

# A Survey of the Recipes Often Used by Japanese Acupuncturists as Diagnostic and Acupuncture Treatment Sites

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## ABSTRACT

The present survey clearly demonstrated the importance of the PHs and tender points in acupuncture diagnosis and treatment among Japanese acupuncturists. The close relationship of PHs to tender /trigger points was demonstrated, and the preference for using PHs and tender points instead of classical acupuncture points in their daily clinic strongly suggest that it is important to detect the actual presence of PHs occurring under the skin, by careful palpation.

## KEYWORDS

Palpable hardenings; Questionnaire; Japanese acupuncturists; Trigger points; Acupuncture.

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## 1. Introduction

Physiological investigations strongly suggested that sensitization of nociceptors in the peripheral tissues is the major cause of tender point formation<sup>11</sup>). The polymodal receptors, one kind of nociceptor, responsive to mechanical, thermal and chemical stimuli, are easily sensitized by various inflammatory substances<sup>12</sup>), are proposed as a possible candidate for tender point formation<sup>13</sup>). The characteristics of polymodal receptors can also explain why acupuncture and moxibustion applied to similar loci produce similar effects although the physiologic qualities of the two stimuli are quite different. The reason may be simply because both stimuli can stimulate the polymodal receptors as the common receptors<sup>14</sup>). This fact is very important for understanding the rationale of the mechanism of acupuncture, as moxibustion was the original form of stimulus in ancient Chinese medicine from the archeological view point<sup>15</sup>).

On the other hand, western medical doctors have described a similarity of trigger points to acupuncture points in patients with myofascial pain syndromes<sup>16</sup>). Trigger points are characterized by their location on a palpable taut band, and their particular pattern of referred pain provoked by the stimulation of the tender region. The distribution of trigger points was completely in accordance with acupuncture points<sup>8</sup>), and the palpable band seems to be similar to the *kouketsu*: palpable hardenings (PH), that the Japanese acupuncturists tend to use in their acupuncture treatment.

Palpable hardenings as well as tender points were considered clinically by Japanese acupuncturists to be very important sites for acupuncture treatment<sup>17</sup>), but their characteristics and their relationship to acupuncture points, tender/trigger points and so-called “reaction” points have not been clarified yet.

In this survey we intended to investigate the characteristics and their perceived clinical usefulness by use of a questionnaire. This survey was undertaken in 1985 and the main results were briefly reported<sup>18</sup>). In this first issue of the Online Journal of J Jpn Soc Acupunct (Japanese Acupuncture and Moxibustion; JAM), with permission of the editorial board, we have prepared a revised English manuscript to report information on the characteristics of Japanese acupuncture treatment with discussions on recent developments in trigger point research.

## 2. Method

A questionnaire about PH was prepared to clarify the characteristics of the PHs and their clinical usefulness. Table 1 summarizes the items of questionnaire. Multiple responses were allowed. Sixty well-experienced Japanese acupuncturists were asked to answer the questionnaire. The mean age and clinical experience as licensed acupuncturists were 40.2+9.4 and 17.7+8.6 years, respectively. They were attending a workshop held at the annual meeting of the Japan Society of Acupuncture and Moxibustion in 1985. The main theme of the workshop was “Discussion on the characteristics of so-called *kouketsu*”. The term *kouketsu* has been widely used among Japanese acupuncturists as one of the characteristics of the site of diagnosis and acupuncture manipulation. In this report the term “palpable hardenings”, which was proposed in the workshop, was used instead of *kouketsu*. The responses were simply summed and graphs constructed. Statistical analysis was not performed, as the major purpose of this survey was to describe the characteristics of so-called PHs in detail.

## 3. Results

The present survey confirmed the existence of so-called PHs, and their variable characteristics. Only two out of 60 acupuncturists denied the existence of PHs (answers to question a; see Appendix). The changeable characteristics of PHs and their close relationship to acupuncture/trigger points were clearly confirmed by the majority of acupuncturists. Their importance in clinical

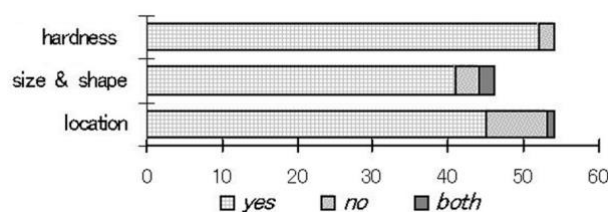


Figure 1. Changeable nature of PHs

PH: Palpable Hardenings diagnosis and usefulness in acupuncture treatment were also supported.

The changeable hardness, location and size The shape and size of PHs varied from string or ropelike to pear or ball-like shape, and their sizes were from sesame seed to apricot kernel. The hardness and location were also changeable with time. Figure 1 summarizes the results of responses. The majority of Japanese acupuncturists considered PHs to be unstable structures, changeable in their shape, size and hardness. Their variable characters were striking features.

### Location of distribution of the palpable hardenings

Figure 2 summarizes the location of PHs in the tissue. The subcutaneous tissue is the most frequent site followed by muscle and inter-fascia structures. The majority of PHs are found in subcutaneous and muscular

tissues, although some are detected in the skin. Others are found in nearby ligaments, periosteum, nerve bundles and vessels.

The characteristics of skin over the palpable hardenings

Figure 3 shows the summary of the answers to the Question III in Table 1, which demonstrates the apparent changes in the skin over the PHs.

The skin temperature, configuration, wetness, smoothness and sensitivities were strongly influenced by the existence of the PHs. Decrease of skin temperature is the major characteristic. Protuberances of dry and rough skin with hypersensitivity to stimuli were the most frequent characteristics of the skin. Variability was also apparent, and the opposite features were not rare. So it is not easy to conceive of a common underlying mechanism for such changes in the skin.

Relationship between the symptoms and the palpable hardenings Figure 4 is a summary of the answers to question 4. The respondents consider that PHs are closely related to the symptoms of patients, although PHs are detected in the healthy subjects (Q IV-1). The number of PHs changed with age (Q IV-2), and was dependent on the

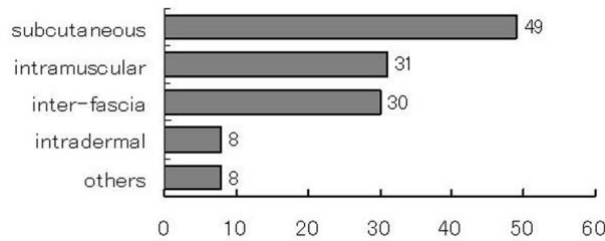


Figure 2. Location of palpable hardenings

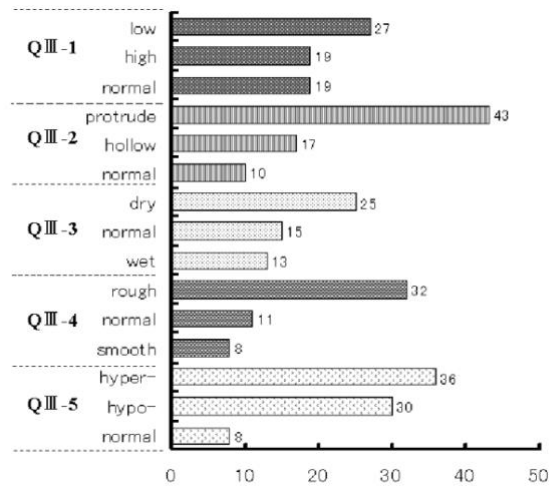
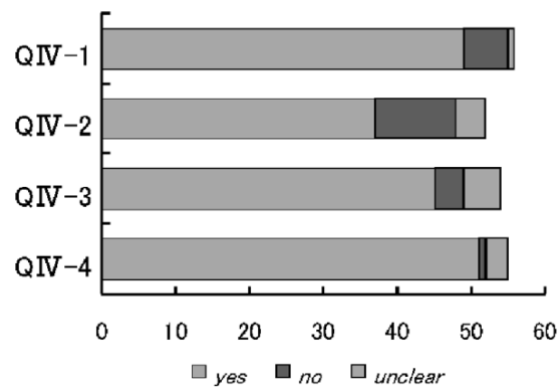
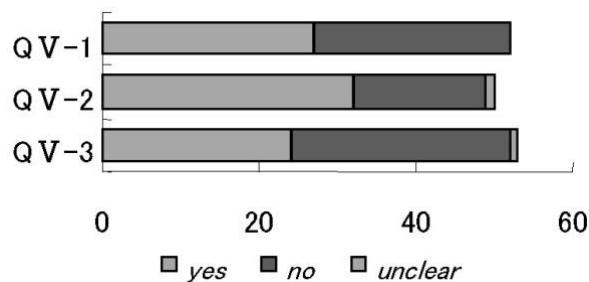


Figure 3. Various differences of the skin over the PHs



**Figure 4.** Relations between symptoms and PHs



**Figure 5.** Relation among PHs, APs and RPs

severity of illness (Q IV-3). Moreover, the location of the PHs also related to the site of illness. That is, the detection of the PHs is considered to be a useful indicator of diagnosis in acupuncture treatment.

Similarity of the palpable hardenings to the tender, reaction and acupuncture points

The similarities of the PHs to the tender points (Q V 1), reaction points (Q V -2) and acupuncture points (Q V -3) are summarized in Figure 5.

The results suggest close similarities of PHs to reaction or tender points, but less to acupuncture points. It should be noted that there were a moderate number of negative answers. Question V asked whether PHs are at a similar (identical) locus to the tender, reaction or acupuncture points or not, so if the question is asking about the co-existence or relationship between PHs and such points, the positive responses might have been higher.

Selection of stimulating sites for acupuncture and moxibustion. Tender and pleasantly tender points together were the most frequently selected points for treatment, but other PHs, reaction points and acupuncture points were selected with similar frequency.

#### 4. Discussion

TPs: Tender Points; PPs: Pleasantly Tender Points; OTs: others

The results of the present survey clearly demonstrate the variable characteristics of PHs. Their size, shape, hardness, and location are quite changeable, and they are closely related to acupuncture points and trigger points. They are used as one of the important stimulating sites for acupuncture treatment.

The variety of the features of HPs might suggest that different things are being detected by palpation, with different pathogenesis. Therefore, it is not easy to summarize the general characteristics of PHs, but they do suggest that the possible mechanisms for development of structures such as PHs should be considered.

#### The changeable characteristics of PHs and their location

The changeable characteristics of PHs clearly deny the possibility that histological change is the major cause of the PHs. They are easily changed in their size, shape and hardness so dynamic changes in the subcutaneous tissues should be considered. A possible phenomenon that induces dynamic changes in subcutaneous tissues might be edema induced by tissue inflammation. It can explain the changes in the size and shape of the PHs with time. The hardness of PHs seemed to be the result of the contraction or contracture of the muscle, however the muscle was not the major position where PHs develop. Edema in the subcutaneous tissues might be detected by palpation as a hard structure and changes in inflammation over time may alter the hardness of the palpated structures<sup>16</sup>).

#### Changes in the skin over the PHs

Various changes were observed in the skin over the PHs. The majority of these changes might be explained as the result of different levels of sympathetic nerve activity. The decrease of skin temperature, the rough feeling to touch and wetness of the skin might be the results of vasoconstriction of the peripheral vessels and also the results of the pilomotor activity, and could also be considered as a result of hyper-activity of the sweat glands. These changes might occur from facilitation of the sympathetic nerve activity, and inhibition of sympathetic nerve activity might induce the opposite changes in the skin.

The relationship between the existence of the PHs and local changes of sympathetic nerve activity is not clear. If PHs are the results of inflammatory process, sensitization of the nociceptors at the PHs might occur and their afferent discharge could modify the sympathetic nerve activity and induce various changes in the skin by the somato-sympathetic reflex<sup>19</sup>) or axon reflex<sup>20</sup>). The hypersensitivity of the skin may also be explained as sensitization of the receptors by various chemical mediators<sup>21</sup>).

The conformational changes of the skin were also interesting phenomena. The Chinese characters that indicate acupuncture points strongly suggest the existence of pits along the meridians, but in this survey protuberances rather than pits of the skin were found more frequently. Protuberance of the skin might be explained, at least in part, as the results of edema in the subcutaneous tissues.

#### Relationship of palpable hardenings to tender, reaction and acupuncture points

The HPs were assumed to be a similar object to tender, reaction and acupuncture points by half the respondents. They believed there was a close relationship between PHs and these points, although their characteristics were not always the same. The higher incidence of reaction points than tender points suggests that various changes in the skin over PHs occur frequently, and these changes were detected as a feature of reaction points in this questionnaire. The pathologic mechanism of the development of PHs and their relationship to the formation of such points were still unknown from this survey. However the features of trigger points may help to understand PHs and tender, reaction and acupuncture points.

#### Relationship between the palpable hardenings and the trigger points

The close relationship between the PHs and tender points strongly suggests that PHs have similar characteristics to palpable bands around trigger points. Trigger points are characterized by their tenderness

to palpation and the existence of the palpable band, a ropy structure under the skin in the patients with the myofascial pain syndrome. Disorders of sympathetic nerve activity were well noted<sup>16</sup>), so various changes observed in the skin over the PHs could be explained as similar phenomena to those observed in trigger points.

The pathogenic mechanisms of the trigger points are still under discussion. Recently, hyperexcitability of muscle endplates has been proposed as the major cause of the trigger points<sup>22,23</sup>), based on the facts that a characteristic electrical activity similar to the endplate potential is recorded from the trigger points. On the other hand, the electrical activity recorded from the palpable band has been considered to be intrafusal muscle activity<sup>24</sup>). Another possible mechanism is sensitization of nociceptors (polymodal receptors) induced by inflammatory changes in the subcutaneous tissue, with the fascia as the major site of formation of the trigger points<sup>25</sup>). The electrical activity recorded from the trigger points was considered to be the result of reflex activity evoked by afferent volleys from the nociceptors in the fascia.

As mentioned in the previous section, the changeability of the PHs is explained by the edema of the subcutaneous tissues, and the close relationship of PHs to tender, reaction and classical acupuncture points can be explained as the results of inflammatory process and sympathetic responses evoked by afferent inputs from the inflamed tissues. The polymodal receptors might be possible candidates for trigger point formation.

#### Clinical usefulness of PHs and other stimulating points for acupuncture

The preference for the use of PHs in acupuncture treatment rather than the classical acupuncture points suggest that PHs are sites of high sensitivity to external stimuli such as acupuncture or moxibustion. In other words, the location of the classical acupuncture points indicates the site where PHs, reaction points and tender points developed frequently.

The participants of the present survey were the attendants at a workshop on PHs, so we should be aware of the possibility of strong bias in their responses. The importance of PHs in acupuncture treatment in the present results might be exaggerated. However, a previous survey conducted on over ten thousand Japanese acupuncturists also demonstrated their preference for PHs and tender points in diagnosis and treatment<sup>17</sup>).

The present survey clearly demonstrated that, in actual situations of acupuncture treatment, PHs, tender points and reaction points detected by careful palpation were used by Japanese acupuncturists in preference to acupuncture points described in the classic textbooks. That is, reporting the precise, detailed description of the sites of acupuncture stimulation seems to be more important than listing the acupuncture points used.

## 5. Conclusions

The present survey clearly demonstrated the importance of the PHs and tender points in acupuncture diagnosis and treatment among Japanese acupuncturists. The close relationship of PHs to tender /trigger points was demonstrated, and the preference for using PHs and tender points instead of classical acupuncture points in their daily clinic strongly suggest that it is important to detect the actual presence of PHs occurring under the skin, by careful palpation.

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