



RESEARCH ARTICLE

DOI: <http://dx.doi.org/10.14259/av.v2i1.168>

A Clinical Study of Efficacy of Agnikarm: An Ancient Treatment Method in the Management of Heel Pain

AMAR PRAKASH DWIVEDI¹, SHANMUGAMURTHY LAKSHMANAN^{2,3,4*}¹Dr. DY Patil College of Ayurved, Nerul, Navi Mumbai, MH, India.²Department of Dermatology, Harvard Medical School, Boston, MA, USA.³Wellman Center for Photomedicine, Massachusetts General Hospital, Boston, MA, USA.⁴World Institute for Scientific Exploration, Baltimore, MD 21210, USA.

Article Info: Received: January 22nd, 2015; Accepted: February 3rd, 2015

ABSTRACT

Agnikarm is an Ayurvedic treatment technique for heel pain that is still in practice in many parts of India. In this study the efficacy of Agnikarm is clinically tested. Agnikarm proves to be very effective. This study indicates that Agnikarm may be a stand-alone technique. To de-mystify the underlying mechanism of Agnikarm, it is imperative to expand the current scientific understanding of the phenomenon to include the subtle energy physics of the human organism. This research perhaps be underappreciated by researchers and doctors who are seeking alternative/non-invasive modalities of treatments available in the World now.

Keywords: Agnikarm, Heel Pain, planter fasciitis, tendo calcaneal arthralgia, Ayurvedic-Para Surgical Procedure

Introduction

Agnikarm is an ancient pain treatment tool that has been practiced and documented for at least 3000 yrs [1, 2]. Due to the time gap, arcane status of the modern scientists, cultural limitations and linguistic barriers, the Ayurvedic-Para Surgical Procedure (APSP) [3] needs to be explained with a fresh new look that enables better understanding of this ancient technique. When compared with its counterparts, Agnikarm stands out with its efficacy [4-7]. Pain healing [8] can be observed in various conditions, such as fracture of heel bone or lover's heel, tendo calcaneal arthralgia, tendo achilis bursitis and planter fasciitis [9,10].

In the case of planter heel pain, the characteristic feature include pain in the ball of the heel, especially when standing or walking for a long period of time that causes tenderness on the

heel felt as pain distinctly at the attachment of the planter fascia to the medial tubercle of the calcaneus in addition to slight swelling at the attachment of the fascia as externally observable symptoms. For patients affected by heel pain, Roentgenogram radiographs reveal a calcaneal spur with a bony projection forward from the undersurface of the calcaneal tuberosity due to ossification of the planter fascia. Furthermore, the inflammation of the soft tissue or a bursa beneath the spur may also possibly contribute to heel pain.

Typical modern treatment regimen [8] for treating the heel-pain includes prescription of oral non-steroidal anti-inflammatory drugs, extensive bed rest, insole rubber heel cup-pads, radiant heat or diathermy [11] or the injection of hydrocortisone acetate and lignocaine into the tender area. In resistant cases, surgical procedures include release of planter fascia from tuberosity of the calcaneus, removal of any calcaneal spur, neurolysis of the nerve to the abductor digiti minimi, release of the flexor digitorum brevis, and excision of the anterior tuberosity of the calcaneus [10, 12]. However, in modern medical practices prognosis with both conservative and surgical treatment is not employed. This stagnation in current knowledge demands evaluation of an effective alternative, such

*Corresponding Author

Shanmugamurthy Lakshmanan, PhD

Wellman Center for Photomedicine, Massachusetts General Hospital, Harvard Medical School, MA, USA.

Email: slakshmanan1@mg.harvard.edu

as APSP, to tackle this painful heel condition. As a close analogy we may consider the ancient technique called 'Parshneeshool' as a synonym for heel pain, though the term cannot mean the same as the modern word as various other conditions may also possibly involve in the paradigm approach. The clinical features of heel pain can be associated with the ancient terms 'Vatkantak' which can be correlated with the disease referred in various *Vatvyadhi* context in the *classical text*. *Vatkantak* is reviewed in the article [3]. Agnikarm has been described as the most effective therapy in the management [13] of all painful conditions especially for musculo-skeletal disorders. Hence, the present study was carried out based on the literature research. In this study, we found that Agnikarm is very effective in reducing symptoms such as heel pain, swelling and tenderness of heel.

Materials and Methods

This open randomized non-comparative study entitled 'To study efficacy of Agnikarma in the management of Heel Pain' has been conducted at Dr. D.Y. Patil Ayurvedic Hospital, Navi Mumbai, Maharashtra state, India. A total of 30 patients were included in the study. Both male and female patients were randomly selected with pains ranging from 4-9 from a scale of 10. X-rays of the heel were observed manually for all patients. The tool used for Agnikarm was a silver-based heating probe

that generates a maximum heat with rod temperature as high as 350 °C. The type of Agnikarma practiced is called 'Bindu type' [2], that involves intermittent burn (as small circular patterns) with 6 *Bindu* burn per trial. Two trials at the interval of 15 days were performed, and the follow up assessment was carried out consequently after every seven days [Day- 0, 7, 15, 21, 30] a total of five times in a month. After Agnikarm, the 'Yashtimadhu siddha Ghrit' (specially prepared clarified butter or ghee) component [4] was applied over the post burn scars.

Inclusive criteria:

- Calcaneus spur
- Planter fascitis / policeman heel / bursitis (enlargement of ankle joint bursa)
- Partial tears of achilles tendon / sabtaloid arthritis / tendonitis

Exclusive criteria:

- Local infection / Osteoporosis
- Sarcoma / any other type of tumour pressing on tendon
- Corn / Tropical ulcer
- Fracture of calcaneus / ankle joint bone
- Foreign body in heel

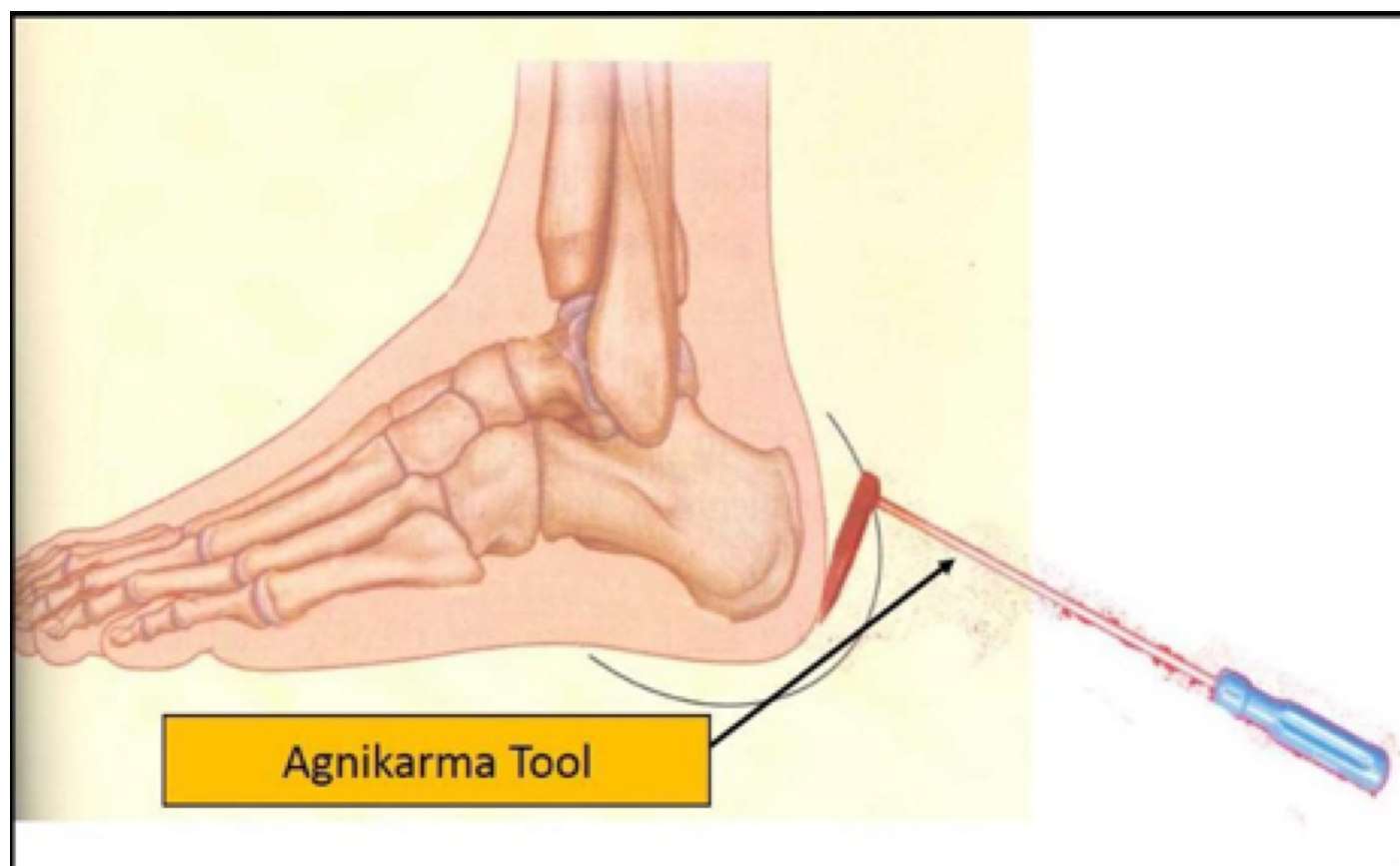


Figure 1: A typical Agnikarma Tool used to treat heel pain. The black line indicates the rough area covered in the treatment.

Table 1: Assessment of pain was carried out with the help of Memorial Symptom Assessment Chart (MSAC).

Parshni shool (Heel pain)	Rarely	0
	Occasionally	+
	Frequently	++
	Almost Constant	+++
Parshni shoth (Swelling on heel)	Rarely	0
	Occasionally	+
	Frequently	++
	Almost Constant	+++
Parshni Pidnaasahatwa (Tenderness)	Rarely	0
	Occasionally	+
	Frequently	++
	Almost Constant	+++
Chankraman Kashtata (Difficulty in walking)	Rarely	0
	Occasionally	+
	Frequently	++
	Almost Constant	+++

Assessment of Severity of Symptoms

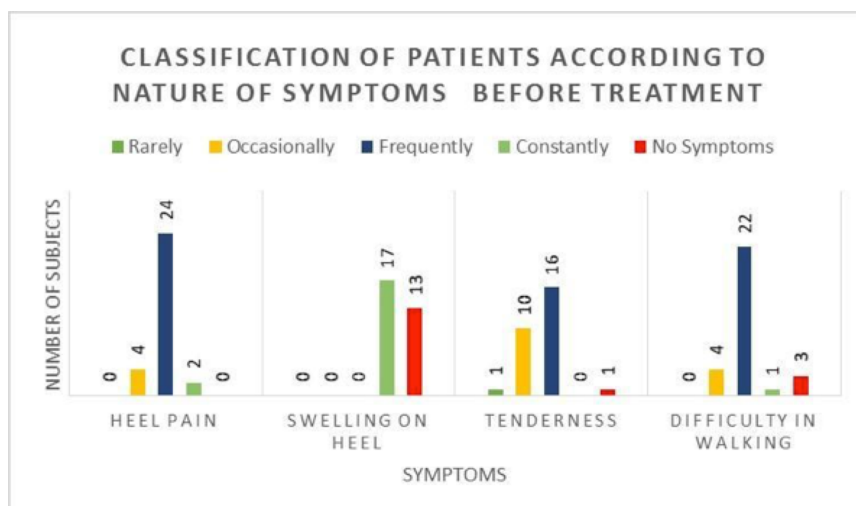
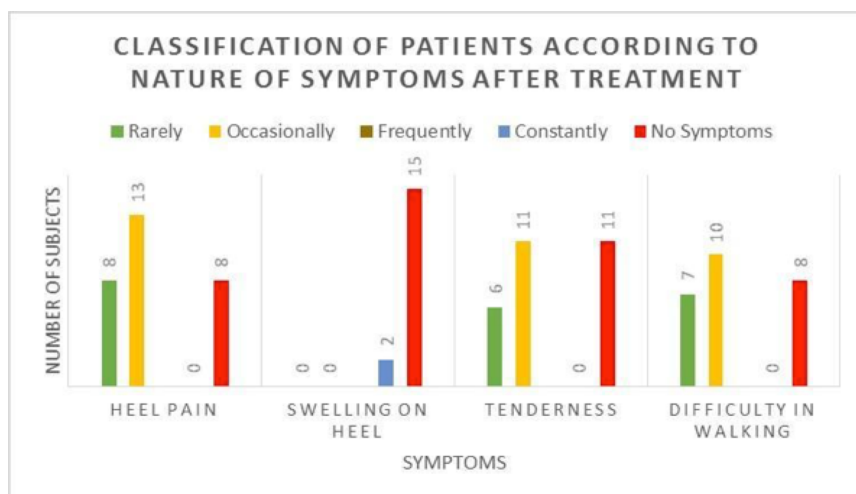
No symptoms	0
Mild	+
Moderate	++
Severe	+++

Results and Discussion

It has been found that mild degree of heating (180 °C) is effective in relieving pain, possibly as a result of the sedative effect on the sensory nerves. However, strong superficial heating (350 °C) procedure has been observed to have potential to relieve pain due to *counter irritation effect*. Our hypothesis here is that the released heat could have caused irritation on the superficial sensory nerve endings thereby relieving pain from the concept of '*counter irritation*'. It has been suggested that pain may be possibly caused as a result of the accumulation of metabolic waste products in the tissues, and an increased flow of blood in the region is the possible mechanism that is responsible to remove these substances and relieve pain. Another possibility is that the pain releasing mechanism is associated with muscle relaxation. Pain due to acute inflammation or recent injury is relieved most efficiently by mild heat. When pain is long standing or of chronic type, heating temperature may be increased up to 360 °C. A possible mechanism using paradigm shift approach is not described here but will be

covered in a review paper.

The demographic analysis on this study revealed a number of acceptable facts. The age group of maximum patients with heel pain was observed between 41 to 50. Heel pain was observed to be dominant in females (66.66%) compared to Males. It was dominant in *VatPitta* (26.66%) and *VatKaph* (23.33%)– *Prakriti* patients [14]. The condition was 80% prevalent in patients using footwear with hard sole, leather and high heels. Due to heel pain, most of the patients progressively developed symptoms such as difficulty in walking, swelling and tenderness in the region of pain. As per demographic

**Figure 2:** Classification of patients according to their nature of symptoms pre-treatment**Figure 3:** Classification of patients according to their nature of symptoms post-treatment

information (straight line scale), 77.57% patients got relieved from heel pain after treatment. Most of the patients got immediate pain relief after Agnikarm therapy. There were no changes found in calcaneal spur present in X-Ray readings

during and after the study. After the second sitting of Agnikarma, all the patients were observed for 30 days (total duration of follow up) and the results obtained after Agnikarm was sustained in patients 100%.

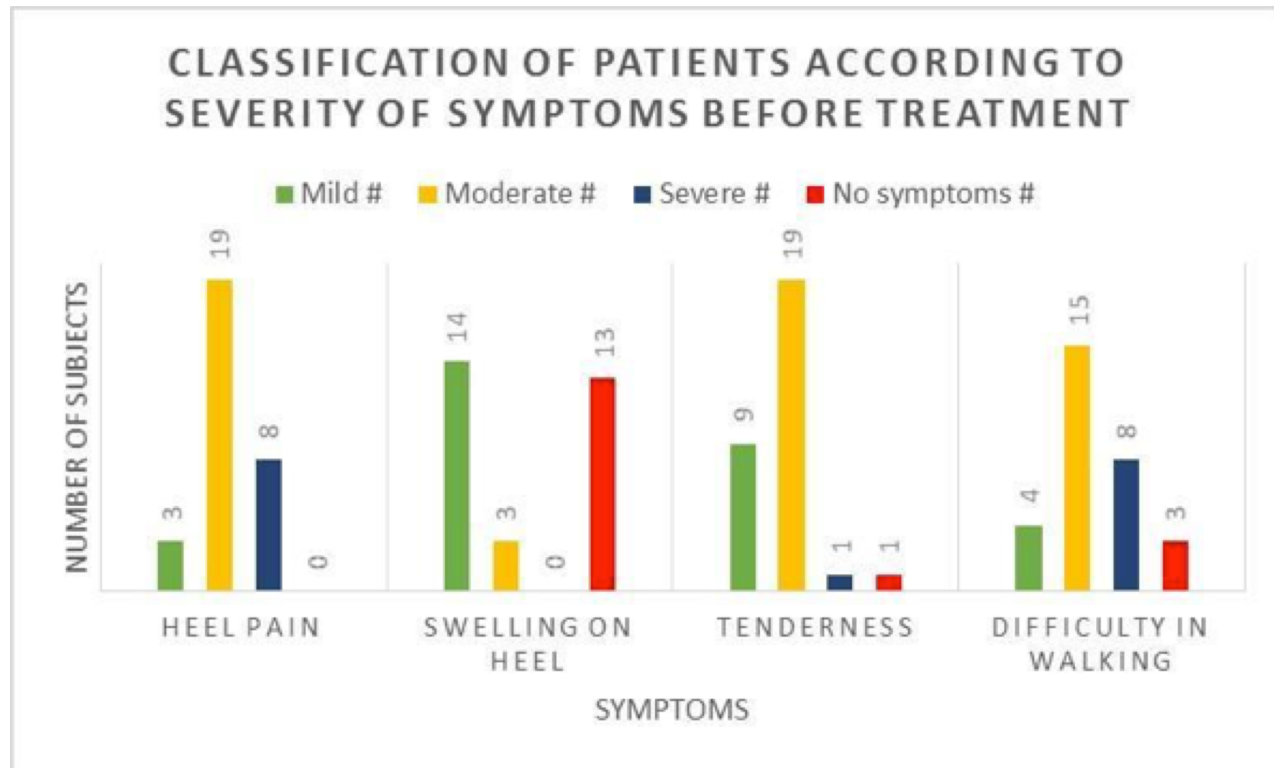


Figure 4: Classification of patients according to severity of symptoms pre-treatment

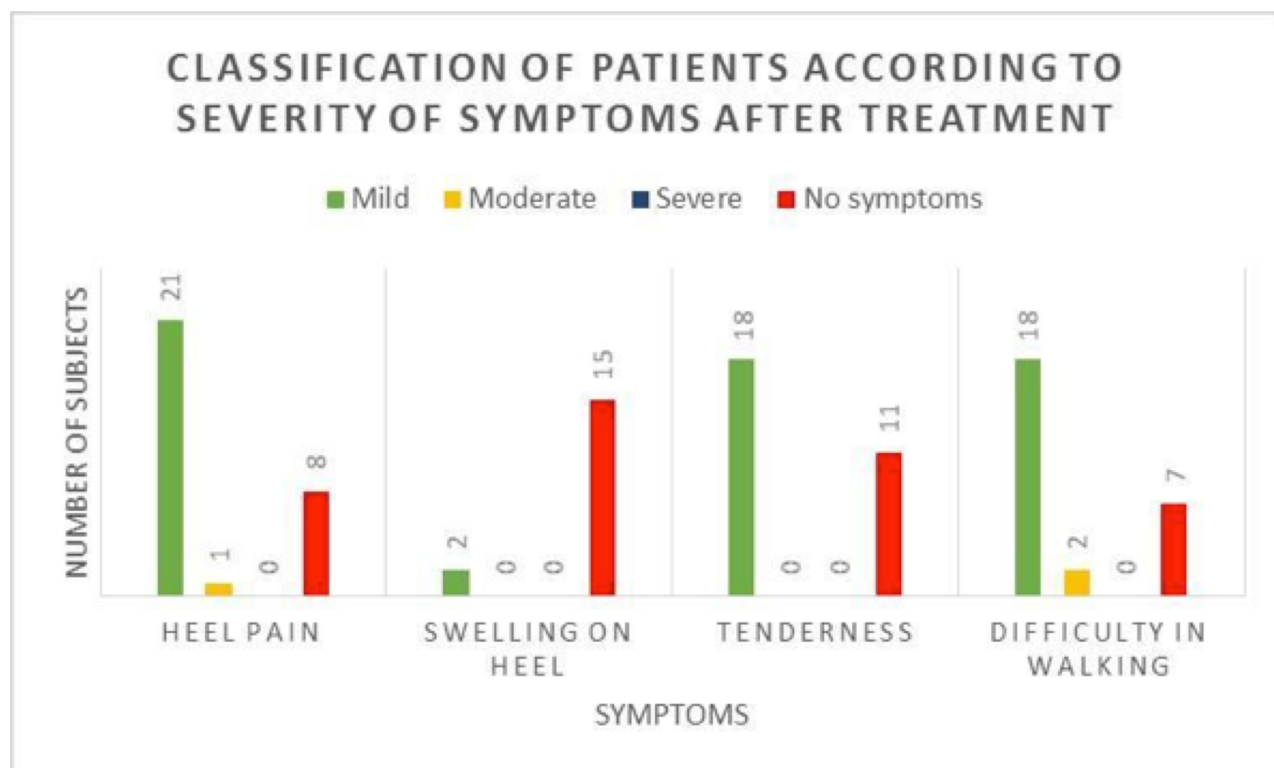


Figure 5: Classification of patients according to severity of symptoms post-treatment.

Table 2: Classification of patients according to relief after treatment

#	Symptoms	Number of Patients	Patients with Symptoms	Relieved or Cured		Symptomatic Relief	
				Patients	Percentage	Patients	Percentage
1	Heel pain	30	30	8	26.6	22	73.03
2	Swelling On heel	30	17	15	88.2	2	11.80
3	Tenderness	30	29	11	37.9	18	62.10
4	Difficulty In walking	30	27	7	25.92	20	74.08

Table 6: Effect of Agnikarm therapy in heel pain by comparing averages (mean) of two samples in which observations in one sample can be paired with observations in the other called as the paired 't' test

#	Groups Numbers	Difference of Mean	Standard Deviation	Standard Error	't' Value	Probability (P)
1	Heel pain After 1 week	101.5±3.4	0.74	0.13	26.15	P < 0.001 Significant
2	Heel pain After 2 week	101.5±3.4	0.74	0.13	26.15	P < 0.001 Significant
3	Heel pain After 3 week	146.5±4.9	0.89	0.16	30.24	P < 0.001 Significant
4	Heel pain After 4 week	184±6.13	0.9	0.16	38.31	P < 0.001 Significant

Conclusion

In this preliminary clinical research, the efficacy of Agnikarm in the management of heel pain was clinically demonstrated on 30 patients. Over all our clinical research and statistical analysis proved the significant role of Agnikarm in the effective management of heel pain. In comparison with "standard"-established medical intervention, Agnikarm is a cost effective, easy to practice, less complicated, quick relief treatment that does not require surgeries or hospitalization. Agnikarm can be an acceptable alternative to contemporary heel pain modalities. However, further research is needed to establish the complication levels as well as expanding the study with involvement of broader cohort of study specimens. Moreover, to understand and interpret the study results, "modern" cellular level mechanistic studies, in order to further our understanding the findings, are warranted. Over all we conclude that Agnikarm is a cure of underlying causes, rather than just treating pain; it not only relieves pain, but also help restore the body to fundamental health by addressing root causes. The authors hope this paper can bring a lot of light on the ancient ways of healing that can be beneficial to the humanity as a whole.

Acknowledgement

SL would like to express his thanks to the World Community

Service Center and the World Institute for Scientific Exploration for the support.

References

1. Sharma PV: *Sushruta samhitha: With English translation of text and Dalhana's commentary along with critical notes edited and translated*, vol 1. Varanasi: Chowkambha Publishers; 2004.
2. Ramkaran S, Vaidya Bhagwan D: *Agnivesha's Charaka Samhita. Text with English translation. Translated*, vol 1. Varanasi: Chowkambha Publishers; 2005.
3. Sharma PV: *Cakradatta- (Sanskrit text English translation) Edited and translated* edn 2nd. Varanasi: Chowkambha Publishers; 1998.
4. Shekoker A: *A Comparative study of Agnikarma and Ajamodadi vati in the Management of Gridhrasi*. Jamnagar: Gujarat Ayurved University; 2004.
5. Panchani V: *Comparative study of Agnikarma therapy and Physiotherapy (swd) with special reference to Janusandhi shoola (knee arthritis)*. Varanasi: Pune University: Tilak Ayurved College; 2006.
6. Mahanta V, Dudhmal T, Gupta S: Clinical Efficacy of Agnikarma in the Management of Sandhigata Vata wsr to Cervical Spondylosis. *Indian Journal of Ancient Medicine and Yoga* 2012, 5.

7. Bakhshi B, Gupta S, Rajagopala M, Bhuyan C: A comparative study of Agni karma with Lauha, Tamra and Panchadhātu Shalakas in Gridhrasi (Sciatica). *AYU (An international quarterly journal of research in Ayurveda)* 2010, 31:240.
8. Alvarez-Nemegyei J, Canoso JJ: Heel pain: diagnosis and treatment, step by step. *Cleveland Clinic journal of medicine* 2006, 73:465-471.
9. Irving DB, Cook JL, Menz HB: Factors associated with chronic plantar heel pain: a systematic review. *Journal of science and medicine in sport* 2006, 9:11-22.
10. Tomczak RL, Haverstock BD: A retrospective comparison of endoscopic plantar fasciotomy to open plantar fasciotomy with heel spur resection for chronic plantar fasciitis/heel spur syndrome. *The Journal of foot and ankle surgery* 1995, 34:305-311.
11. Kirschek O, Rompe J, Herbsthofer B, Nafe B: [Symptomatic low-energy shockwave therapy in heel pain and radiologically detected plantar heel spur]. *Zeitschrift für Orthopädie und ihre Grenzgebiete* 1997, 136:169-174.
12. Hendrix CL, Jolly GP, Garbalosa JC, Blume P, DosRemedios E: Entrapment neuropathy: the etiology of intractable chronic heel pain syndrome. *The Journal of foot and ankle surgery* 1998, 37:273-279.
13. Gupta P: *Agnikarma Technological Innovations (Treatment by Therapeutic Burning)* edn 1st. Nagpur: Prabha publications; 1992.
14. Lakshmanan S: Ayurveda-Ancient Science and Technology: A Quantum Paradigm. *Ancient Science* 2014, 1:15-22.

Note: VRI Press, Vedic Research Inc. is not responsible for any data in the present article including, but not limited to, writeup, figures and tables. If you have any questions, directly contact authors.

Visit us @ www.vedicjournals.com : DOI: <http://dx.doi.org/10.14259/av.v2i1.168>

Copyright © 2013-2015 VRI Press, Vedic Research, Inc. USA. All rights reserved.

Authors Column



Dr. Amar P Dwivedi, working as Associate professor & in-charge of Surgery (Shalya) Department at Dr.D.Y.Patil Ayurveda College, Navi Mumbai, Maharashtra, India. I completed my UG/ PG (Shalya) from R.A.Podar Govt. Ayurved Medical College, Mumbai, India & presently doing my Ph.D. from MUHS i.e. Maharashtra University of Health Sciences, also PG guide (M.S. Shalya) at D.Y.Patil University and Member-BoS (Board of Study) for clinical board and Member-Board of Study in Shalya Tantra, at Jiwaji Govt. University, Gwalior & Member- Fellow ship & Certificate courses at MUHS & former Member-Anti Plagiarism committee at MUHS.



Dr. Shanmugamurthy Lakshmanan is a Research Scientist at Wellman Center for Photomedicine, Harvard Medical School, Massachusetts. His research focus is on Nanotechnology and Siddha- Ayurveda Photomedicines. He is the Vice President for International Research for the World Institute for Scientific Exploration and a distinguished Scientific Advisor and Head of the Indian Division of Sciences. He is also the Editor-in-Chief of two peer reviewed international journals: 1) Ancient Science and 2) Ayurveda, that has been established by VRI Press, Vedic Research, Inc. USA.