

METHODS FOR LOCALIZATION OF BAP OF THE HUMAN BODY

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Summary

The classical methods to localize biologically active points are by measuring of the body proportions and by using “tsun” and they are based on a thousand years of practical experience. The “tsun” is an individual measuring length equal to biggest width of thumb's distal phalanx. Using body proportions is a fast but not very precise method for localization and for the present science both methods are insufficient. Applying more objective methods is necessary for a scientific proof and for reliable localization. Present functional tests measure the difference in the skin resistance in BAP and in near by areas, and they conclude the BAP to have lower resistance. Morphological evaluation of the BAP is based on orientation by anatomical points like C7, crista iliaca, clavícula, processus xiphoideus, spina scapulae and others. Light and electron microscopy is used not only for localization but as a proof of their existence. In the area of the BAP the epidermal layer is thinner, there is a bigger amount of loose connective tissue, and deeper in the point there is a concentration of vascular and nerve elements.

Key words: BAP, Chinese Medicine, Tsun, Anatomy, Histology

Introduction

History

First biologically active points BAP are found during the time of Fu Si from the Sia dynasty (4000 years b.c.).

During the next 4-5 thousand years they have been localized, described and studied by different methods due to the capabilities of the science at that time. [1, 2].

The interest towards BAP increased during the 20th and the 21st centuries, however their practical localization is still a challenge both for the practitioners and the scientists that have interest in traditional Chinese medicine (TCM). [3 4].

Methods for BAP localization.

Traditional methods

Using of Tsun (Cun) measure

“Cun” is a traditional Chinese length measurement unit. It is used in Hong Kong as well and is equal to 3.715 cm, however in continental China and Taiwan it has been standardized to 3.333 cm and is used together with the metric system (Fig. 1).

The Cun is applied for localization of BAP on the body surface. However due to the individual variations in the human body, the size of his fingers is used for correction.

Cun in acupuncture is individual measure, equal to the length of the middle phalanx of the middle finger (on the left hand for male and right hand for women). For a faster localization combination of several fingers could be used.

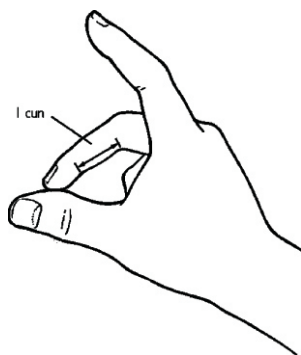


Fig. 1. The Cun measure

Measuring of body proportions

Different parts of the body are predefined to be a certain number of cuns (Fig.2).

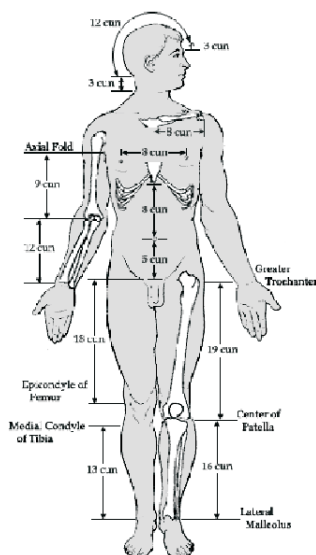


Fig. 2. Applying proportional measures

Measure of transverse finger. As a standard measure width or length of one or a few of the patients fingers is used (Fig. 3).

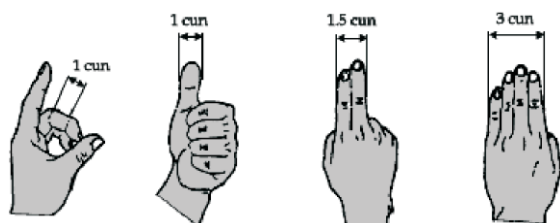


Fig. 3. Using the measure of “transverse finger”

Using of anatomical points (Fig.4).

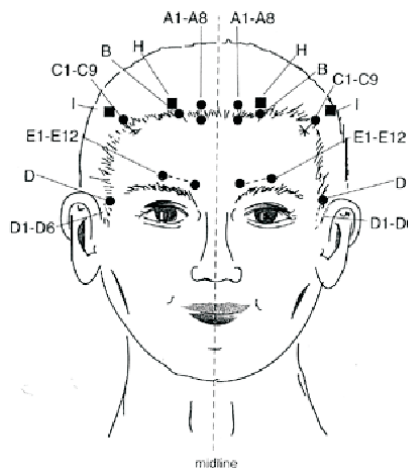


Fig. 4. Anatomical points used for localization of BAP

Modern methods

Materials and Methods

Physic measurements have been taken in the ambulatory for prophylaxis and recovery of health by the methods of traditional Chinese medicine in the Medical center “Nadezhda” Stara Zagora, Bulgaria. It was performed on a four volunteers that have not taken any medications during the last 3 months and on moderate diet.

Passive skin parameters were measured resistance in BAP, and 5 mm and 50 mm away from them. Measurements were taken three times a day in the same time with 40 g pressure of the electrodes on the skin and direct strength of the electrical current 50µA. The area for measurement were preliminary cleaned from grease and dead epithelium cells with ethanol. Sensitive digital micro measuring device was used with a accuracy 0.2, resolution 100 nm, time for the first measurement 12 mS, (Tegam 1750, Tegam Inc., USA).

The histology examinations were made on human corpses soon after death, and the material is taken from the area of sanyinjiao qihai, tianshu) and dajui. We used trichrom painting by Mallory and hematoxylin-eosin technique, after placing the material in paraffin, as well as the silver method by Bodian after cutting on a freezing microtome.

Results

Skin resistance measuring

The resistance in BAPs is about 780 kΩ. It is 1387 kΩ at 5 mm, and it is 5901 kΩ at 50 mm away from BAPs.

Light microscopy

There is no difference found in the thickness or the type of the epithelium layer in BAP (A) and nearby areas. The loose connective tissue of the papillary layer is almost 3 times thinner in BAP compared to the areas around them (Fig. 5).

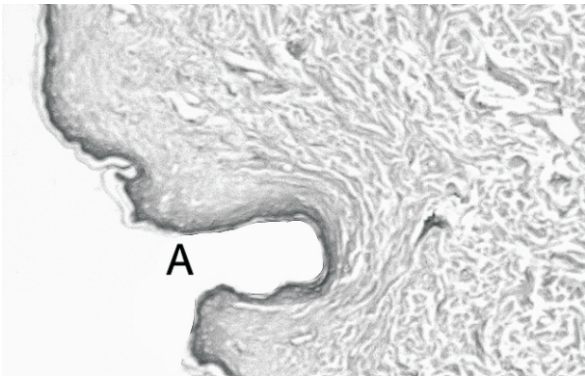


Fig. 5. Preparation of the skin in the area of dajui. (HE, magnification 40/0.65)

There are no blood vessels in the BAP (A), and the collagen fibers are less compared to the adjacent areas Fig. 6 (from the 5mm remote area).

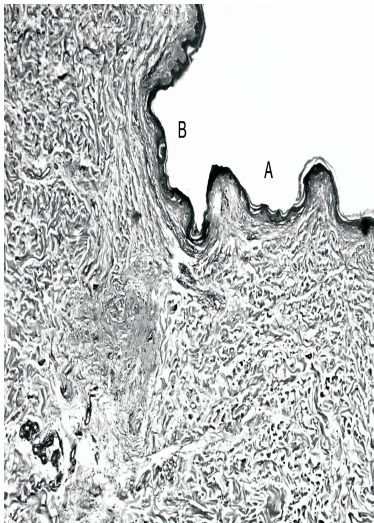


Fig. 6. Preparation of human skin in the area of dajui (trichom method by Mallory, magnification 40/0.65).

There is no difference in the type or the quantity of the free non capsulated receptors compared to the controls.

Discussion

Skin resistance is lowest in the BAP and increases with the increase of the distance from it, which complies with other studies [2]. 5 mm away it doubles and 50mm away from the low resistance point it is several times bigger. This data, combined with the histological study shows that the skin in the BAP is different morphologically and in its physic parameters, and this is confirmed by other authors [4]. The increased skin resistance when moving away from the BAP is not accruing sharply but gradually,

which shows that the point is not a border separated area but it has a distinctive center of low resistance, which increase bit by bit away from it. Studies of other authors [5] have established, that in different points the resistance and the speed of change in the resistance with the distance is different, est. BAP has different diameter [6]. One of the largest points is Hegu, and it is an object of this study.

Differences in the organization and the passive electrical parameters is most probably connected to its functional state. Some articles show that the resistance of the BAP is not only depending on the health state of the patient, but to the time of the day and the season [3,7]. The morphological differences found are additional proof that the BAP found by the ancient Chinese healers are really present. Differences in the histology in and out of BAP are described by other authors as well [6, 7].

Conclusions

Differences are present in the histo-morphology and in the passive electrical parameters in the BAPs and the rest of the skin.

Histological differences are concentrated mostly in the epidermis and the papillary layer of the skin.

The matching of the areas with morphological differences and the area with low passive electrical parameters is an indirect objective proof for the existence of the BAP.

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