The Chinese back *shu* and front *mu* points and their segmental innervation

Die *Shu*– und *Mu*–Akupunkturpunkte und ihre segmentale Innervation

Abstract

**Background:** The Chinese back *shu* and front *mu* points, and the methodological problems involved in correlating points in skin or muscle with the internal organs.

**Objectives:** To assess the segmental relationship between the Chinese back *shu* and front *mu* points and the internal organs.

**Material and Methods:** The acupoints and reflexes as well as their dermatomal and myotomal innervation are tabulated alongside data on the autonomic innervation of the internal organs, based on published studies and authoritative sources. Simple connections and comparisons are made between segment numbers, with minimal use of statistical analysis. Numbers of muscle layers at the different point families are also compared, together with organ correlations at the different layers.

**Results:** Although many other points are segmentally related to each organ, in most cases the traditional back *shu* and front *mu* points for a particular organ are in some way segmentally related to that organ. Correspondence is better at dermatome than myotome level except for the front *mu* points. For the back *shu* points, there is greater segmental organ correspondence at deeper muscle layers, whereas this relationship is reversed at the front *mu* points. Other subsidiary results are presented.

**Conclusions:** These tentative results indicate that there is no compelling evidence that the traditionally accepted back *shu* and front *mu* points have any greater validity in terms of segmental correspondence with their associated organs than many other acupuncture points. Depth of needling, or the palpatory pressure used to assess sensitivity, must be key factors in any future discussion of the segmental organ correspondences of these points and reflexes.

Keywords

Acupuncture, back *shu* (‘transporting’) points, front *mu* (‘alarm’) points, dermatome, myotome, viscerotome, segment, palpation, referred pain

Zusammenfassung

**Hintergrund:** Die methodologischen Probleme der Zuordnung der *Shu*– und *Mu*-Punkte in der Haut sowie Muskeln zu inneren Organen.

**Zielsetzung:** Die Beurteilung der segmentalen Beziehungen zwischen den genannten Akupunkturpunkten und inneren Organen.

**Material und Methodik:** Die Akupunkturpunkte und ihre Reflexbeziehungen, ihre Innervation der Haut und Muskeln werden mit bekannten Daten der autonomen Innervation der inneren Organe verglichen. Basis hierfür sind Studien und autoritative Quellen. Es werden einfache Beziehungen und Vergleiche zwischen den einzelnen Segmenten hergestellt, bei minimalen Einsatz statistischer Analyse. Die Anzahl der Muskelschichten unter Akupunkturpunktgruppen sowie die Organbeziehungen dieser verschiedenen Ebenen werden aufgezeigt.

**Ergebnisse:** In den meisten Fällen zeigt sich eine segmentale Beziehung zwischen *Shu*– und *Mu*-Punkten und dem traditionell angegebenen Ziel-Organ; allerdings korreliert dieses Organ segmental auch mit weiteren Akupunkturpunkten. Anders als bei den *Mu*-Punkten zeigt sich bei den *Shu*-Punkten eine deutlichere segmentale Korrespondenz für das Dermatom als für das Myoton. Für die *Shu*-Punkte zeigt sich eine deutlichere segmentale Korrespondenz bei tieferen, bei den *Mu*-Punkten bei den oberflächlicheren Muskelschichten. Weitere Nebenbeziehungen werden aufgezeigt.

**Schlussfolgerungen:** Diese vorläufigen Ergebnisse weisen darauf hin, dass keine überzeugende Evidenz dafür besteht, dass die *Shu*- und *Mu*-Punkte eine größere Validität segmentaler Organbeziehungen besitzen als viele andere Akupunkturpunkte. Der Tiefe der Nadelung sowie dem diagnostisch-palpatorischen Druck zum Aufspüren von Sensibilitäten wird in zukünftigen Diskussionen der segmentalen Korrespondenz erste Priorität eingeräumt werden müssen.

Schlüsselwörter


1 This is a shortened version of an article originally titled 'The Chinese back *shu* and front *mu* points and their segmental innervation – a comparison with Chapman’s neuromyofascial reflexes'. The full article, with further Tables and References, may be found on the DZA website at www.elsevier.de/dza. It also mentions Jarricot’s thoracoabdominal reflexes and the myofascial trigger points.
Objective

The primary objective of this study is to assess whether and to what extent the locations of the Chinese back shu and front mu points correspond with current knowledge on the segmental innervation of the internal organs.

1. Introduction

Each spinal segment consists of the dermatome (skin area), myotome (muscle region/s) and sclerotome (bones) innervated by a particular pair of spinal nerves, together with the viscera innervated by sympathetic nerves from the same level of the spinal cord (‘viscerotome’). The sclerotomes will not be considered in this article. Some authors use different definitions of sclerotome and viscerotome. The dermatomes were first seriously investigated by Sherrington [1] and Head [2] in the 1890s, with particularly notable later work by Förster [3]. Sherrington also carried out some of the early work on myotomes. Although the autonomic nervous system had already been explored by Galen, and in the seventeenth century by Willis, again it was not until the late nineteenth century that Gaskell and Langley began to map the innervation of the internal organs in any detail [4].

The back shu and front mu points have been a feature of acupuncture since at least the time of the Inner Canon of the Yellow Emperor (Huangdi Neijing) (first century BCE). The back shu points are mentioned in the Spiritual Pivot (Lingshu), chapter 51, and the front mu points in the Simple Questions (Suwen), chapter 47, for example. Their use was common by the time of the earliest known acupoint canon, the East Han Dynasty Bright Hall Canon (Huangdi Mingtang Jing) (written some time between the first century BCE and first century CE), and this is reflected in the third century Systematic Canon of Acupuncture and Maxibustion (Zhenjiu Jiayi Jing) by Huangfu Mi. In the Mu and Shu Point Canon (Mu Shu Jing), also from the third century [5], the front mu and back shu points are often described as being used together [6]. Even today, some authors use the back shu points as the main points in their treatment protocols [6].

The back shu points

The back shu (灸, ‘transporting’) points are very important in acupuncture. Sometimes termed ‘associated’ (or ‘associated effect’) points [7], ‘assent’ points (points d’assentiment, Zustimmungs-Punkte) [8], or even ‘communication’ points [9], their role is traditionally to transport qi to the inner organs (both yin and yang, zang and fu). They are also used for manifestations of zangfu disorders in the sensory organs [7].

In addition, the back shu points have a diagnostic function: if tender to palpation (or even spontaneously tender) [10], this indicates a full (shi) condition of the associated organ (rather than channel, whereas if palpation relieves pain, the condition of the organ is likely to be empty (xu). [11] It is interesting that in HC Dung’s system of ‘anatomical acupuncture’ from the 1980s, promoted more recently as ‘biomedical acupuncture’ [12], only three of the 24 standard ‘homeostatic’ points coincide with back shu points (BL-16, BL-23, BL-26).

The back shu points for the inner organs are listed in Table 1, together with their dermatome and myotome innervation and the innervation of the associated (Western) organs. Table 2 lists the points on the outer Bladder channel line level with the back shu points. Those level with the back shu points for the yin organs tend to be used for emotional or psychological problems of the relevant zang. Their Chinese names depict the spiritual quality of the associated organ (po – Lung, shen – Heart, hun – Liver, yi – Spleen, zhi – Kidney). Unlike the back shu points themselves, the corresponding outer Bladder points are rarely used diagnostically.

The front mu points

The front mu (腧, ‘alarm’) points for the internal organs, also termed ‘collecting’ or ‘recruitment’ [9] points, are those points where the qi of the organs is supposed to gather. Like the back shu points, the front mu points are used diagnostically [11]. Other authors have questioned their diagnostic specificity [13]. In the ‘biomedical acupuncture’ method, none of the 24 standard ‘homeostatic’ points coincide with front mu points.

Table 3 lists the dermatome and myotome innervation of the front mu points and of the associated (Western) organs.

The back shu and front mu points in manual therapies

Both the back shu and front mu points are used diagnostically in several Oriental acupuncture-related methods such as shiatsu [14]. They have also been adopted in some Western systems. Thus, in Applied Kinesiology (AK), based on ‘the use of manual muscle testing to evaluate body function through the dynamics of the musculoskeletal system’ [15], various techniques may be applied at the front mu points to assess a disorder in the associated channel (rather than organ). In particular, pain to light digital pressure is considered as indicating a ‘deficiency of energy’, and to deep pressure an ‘excess of energy’.

The problem: correlating the segmental innervation of acupoints and organs

In one standard Chinese acupuncture textbook, each back shu point is described as situated ‘in approximately the same horizontal plane as the related Organ’, the front mu points as ‘near the Organs’ [7]. In his book interpreting acupuncture in terms of modern medical science, Kendall states, without further elaboration, that these points ‘have a clear correlation with their spinal afferent neuron integration levels and their assigned organs’ [9]. In a short undated paper, Upledger concludes rather lamely that the back shu points ‘seem somehow

Table 2 lists the points on the outer Bladder channel line level with the back shu points. Those level with the back shu points for the yin organs tend to be used for emotional or psychological problems of the relevant zang. Their Chinese names depict the spiritual quality of the associated organ (po – Lung, shen – Heart, hun – Liver, yi – Spleen, zhi – Kidney). Unlike the back shu points themselves, the corresponding outer Bladder points are rarely used diagnostically.

The front mu points

The front mu (腧, ‘alarm’) points for the internal organs, also termed ‘collecting’ or ‘recruitment’ [9] points, are those points where the qi of the organs is supposed to gather. Like the back shu points, the front mu points are used diagnostically [11]. Other authors have questioned their diagnostic specificity [13]. In the ‘biomedical acupuncture’ method, none of the 24 standard ‘homeostatic’ points coincide with front mu points.

Table 3 lists the dermatome and myotome innervation of the front mu points and of the associated (Western) organs.

The back shu and front mu points in manual therapies

Both the back shu and front mu points are used diagnostically in several Oriental acupuncture-related methods such as shiatsu [14]. They have also been adopted in some Western systems. Thus, in Applied Kinesiology (AK), based on ‘the use of manual muscle testing to evaluate body function through the dynamics of the musculoskeletal system’ [15], various techniques may be applied at the front mu points to assess a disorder in the associated channel (rather than organ). In particular, pain to light digital pressure is considered as indicating a ‘deficiency of energy’, and to deep pressure an ‘excess of energy’.

The problem: correlating the segmental innervation of acupoints and organs

In one standard Chinese acupuncture textbook, each back shu point is described as situated ‘in approximately the same horizontal plane as the related Organ’, the front mu points as ‘near the Organs’ [7]. In his book interpreting acupuncture in terms of modern medical science, Kendall states, without further elaboration, that these points ‘have a clear correlation with their spinal afferent neuron integration levels and their assigned organs’ [9]. In a short undated paper, Upledger concludes rather lamely that the back shu points ‘seem somehow