

32. NOVEL MEDICAL ACUPUNCTURE TREATMENTS FOR ACTIVE COMBAT UNITS ON THE BATTLEFIELD

INTRODUCTION

Acupuncture has been employed in China since the second century BC to treat acute and chronic medical problems. The technique was introduced to Europe in the 16th century. In these regions, the benefits of acupuncture in treating musculoskeletal injuries are well documented, and acupuncture is widely practiced alongside mainstream Western medicine. Moreover, because of the convenience and cost-effectiveness in treating various training injuries among the military population, countries such as China, Japan, Korea, and France have incorporated acupuncture into their military medical armamentarium.

Although its introduction to American medicine has been very recent, acupuncture has steadily gained popularity. The alternative medical paradigm underlying acupuncture energetics (the use of acupuncture to move *qi*—pronounced “chi”—or life force within the human system) provides for a novel approach to treating difficult problems faced by physicians in such specialties as pain management, sports medicine, rheumatology, and internal medicine. Research has provided various possible explanations for acupuncture’s effectiveness, including the release of enkephalins and endorphins during needle stimulation with activation or suppression of various areas of the brain found on functional magnetic resonance imaging (MRI).

Acupuncture offers unique advantages as an adjunct to traditional medicine in treating conditions such as posttraumatic stress disorder, phantom limb pain, and neuropathy. It is portable, cost-effective, adaptable to harsh environments, and requires minimal training. These qualities are particularly useful to battalion surgeons (physicians embedded with active infantry units). Typically, battalion surgeons work in a tactically isolated battle zone with limited medical resources and capability. In addition,

as a sole provider for the battalion, the battalion surgeon has the daunting task of triaging all forms of trauma, as well as managing the day-to-day physical and mental health of the troops with the goal of maintaining critical mission readiness. An additional advantage acupuncture offers over traditional pain medications is the lack of side effects such as dizziness, somnolence, cardiac depression, gastrointestinal disturbance, and allergies that can potentially interfere with a soldier’s ability to execute mission critical tasks.

Many people who are unfamiliar with acupuncture have raised legitimate concerns over issues such as potential infection from needles, pain with needle insertion, and lack of evidence supporting acupuncture in the Western medical literature. Although acupuncture has been used in many Asian countries as a standard of medicine for over 2,000 years, it is only in the last several decades that the United States has been introduced to its conventions. Studies suggest that acupuncture needles, which are both sterile and disposable, involve minimal risk of infection. Also, because the needles are blunt tip and small bore (smaller than a 27-gauge needle), they typically cause minimal pain with insertion.

Acupuncture should not be thought of as a replacement for traditional medical treatment, but rather as an adjunct to enhance traditional medicine as part of a multimodal pain plan. It can potentially provide military pain management physicians with another medical tool to further improve the care of the troops on the battlefield. The remainder of this chapter does not provide a treatise on acupuncture energetics, but rather describes examples of several “tried and true” acupuncture treatments that have been effective during early 21st century conflicts.

ACUPUNCTURE NEEDLES

Acupuncture needles consist of a blunt-tip stainless steel shaft and coiled handle. Each needle is steriley packaged inside a hollow guide tube and held in place with a small plastic chad (Figure 32-1).

Figure 32-1. SEIRIN L-type acupuncture needle with insertion tube (SEIRIN-America, Weymouth, Mass). Each L-type needle has a 20-mm stainless steel handle with either a 30-mm, 40-mm, or 60-mm needle length (also made of stainless steel), and the gauge is available in 0.20 mm, 0.25 mm, or 0.30 mm, so the practitioner may choose the best size for each patient and each acupuncture point. Photograph: Courtesy of SEIRIN-America, Weymouth, Mass.

The handles of acupuncture needles are often heated with a heat lamp or moxibustion to further amplify the treatment. Moxibustion is a technique that employs smoldering mugwort herb (moxa), rolled inside a long paper stick, to heat needles after they have been inserted. It requires well-ventilated space and has a pungent odor, so it is typically more suitable in field settings. Acupuncture treatment can also be done through ear access points with auricular pins (Figure 32-2).



Figure 32-2. ASP brand auricular pins (Lhasa OMS Inc, Weymouth, Mass); inset: detail of tip. Photograph: Courtesy of SEIRIN-America, Weymouth, Mass.

NEEDLE INSERTION TECHNIQUE

Although acupuncture needles do not cut the skin, practitioners may still prefer to wipe the skin with alcohol or iodine before insertion. Also, medical prudence must be exercised so that needles are not inserted into an area of dermatopathology (eg, cellulitis, tinea pedis, eczema).

Various methods are used to insert acupuncture needles. One technique begins with holding the guide tube between the thumb and the index finger of the nondominant hand and placing it at the insertion site (Figure 32-3a). The chad is removed with the dominant hand, and using one gentle but firm tap on the end, the needle is inserted into the skin (Figure 32-3b). Once the epidermis is traversed, the practitioner uses brisk rotation of the coil of the needle while gently pushing the needle deep into the dermis, often into the muscular layer. The insertion of the needle is complete when the patient feels a deep aching sensation with rotation of the needle. At the same time, the provider will feel more resistance with each rotation of the needle, known as "needle grabbing," or *de qi* sensation, signifying, according to traditional Chinese theory, the engagement of the patient's acupuncture energetics.

The second method begins with removing the needle from the guide tube, holding it between the dominant thumb and the index finger like a pencil (Figure 32-4a), and aligning it along the length of the extended third finger (Figure 32-4b). While keeping the tip of the needle close to the tip of the third finger and using the finger as a guide, the needle is inserted in one motion. It is often useful to use the nondominant hand to stretch out the skin at the insertion site, so that insertion can be achieved perpendicularly to the skin. This technique can be more difficult than the first and often requires more practice to master; however, patients often find it more comfortable.

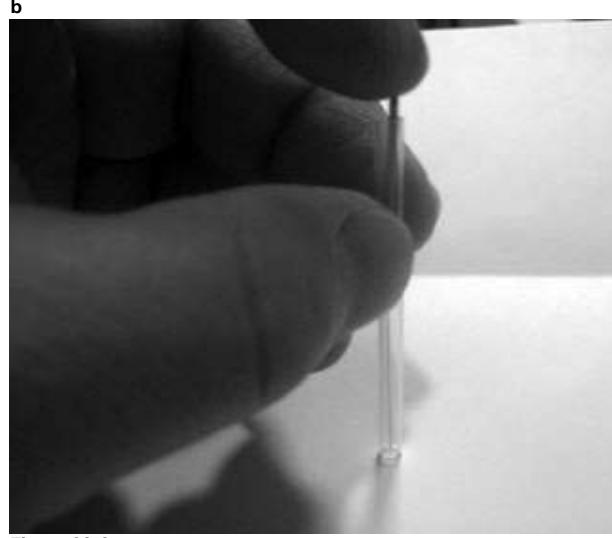
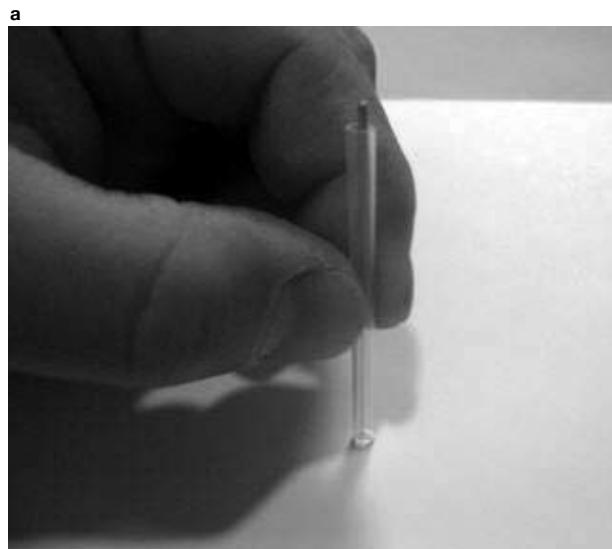


Figure 32-3

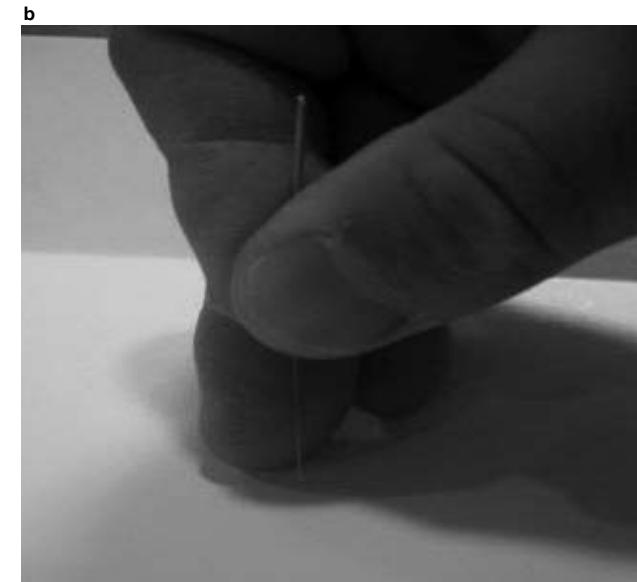
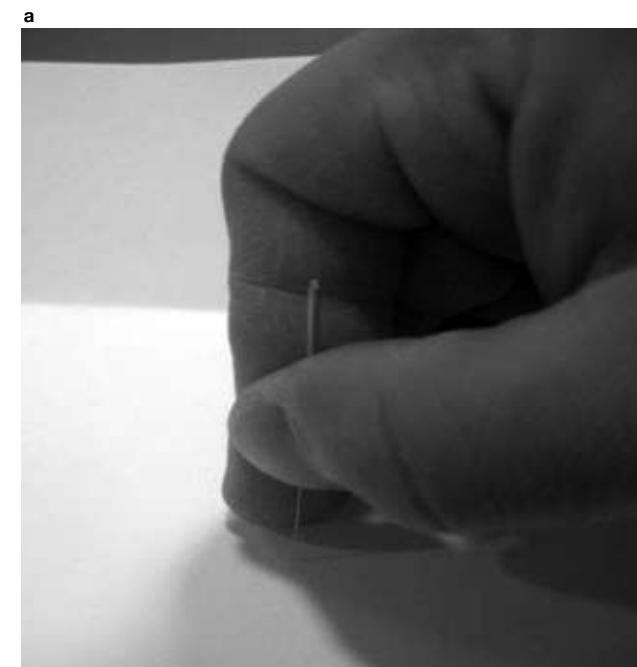


Figure 32-4

BATTLEFIELD ACUPUNCTURE

Auricular acupuncture was revolutionized in the United States by Air Force Colonel Richard Niemtzow's battlefield acupuncture technique. In this technique, points on the ears are accessed with ASP (Aiguille Semi-Permanent) needles to activate corresponding areas in the brain that have been shown by functional MRI to modulate both acute and chronic pain, mainly the thalamus and cingulate gyrus, respectively (Figure 32-5). Preloaded in an injector, the ASP pins can be placed at the site of insertion by a gentle push of the guide tube. Because the pins can be left in the skin for 2 to 3 days, an alcohol pad should be used to clean the area before insertion.

TREATMENTS

Severe Heat Exhaustion, Heat Stroke, Shock, Unconsciousness, Acute Muscular and Lower Back Spasm

Acupuncture point: Governor vessel 26 (GV26), located on the face at the midline, at the junction of the upper third and lower two thirds of the distance from the nose to the lip (Figure 32-6).

GV26, a potent reviving point for patients with extreme heat exhaustion and shock, can be used in a mass casualty setting. Place the acupuncture needle into the GV26 point directed toward the center of the head, and vigorously rotate it clockwise while achieving *de qi* sensation. This sensation is usually felt at an approximate depth of 2 cm. Continue rotating the needle clockwise until the patient is revived, after which the needle should be removed. This procedure should only be instituted following standard trauma protocols initiated by the medical unit.

In addition to use in shock, the GV26 point can be used to revive patients following a vasovagal episode. GV26 is also an excellent point for relieving



Figure 32-5. Battlefield acupuncture. Photograph: Courtesy of Colonel Richard Niemtzow.

spasm and is unable to ambulate, placing a needle in GV26 and having the patient rotate it while slowly standing up and walking restores function within minutes, without parenteral or sedating medications.

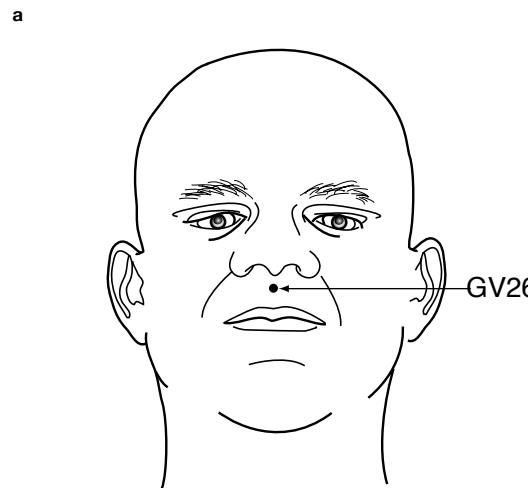


Figure 32-6

Tension Headaches, Neck Pain, Shoulder Pain

Acupuncture points (Figure 32-7):

- Small intestine 11 (SI11), located at the middle of the infraspinous fossa in the infraspinatus muscle.
- Small intestine 12 (SI12), located in the middle of the supraspinous fossa.
- Gallbladder 21 (GB21), located in the middle belly of the trapezius.
- Triple heater 15 (TH15), located at the levator scapulae insertion at the superior angle of the scapula.

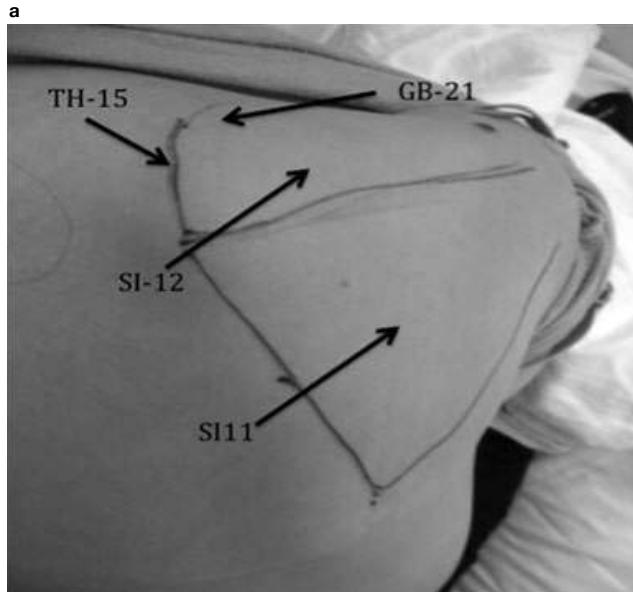
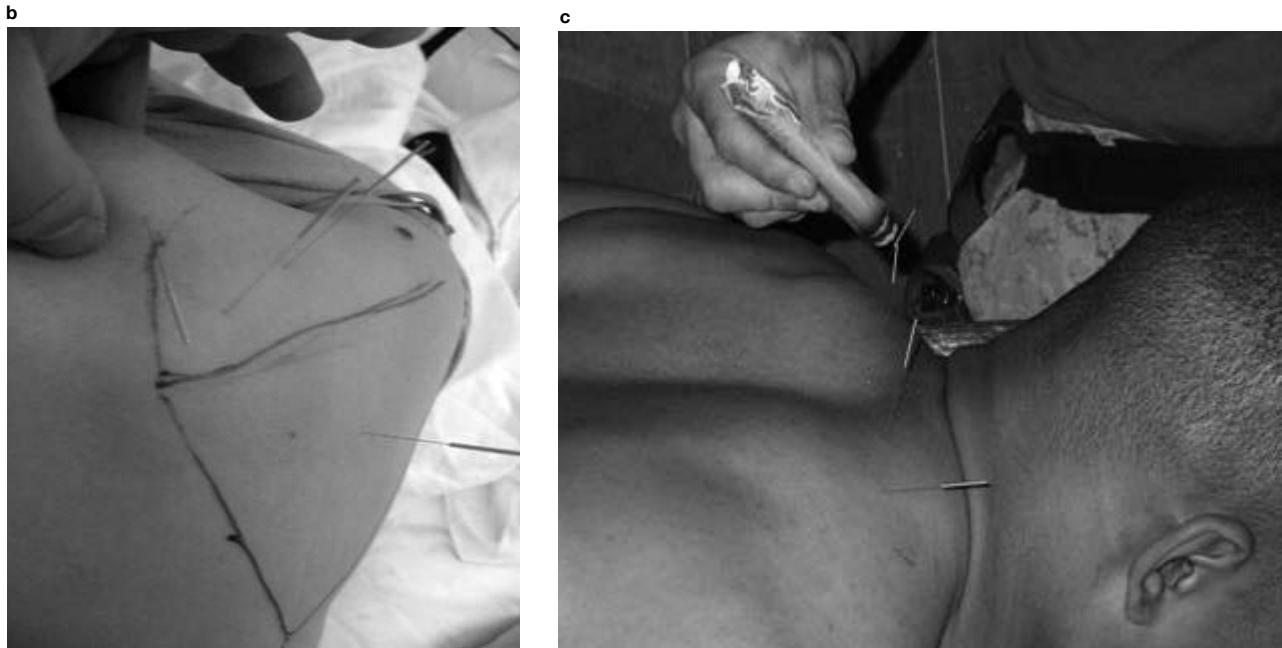


Figure 32-7

These are outstanding points for relieving severe shoulder and neck strain and tension headaches. SI11 is inserted perpendicularly into the depression in the infraspinous fossa. SI12 is inserted at the middle of the supraspinous fossa, into the supraspinatus trigger point. GB21 is inserted into the middle belly of the trapezius. To reduce concern for pneumothorax, grasp the anterior and posterior belly of the trapezius muscle and lift it off the rib cage, so that the needle can be inserted parallel to the plane of the rib cage. TH15 is inserted into the levator

scapula insertion at the superior scapular angle. The depth of levator scapula can vary depending on the musculature of individuals, but the *de qi* sensation is typically felt before the needle is deeply inserted.

Often an area of erythema appears around the site after insertion of acupuncture needles into an activated trigger point. This is neither a side effect nor a histamine release; rather, the erythema correlates to the severity of the trigger tension. Once the trigger activation has been eased, normal skin color will return.

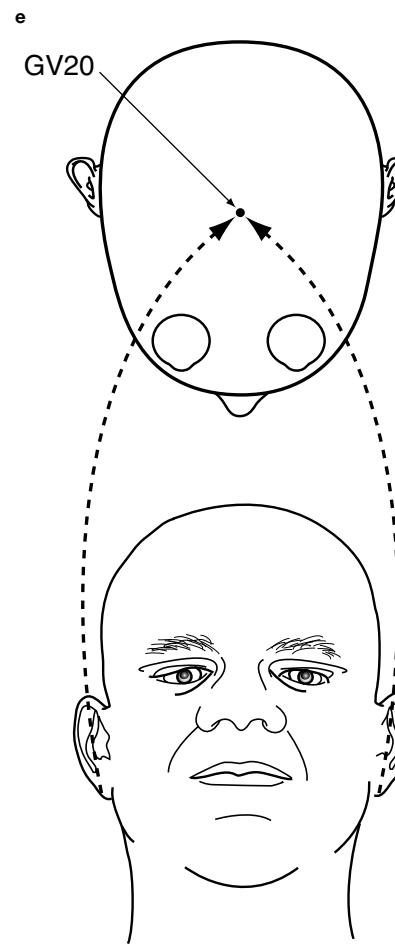


Hyperadrenergic States, Combat Stress, Insomnia, Anxiety, Agitation

Acupuncture points:

- Liver 3 (LR3), located in the dorsum of the foot, on the first interosseous space of the metatarsus, in a depression distal to the intermetatarsal joint between the first and second metatarsal bones (Figures 32-8a, b).

- Heart 3 (HT3), located in the anterior antecubital region, at the ulnar end of the cubital crease (Figures 32-8c, d).
- Governor vessel 20 (GV20), located at the midsagittal point, a depression on the head at the intersection of lines drawn from the inferior ear lobes through the superior apices of the bilateral ear lobes (Figure 32-8e).



With the constant threat of enemy attacks and frequent combat missions, many troops develop early signs of combat stress such as insomnia, agitation, and panic attacks. Combinations of bilateral LR3, HT3, and GV20 provide a calming effect on panic symptoms, often allowing the patient to fall asleep. In fact, more patients preferred acupuncture to the traditional beta-blockers, selective serotonin reuptake inhibitors, and zolpidem. LR3 can be found by sliding the thumb between the first and second interosseous space until it falls into a depression. HT3 is best accessed when the elbow is flexed. GV20 can be identified by placing the middle finger on the inferior end of the ear lobe and the tips of the thumbs together over the midsagittal line while the hands traverse through the superior apices of each ear. Needles used at these points should not be heated, which could overstimulate an already hyperadrenergic state. If necessary, keep the patient warm with a warming blanket. Leave the needles in place for 15 to 20 minutes and then remove them. A successful protocol in the deployed setting involved repeating the treatment twice a week until the patients' symptoms abated.

Soft Tissue Injuries and Ankle Sprains

At many functional points and trigger points, typically found in muscles and depressions in the skin, the strain and stress of underlying tissues can be reduced with the insertion of acupuncture needles into the surrounding tissue (Figure 32-9). Enough acupuncture energetic points traverse the body that a needle placed subcutaneously or into the trigger

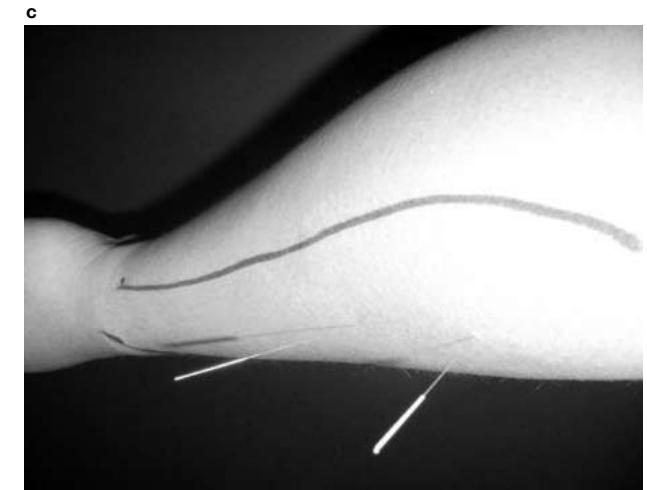
points of a muscle will reduce pain and swelling. The needles can be heated with moxibustion to improve efficacy and left in place for 15 to 20 minutes.

Traditional treatment of ankle sprains is not feasible in an active combat zone, due to the need for immobilization, lack of ice, and prolonged recovery period. An acupuncture protocol employing three

or four needles inserted immediately into the soft tissue surrounding the area of edema and pain can reduce swelling within 24 hours and restore the patient's functional status. Most muscles strains were reduced with one to two needles placed into the most tender part of the muscles for 15 to 20 minutes, often with moxibustion.



Figure 32-9



Physical Fatigue and Emotional Exhaustion

Acupuncture point: "Ming men" governor vessel 4 (GV4), located at the interspinal space of the L2 and L3 spinal processes (two lateral depressions can be found by sliding thumbs bilaterally from the GV4 point, Figure 32-10). Because this point is in the large paraspinal muscles, needles can be inserted deeper than usual. Insert the needles until the *de qi* sensation is felt, heat them with moxa for 10 to 20 minutes, and remove them. With a steady swinging motion of the moxa from needle to needle, patients should feel energized and lower backaches relieved.

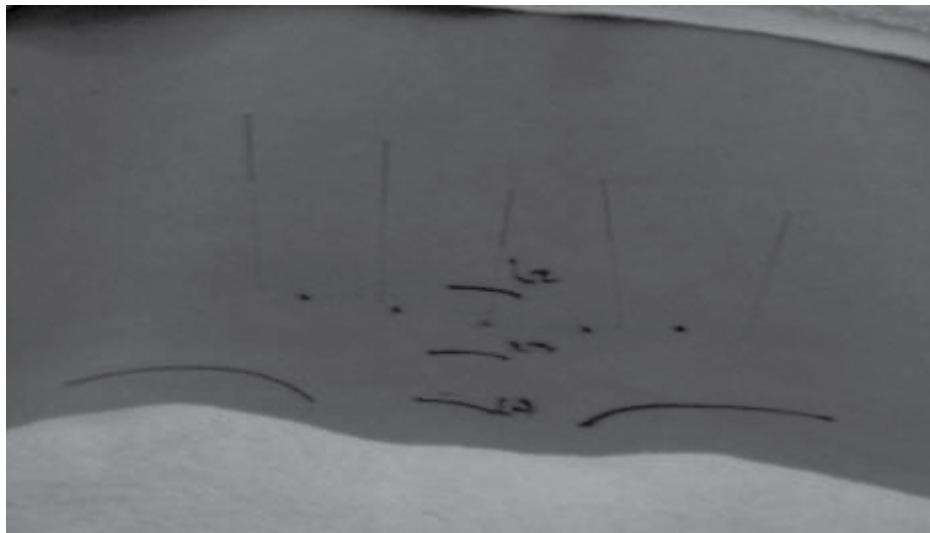


Figure 32-10

Chronic Pain and Recurring Acute Pain

Niemtzow's battlefield acupuncture can help individuals who require frequent referrals to specialists, are often placed on light duty status, or have chronic pain syndromes but are otherwise capable of performing their duties. After cleaning the ear with an alcohol pad, the practitioner should place ASP pins starting with the cingulate gyrus, thalamus, and omega-2 points on one ear (Figure 32-11), and then the next ear. The "Shen men" and point zero points typically provide a calming and balancing effect on the patient. While the pins are in place, the surrounding skin must be observed for any possible sign of infection. Patients should be reassured that the pins will come out by themselves.

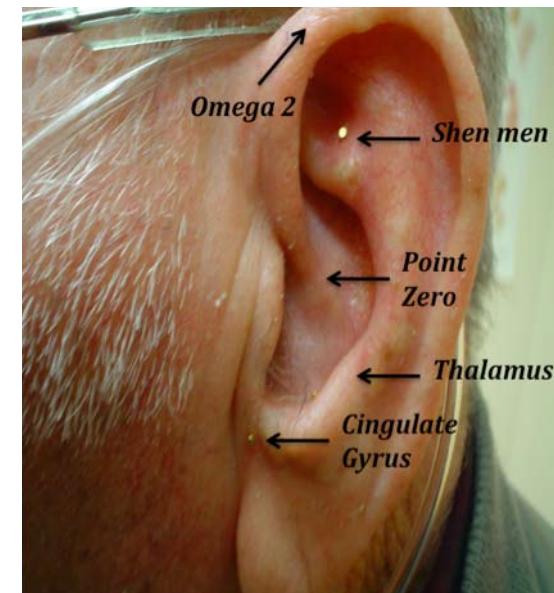


Figure 32-11. Photograph: Courtesy of Colonel Richard Niemtzow.