Metatarsalgia:
Treatment by Acupuncture

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Summary
A course of acupuncture treatment was performed on fourteen consecutive patients with metatarsalgia. Thirteen (93%) patients responded to acupuncture treatment. The effect appeared long-lasting, as only two patients had a relapse of symptoms over a one year follow-up period.

Key words
Acupuncture, Metatarsalgia.

Introduction
Metatarsalgia is a general term used to describe pain over the ball of the foot and is usually a result of chronic trauma to the interdigital nerves, or due to a disorder of the metatarso-phalangeal joints. Conservative treatment, using a soft metatarsal pad together with a non-steroidal anti-inflammatory drug (NSAID), is usually recommended as the treatment for this disorder (1), but surgery may be indicated in certain types of metatarsalgia that have failed with conservative management. Acupuncture is one form of treatment which has been used for both neuralgic and articular pains, and in particular it has been successful in chronic foot pain (2). This preliminary study was performed to see whether local acupuncture treatment was an effective method of alleviating metatarsalgia.

Method
Fourteen consecutive patients, aged 12-82 years, 5 male, who presented with metatarsalgia were studied. All patients presented with pain in and around the big toe or in the forefoot area. Tenderness was usually located around the ball of the foot and occasionally on and around the extensor surface of the 1st metatarso-phalangeal joint. No patient with a red and painful joint suggestive of gout was included. A one inch, 32 gauge needle was inserted fully across the forefoot at the base of the proximal 1st metatarso-phalangeal joint, parallel to the plantar surface of the foot, left in situ for 30-60 seconds and then removed without stimulation (Figure 1). A second point of needleling was occasionally used on the extensor surface of the big toe, if a point of tenderness was elicited around the proximal 1st metatarso-phalangeal joint. The needle was inserted onto the periosteum at the point of tenderness, left for 30-60 seconds and removed without further stimulation. Treatment was repeated at 1-2 weekly intervals, but was stopped if no improvement occurred after the third treatment. The duration of the patients' symptoms varied from 3 days to 16 months (median 2 weeks). Four patients had visually obvious osteoarthritis of the proximal metatarsal joint, two had had previous surgery for hammer toes and eight patients had no pathology detectable by examination. No radiology was performed to detect joint disease.

The amount of pain present prior to and during the course of acupuncture treatment was determined using a simple 100 point visual analogue scale. Only one patient was given a non-steroidal anti-inflammatory drug during the study, after two acupuncture treatments had failed to give appreciable improvement. This same patient was withdrawn after the third treatment gave no improvement in his pain scale.

Figure 1. The foot showing the acupuncture needles in position.

Needle 1 (SP.3) was inserted into the forefoot at the point of tenderness, left for 30-60 seconds and removed without further stimulation. The duration of the patients' symptoms varied from 3 days to 16 months (median 2 weeks). Four patients had visually obvious osteoarthritis of the proximal metatarsal joint, two had had previous surgery for hammer toes and eight patients had no pathology detectable by examination. No radiology was performed to detect joint disease.

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Results
Thirteen (93%) patients benefited from treatment by acupuncture. This was shown by a reduction of the visual analogue scores during the course of treatment (Figure 2). One patient required a single treatment, 4 required two treatments, 6 patients three, one patient four and one patient six treatments. One patient had no benefit from a combination of acupuncture and diclofenac, an NSAID, and was referred to an orthopaedic surgeon who injected the proximal 1st metatarso-phalangeal joint with a local steroid injection before relief was obtained. Over a follow up period of one year, two patients developed a recurrence of their symptoms, at 3 and 6 months respectively after their last acupuncture treatment. The VAS figures were 25 and 5 respectively and both responded to a single acupuncture treatment as previously described.

Discussion
The study has shown that metatarsalgia may be treated effectively by acupuncture alone and should now be recognised as a suitable form of conservative treatment for this condition. In the majority of patients treated, a maximum of three acupuncture treatments was required to alleviate the metatarsalgia and the effect seems to be an enduring one, as only two patients had recurrence of pain within a one year follow-up period. This prolonged analgesic effect occurred even in those patients who had obvious joint pathology.

The acupuncture points used to treat metatarsalgia in this study can be described in both traditional Chinese and modern Western acupuncture terminology. Using traditional Chinese nomenclature the acupuncture point used across the 1st metatarso-phalangeal joint is Spleen 3 and the other point used is equivalent to an Ah-shi point. Using modern Western acupuncture terminology, these would be described as trigger points, as they were tender to palpation. These acupuncture points have previously been described by Mann (3) for treatment of pain in the foot, but no description was given of their efficacy or duration of effect for the painful conditions described. The acupuncture method used was both easy and quick to perform, and well within the remit of a busy General Practitioner’s limited consultation time. A further consideration should be the safety of acupuncture to the foot, compared to the possible side effects associated with NSAIDs normally recommended as treatment for metatarsalgia.

This study cannot answer the question as to whether acupuncture is more effective than conservative management with a metatarsal pad and NSAID, as the two treatments have not been formally compared. However, the results are sufficiently encouraging to suggest that metatarsalgia may be treated by acupuncture alone and to warrant a trial comparing the effectiveness of these differing conservative treatments.

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References

Acupuncture and Moxibustion: Formulas and Treatment by Cheng Dao-An
* Discussed in details how qi flows, how to manipulate specific points, how in sequence one's needle insertions, how long to stimulate, etc. A very useful clinical book. £20.50+P&P

Acupuncture & Related Techniques in Physical Therapy ed by Y Raywood, M Lowrey & S Mckone
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