be tried as the standard aid. Local steroids are quite effective in severe pain but recurrences are common.

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