Treatment Modalities For Plantar Fasciitis

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Abstract:

Heel pain due to Plantar Fasciitis is a common presentation to the consultation clinic in Sulaimani Rheumatology center out of 242 painful heels x-rayed 198 had calcaneal spure, which means 81,8% of all patients. 150 patients with Plantar Fasciitis treated with either injections of heel from medial route with either 40mg of methylprednisolone plus 2% xylocain or 2cc of 2% xylocain or 6 sessions of pulsatile ultrasound. All treatment modalities were effective on relieving pain on short term bases, but treatment with steroid plus xylocain was more effective regarding the degree of pain relief and the number of patients improved.

Keywords: Plantar Fasciitis treatment modalities.

Introduction:

Plantar fasciitis is a common cause of heel pain and is the result of a degenerative process of the plantar fascia at its calcaneal attachment[1]. Plantar Fasciitis (Planter calcaneal pain) is the distinct clinical condition characterized by pain beneath the hind part of the heel[2].
Common causes of heel pain are[3].

1. Plantar Fasciitis: Plantar Fasciitis rupture and enthosiopathies.
2. Soft tissue: Fat pad atrophy, heel bursa and bursitis.
3. Bone: Stress fracture of calcaneus, paget's disease, primary and secondary tumor and infection.
4. Nerve: Tarsal tunnel syndrome, trapped abductor digiti qunity nerve, and sciatica (S1) radiculopathy.

Plantar Fasciitis is the common cause of heel pain in adult: the disorder is classically present with pain that is particularly severe with first new steps taken in the morning [4].

The pain is usually caused by collagen degeneration (which is some times misnamed chronic inflammation) at the origin of the Planter Fascia at the medial tubercle of the calcaneus, the cause of degeneration is repetitive micro- tears of the Planter Fascia[4].

Its Etiology is poorly understood by many, which have led to confusion in terminolology [5].
Its said to affect patients between ages of 8-80, but its most common in middle aged women and younger, predominantly male runners [6].

The Planter Fascia is a thick, broad inelastic band fibrous tissue that courses a long the bottom (Planter surface) of the food and has an important function in maintaining the medial longitudinal arch, spontaneous rupture or surgical division of the Planter Fascia will lead to flat feet[7].

Management Plan:

In general, Plantar Fasciitis is a self limiting condition unfortunately the time until resolution is often 6-18 months, which can lead to frustration for the patient and the treatment will be more successful if started within 6 weeks after the onset of symptoms [12].

We aimed to study treatment modalities for Plantar Fasciitis

Patients and Methods:

All together one hundred fifty (150) patients with heel pain (Unilateral or Bilateral) attending the rheumatology consultation clinic, Sulaimania general hospital form June 2006 to July 2008 included in this prospective study.
Full history was taken and complete clinical examination was done for all patients with special concentration on heel pain and local tenderness.

X-ray of both heels (lateral view) was done for all patients for presence of calcaneal spure as well as laboratory investigations in order to role out the possibility of inflammatory arthropathies. One hundred twenty one (121) patients attended regularly for follow up while other 29 patients did not come for follow up were excluded from study, male to female was 33/88, age range of 27-81 years with a mean age of 44.6 years.

General recommendations : explanation of the disorder, identification of risk factors, advice and foot wear, orthoses, exercise for stretching the Achilles tendon and night splint, were discussed with all patients whom they were given convenient instructions.

Three treatment modalities were applied, injection of the treated heel from medial aspect with 40mg. Methyl prednisolone plus 1cc of 2% xylocain was done for 57 patients (group1), or 2cc of pain xylocain was done for 34 patients (group2) whilst the 3rd group included 30 patients whom they were treated by one session daily for 6 consecutive days with pulsatile ultrasound 1.5Mhz for 6 minutes. Follow up and reevaluation was done for all patients in various treatment modalities after 4 weeks period.

Results:

150 patients with bilateral or unilateral heel were included in the study, 29 patients did not attend for follow up were excluded while 121 patients with (123) painful heels due to Plantar Fasciitis were studied prospectively in three treatment groups. Patients were classified according to their heel pain, those had heel pain in the early morning only were (A), other with early morning pain and pain on walking were (B) whilst patient had pain in early morning, pain on walking and at rest were put in (C) class.

All treatments modalities were effective in relieving heel pain on short term bases. Among the first treatment group (Steroid plus xylocain) significant reduction in the degree of pain scored with P value of 0.0000 and more than one third of patients (37.2%). Become pain free, whilst the 2nd treatment group (plain xylocain) showed significant heel improvement (p value of 0.0007)and the third group of patients treated with ultrasound showed 36.6% improvement in heel pain ($p < 0.0025$).

The following tables showing:

1. In the steroid xylocaine group 31heels out of 57 heels have improved which means 52.54% of the heels with a p value 0.0000 which is a significant figure.
2. In the xylocaine group 13 heels showed improvement which means an improvement of 38% of the heels and a p value of 0.0007 which also statically significant.
3. While in ultrasound group 11 out of 30 heels had improved which means 36.6% of heels with a p value 0.00025 which is also significant figure statistically.

Table 1: Demographic characteristics of patients with heel pain in various groups

Groups	Pts. NO.	Age Years	Female NO.	Male NO.	NO. of heels
Group 1	57	27-81	43	14	82
Group 2	34	27-65	23	11	34
Group 3	30	25-65	21	9	30

Table 2: The correlation of heel pain (Plantar fasciitis) to calcaneal spure in 121 patients:

		Plantar Fasciitis				Calcaneal Spure			
Groups	Pts. No.	R	L	Bilateral	Total	R	L	Bilateral	Total
Group 1	57	11	21	25(50)	82	5	9	41(82)	96
Group 2	34	7	11	16(32)	50	6	7	19(38)	51
Group 3	30	7	6	17(34)	47	4	5	21(42)	51

Table 3: Results of the treatment with various treatment modalities after 4 weeks of follow up for 121 patients.

	Steroid & Xylocaine		Xylocaine		U/S	
Pts. Groups	No. Before Treatment	No. After Treatment	No. Before Treatment	No. After Treatment	No. Before Treatment	No. After Treatment
Group A	9	18	0	12	2	13
Group B	19	12	6	6	7	7
Group C	31	7	28	15	21	10
Normal	0	22	0	1	0	0
Total	59	59	34	34	30	30

Discussion:

Plantar fasciitis is a common cause of heel pain in adults, the pain is more in the morning with first few steps [4].

Out of 242 heels 198 had calcaneal spures, while means the majority of our patients with heel pain having calcaneal spure this also indicated by one author [9]. Most of our patients were female with female/male ratio of 88/33which is comparable to the findings of others (6&9).

Steroid & xylocaine group:

Out of 59 heels which have been injected with steroid& local anesthetic 31 heels improved for up to 4 weeks, 22 of them became pain free, this means the improvement of 52.54% of patients with a P value 0.0000, which is significant, this result also observed by an other author[10], while Atkins D, Crawford [11] evaluated some of the most frequently described treatment (steroid injection and orthesis), coming to the conclusion that there was an improvement in pain score on there measures, but the trial involved a small population of patient and did not

provide robust scientific evidence of treatment efficacy, this might not be applied in our case regarding the number of the patient and the degree of improvement of pain the steroid group.

Miller RA[12] used betamethason with 1cc Lidocain concluded that steroid inject in a reasonable adjunct in the treatment of painful heel syndrome which is similar to our finding. Lee TG, Ahmad TS[17] compared the efficacy of intralesional autologus blood with corticosteroid injection for plantar fasciitis, concluded that local corticosteroid injection is more superior in terms of speed and probably extend of improment.

Xylocaine group:

34 patient were injected with 2% xylocaine,13 patients had improved, one became pain free (normal) this figure is statically significant as p value is 0.0007.

Xylocaine is a local anesthesia could be used clinically to block pain sensation from a specific area of the body, this action is performed though blockage of voltage gated sodium channel in the peripheral nerve [13].

Ultra sound therapy:

30 patients with 30 heels were treated with U/S therapy of 0.5-0.8 wt. for 6 minutes for 6 sessions, 11 out of the 30 patients had improved, which means 36.6% with a p value 0.0025 which is a significant figure.

Although U/S therapy showed to be effective for reliving pain and 11 of our patients had improvement in the pain score, none of them became pain free after 4 weeks of U/S therapy and this also mentioned by Y.mel-mieday[14] & Crawford & M.snaith[15].

Among indications for using u/s therapy are joint contracture, adhesion, muscular pain & fibrosis.

The precautions for the use of u/s therapy are the same as for deep heat therapy with additional contraindication of u/s include direct exposure to the eye, pregnant uterus, spine, laminectomy site, brain,heart,or known ischemic areas [16].

Other methods to treat plantar fasciopathy like shock wave therapy (SWT) and muscle stretching program have investigated by some author,. Shock wave therapy tried by Rompe DJ [18] claiming that is inappropriate and It appears that one should only consider SWT for plantar fasciopathy after more common, accepted and proven non-invasive treatments have failed., while Radford JD [19] found that two weeks stretching program provided no statistically significant benefit in improving foot pain and foot function.

Conclusion:

All treatment modalities used in this study were effective in various degrees in the management of heel pain on short term basis, but steroid plus xylocain injection was more effective in the degree of pain relief & in the number of patients improvement by comparison to other treatment modalities.

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پوختـــــە

ئازاری پاژنە بەهۆی هەوکردنی ژێ ی بنی پێ یەکێکە لە هۆیە باوەکان بۆ سەردانی نەخۆش لە بەشی روماتیزم بـۆ چارەسـەر. بۆمان دەرکەوتوە کە پویوەندی بەهێز هەیە لە نێوان هەوکردنی ژێ ی بنی پێ وەبونی زیادە تیشـك لـە بنـی پێـدا. وەلـەکۆی 242 نەخۆش کە ئازاری پاژنەیان هەبوو، 198 یان دەرکەوتوە بەهۆی تیشکی سینی کە ئێسکی زیادیان هەیە. بـۆ دۆزینـەوەی چارەسەری کاریگەری بۆ ئەم بارە سێ ڕێگای چارەسەرمان ئەزموون کرد وەك خوارەوە:

1-**دەرزی لێدانی بنی پێ لە ڕووی ناوەوە بە دەرمانی میسایلپرینرزولون 40ملگم تێکەڵ 2س س 2٪ زایلوکاین.**

2-**دەرزی لێدانی بنی پێ تەنها بە 2س س 2٪ زایلوکان.**

3-**چارەسەر بە شە پۆلی سەرودەنگ بۆ ماوەی شەش ڕۆژ.**

دەرکەوتوە کە هەردوو ڕێگا چارەسەرەکان کاریگەرن بۆ کەمکردنەوەی ئازار بۆ ماوەی کورت بە پلەی جیاجیـا. بـەڵام چارەسـەری ڕێگای میسایل پرینرزولون تێکەڵ لەگەڵ زایلوکاین لە هەموویان کاریگەرترە.

الخلاصـــة

الام كعب القدم بسبب التهاب اللفافة الاخمصية هى من الاسباب الشـائعة لمراجعـة المرضـى لاستشـارية المفاصل و التأهيـل فـى السليمانية. و ثبت لدينا وجود علاقة وثيقة بين التهاب اللفافة الاخمصية ووجود النتوء العظمـى العقبـى الاخمصى، حيـث ان من مجموع 242 كعبا فحصوا شعاعيا 198 منهم لديهم نتوء عظمي كعبي اخمصي. لأيجاد العلاج المـؤثر لهـذه الحالـة، اتبعـت ثلاثة طرق علاجية:

1. **زرق كعب من جهة الداخلية بدواء ميثايل برينـدنزلون 40 ملغم مخلوط ب 2 ملغم 2 ٪ زايلوكاين.**
2. **زرق كعب 2 ملغم 2 ٪ زايلوكاين فقط.**
3. **علاج كعب القدم بموجات فوق الصوتية ستة ايام.**

تبين ان كل هذه الطرق مؤثرة لخفض الالم لمـدة قصـيرة و بـدرجات متفاوتـة، و لكـن العـلاج بميثايـل برينـدنزلون مخلـوط مـع زايلوكاين كان اكثرها تـاثيرا.