nearly always totally unaware of their presence and, therefore, cannot be of any assistance when a search for them is being made. It also has to be remembered that pain from any one TrP is often felt a considerable distance away from it. For example, TrP activity in the levator scapulae muscle gives rise to pain that is felt not only at the base of the neck and down along the inner border of the scapula but it may also extend upwards towards the occiput, downwards along the inner side of the arm and occasionally around the chest wall. It is because a knowledge of the various specific patterns of MTrP pain referral is therefore so essential that, during the course of this book, each one will be described in detail.

Directions in which MTrP pain is referred

Simons (1993) has estimated that in 48% of muscles MTrP pain is referred in a downwards direction; in 17% it is referred both locally and downwards; in 10% it is confined to the region around the MTrP; in 20% it is in an upwards and downwards direction; and in only 5% is it in an upwards direction alone.

MTrP pain pathways and their relationship to those taken by Chinese acu-tracts When, during the 17th century, news reached the Western world that the Chinese believed in the existence of structures now known in the West as acu-tracts, channels or meridians and had precisely defined the various courses taken by them, they were immediately dismissed as figments of their imagination, as it was impossible to demonstrate their presence anatomically. However, when one comes to study the paths taken by pain referred from MTrPs it is remarkable how often these coincide with those of Chinese acu-tracts.

Macdonald (1982) describes how he persuaded 52 consecutive patients with chronic musculoskeletal pain seen in his practice, to draw maps of their pain on diagrams of the human body. Somewhat to his surprise, he found that 85% of them drew thin lines linking one area of pain with another. And even more surprisingly he found that 96% of these thin lines corresponded with that of the course taken by one or another of the acu-tracts (meridians) described by the ancient Chinese.

One of his patient's response to needle stimulation was particularly remarkable insomuch as

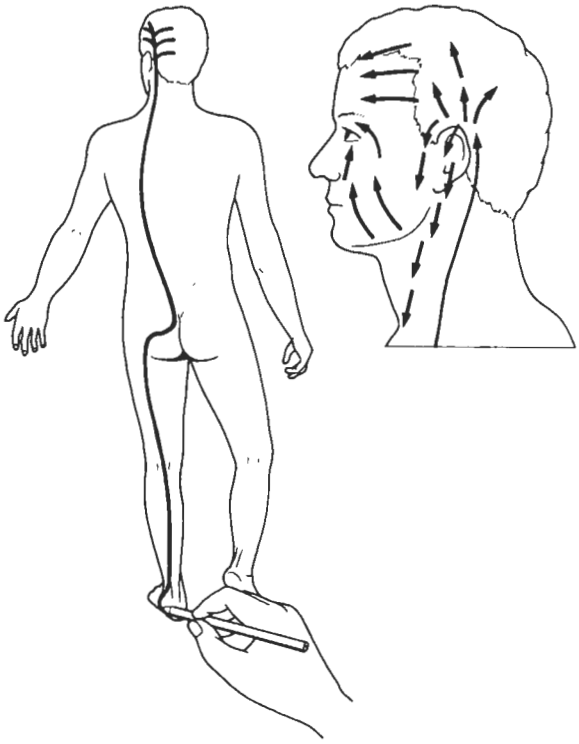

Figure 7.4 The pattern of sensation drawn by a patient on an outline of the body following the insertion of a needle into his heel. Reproduced with permission from Alexander Macdonald's *Acupuncture from Ancient Art to Modern Medicine*, 1982.

that whenever a needle was inserted into him he had a feeling of 'warm water' flowing from it; and, although the patient had no previous knowledge of Chinese acupuncture, when needles were inserted into various parts of his body, the paths taken by this 'water' coincided with those taken by meridians. Figure 7.4 shows the drawing the patient made of the path taken by it flowing up his leg and back from a needle inserted into the heel and by comparing it with Figure 7. 5 it will be seen that this is identical with that taken by the traditional Chinese 'urinary bladder' meridian.

Needle-evoked sensations

As will also be discussed in Chapter 10, from the time that the Chinese first began to practise acupuncture they have described various sensations that may be elicited as a result of inserting a needle into an acupuncture point. These are

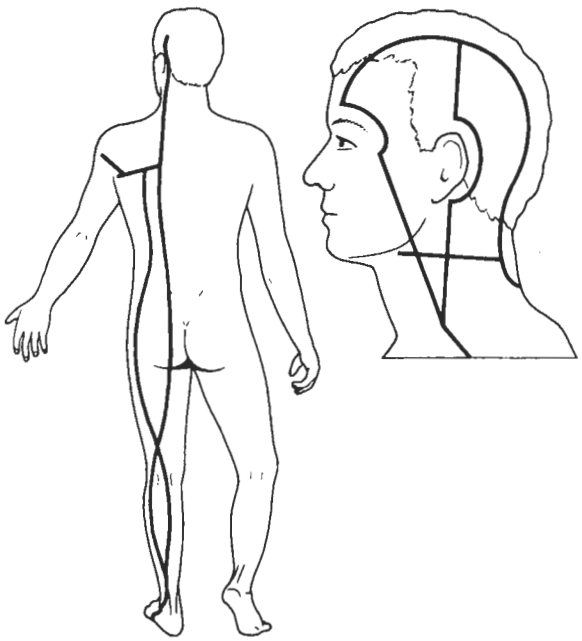

Figure 7.5 Composite drawing of the urinary bladder meridians taken from several traditional Chinese sources. It will be seen that the course taken is much the same as the pattern of sensation drawn by the patient in Figure 7.1. Reproduced with permission from Alexander Macdonald's *Acupuncture from Ancient Art to Modern Medicine*, 1982.

collectively known as tê-chhi (sometimes in Western literature spelt de-qi). They include numbness, distension, aching, heaviness and soreness. In most cases a sensation of this type remains confined to the site where the needle is inserted, but occasionally it radiates some distance from it and in rare instances it travels along the entire course taken by a traditional Chinese acu-tract. When this happens it is known as propagated sensation along a channel (PSC).

The Cooperative Group of Investigation of PSC (1980) in China studied the distribution of these needle sensations in 64 228 patients and found that these were localized in the majority of them. However, about 20% of the patients described sensations that radiated for short distances and about 0.4% of them had sensations propagated along a channel.

The Research Group of Acupuncture Anaesthesia at the Institute of Medicine and Pharmacology in the Fujian Province of China reported in 1986 that mechanically compressing, cooling, or locally anaesthetizing the soft tissues at some site along the course of a PSC blocked its spread. Such an observation is somewhat surprising for it tends to support what is now generally accepted to be the untenable belief that acupuncture tracts or what in the West have come to be known as meridians are anatomical structures.

It would seem far more likely, as Becker et al (1976) have pointed out, that such channels and the propagated sensations along them owe their existence to some as yet unidentified electrical activity in the central nervous system.

In support of this are observations made by Xue (1986), which led him to believe that PSC occurs as a result of activity in the parietal cortex. He came to this conclusion from descriptions of pain referral given to him by patients with a variety of different neurosurgical disorders. One of the most striking of these was that of a below-knee amputee who described propagation of sensation from a point on his stump not only upwards along the surface of it but also downwards into his phantom limb. It is, possible therefore, that the ancient Chinese evolved their ideas concerning acu-tracts or channels from similarly observing the pathways taken by pain arising both spontaneously and in response to needle stimulation.

Diagnosis of MTrP pain syndrome

As there are no laboratory tests or routine imaging techniques currently available to assist with confirming the presence of this syndrome its diagnosis can only be made by means of a carefully taken case history and the skilled elicitation of a number of characteristic physical signs.

Symptoms

Pain The nociceptive type of pain which arises as a result of MTrP activity in the MtrP pain syndrome typically takes the form of a widespread dull ache exacerbated by the carrying out of certain movements. This is in contrast to the burning or electric shock-like sensations experienced by patients with neuropathic pain.

The syndrome is usually confined to one region of the body but in some cases it affects several

downwards into the teeth of the upper jaw; and that from a TrP at site 4 is in a backwards and upwards direction from it (Fig. 16.6A).

Locating TrPs When examining the temporalis muscle for TrPs, they are more readily found if the muscle is put slightly on the stretch by having the mouth propped partially open.

TrP deactivation It is relatively easy to deactivate TrPs in this muscle by means of the carrying out of superficial dry needling but even with this care must be taken not to puncture the temporal artery.

Differential diagnosis It has to be said that, although persistent pain in the temporal region is commonly due to TrP activation, when it occurs in the middle-aged and elderly, the possibility that it may be due to giant cell arteritis must always be considered. In this disorder the pain may be in any part of the head but is commonest in the temporal region, and when this is so it is often made worse by mastication – a state of affairs sometimes somewhat ineptly referred to as jaw claudication considering that the jaw is incapable of limping! On examination, the temporal artery is characteristically thickened and pulseless, there is much surrounding tenderness, and, in some cases, the overlying skin is reddened. The physical signs, however, are often by no means obvious and in any case of doubt it is essential to have the ESR measured as with this condition it is invariably appreciably elevated.

This disorder has been discussed at some length because, unless the possibility of it occurring is taken into consideration, the pain and tenderness associated with it may all too readily be assumed to be due to TrP activation. This is a mistake that could have far-reaching consequences, because, whilst time is being wasted treating the condition with acupuncture rather than with a corticosteroid, there is always the risk of blindness developing.

TrP ACTIVITY IN SKIN MUSCLES: ORBICULARIS OCULI, ZYGOMATICUS AND OCCIPITOFRONTALIS (Fig. 16.10)

Orbicularis oculi

TrPs may become activated in this muscle as a primary event in someone who persistently frowns, or as a secondary event when pain is referred to the orbit from TrPs in the sternomastoid muscle.

The TrP lies above the eyelid just beneath the eyebrow against the bone of the orbit. The referral of pain from this is down the side of the nose (Fig. 16.11).

In deactivating this point with a dry needle, superficial needling is particularly necessary

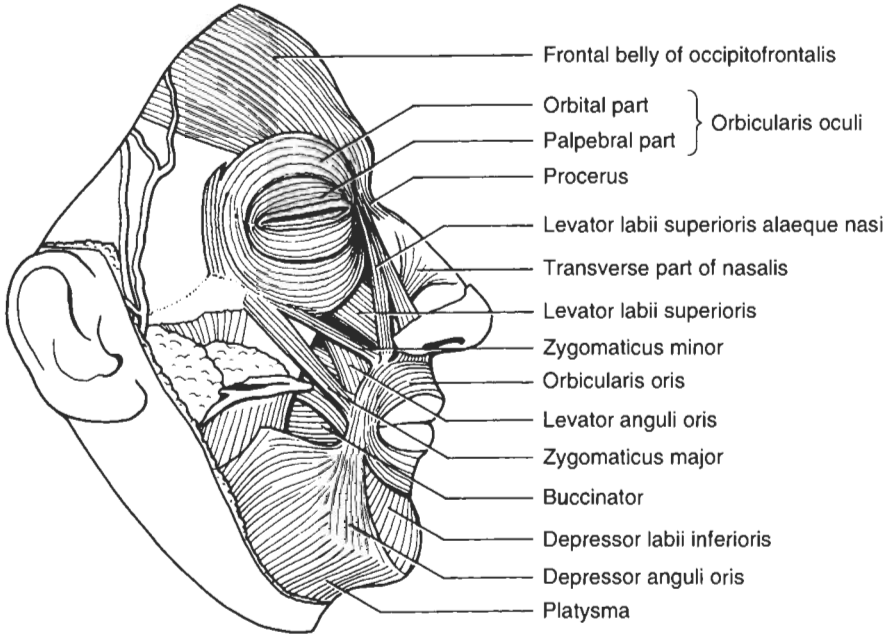

Figure 16.10 Muscles of the scalp and face. Right lateral aspect.

because due to the laxity of the tissues at this site there is a risk of a haematoma developing.

Zygomaticus major

This muscle, which assists in controlling facial expression by drawing the angle of the mouth upwards and backwards, attaches above to the zygomatic bone, and below to the angle of the mouth.

A TrP in it may become activated either as a result of direct trauma to the face or secondary to TrP activation in the masticatory muscles. This point is usually situated just above the corner of the mouth and is best located with the mouth propped wide open and the muscle held in a pincer grip with one digit intraorally and the other extraorally. Pain from it is referred upwards along the side of the nose to the forehead (Fig. 16.12). The TrP is generally to be found in a palpable band of muscle and to deactivate it, a needle should be inserted into the superficial tissues overlying it.

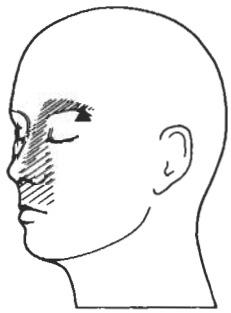

Figure 16.11 The pattern of pain referral from a trigger point in the orbicularis oculi muscle.

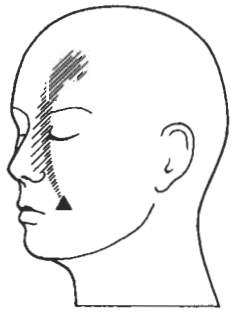

Figure 16.12 The pattern of pain referral from a trigger point in the zygomaticus muscle.

Occipitofrontalis muscle

This cutaneous muscle of the scalp is in two parts – the frontalis situated anteriorly, and the occipitalis situated posteriorly. The action of both of them acting together is to wrinkle the forehead.

A TrP in the frontalis is liable to become activated in someone who persistently frowns, and also, when TrPs in the sternomastoid muscle refer pain to the frontal region of the head.

The TrP is usually situated above the inner end of the eyebrow. Pain from this is referred locally around the TrP site. In order to deactivate it, a needle should be inserted superficially and obliquely into the skin (Fig. 16.13). A TrP in the occipitalis part of the muscle often becomes activated as a result of TrPs in the posterior cervical muscles referring pain to the occipital region. It refers pain over the side of the head from the occiput to the orbit (Fig. 16.14). It is readily identified by palpating gently over the back of the head and this point also should be deactivated by inserting a needle superficially and obliquely into the skin.

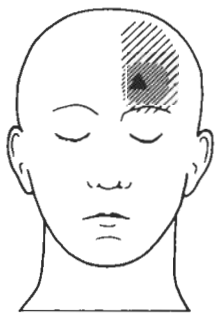

Figure 16.13 The pattern of pain referral from a trigger point in the frontalis belly of the occipitofrontalis muscle.

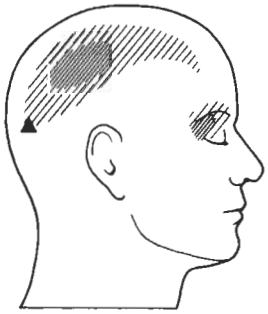

Figure 16.14 The pattern of pain referral from a trigger point in the occipitalis belly of the occipitofrontalis muscle.