INTERNATIONAL
AYURVEDIC
MEDICAL JOURNAL

IAMJ

Research Article (ISSN: 2320 5091) Impact Factor: 4.018

PILOT STUDY FOR FIXATION OF MEASUREMENT SITE OF '1' *ANGULA*

Pooja Chauhan[1], Pandit S.V[2]

Department of Rachana Sharir, Bharati vidyapeeth (Deemed to be) University College of Ayurveda, Pune, India

Email: pooja03nine@gmail.com

Published online: March, 2018

ABSTRACT

Patient should be examined to obtain knowledge regarding the *'ayu'* (span of life) so as to know, well in advance, whether the treatment given to him shall be fruitful or not? For this purpose *Charaka* has described examination of the patient based on '10' points i.e. '*dashvidha parikshya'*. *Pramana* is one of them, which provides knowledge regarding *Ayu* of an individual. In *Brihadtrayee, Sharir pramana* is mentioned by '3' *Aacharya* by different ways i.e. 84 *anguli,* 120 *anguli and* 3.5 *Hasta* according to *Charaka* [1], *Sushruta* [2] and *Vagbhata* [3] respectively. *Anguli* is the unit of measurement mentioned by *Aacharya Charaka* and *Sushruta. Hasta* is the unit of measurement utilized by *Aacharya Vagbhata* only. But exact site for measurement of *anguli* is not mentioned either by *Charaka* or *Sushruta* which became topic for quest. Hence, for this, a pilot study was conducted on 6 volunteers whose '*ayam-vistaar*' was equal (or ±1-2 cms) for fixation of measurement site of '1' *angula*. For this *Sushruta's* concept of *swapanitala sankuchit pramana* was utilized, that means '1' *angula* measurement was derived from measurement of 4 angula, hence this method of derivation of '1' *angula* measurement is approximately called as reverse method.

Keywords: *Anguli pramana*, *Pramana Sharir, swaangula*

INTRODUCTION

The term *desa* includes both the patients as well as healthy individuals. A patient constitutes the *karyadesa* or the site for the administration of therapies with a view to bringing about equilibrium of *dhatus*. He should be examined to obtain knowledge regarding the *'ayu'* (span of life). For this purpose *Charaka* has described examination of the patient based on '10' points i.e. '*dashvidha parikshya'*. *Dashavidha pariksha bhava* [4] described by *Charaka* are as shown in table no. 1.

Table 1: *Dashavidha parikshya bhava*

1	*Prakriti* (physical constitution)	2	*Vikriti* (morbidity)
3	*Sara* (excellence of dhatus)	4	*Samhanan* (compactness of organs)
5	***PRAMANA*** (measurement of body)	6	*Satmya* (homologation)
7	*Sattav* (psychic condition)	8	*Aharasktti* (power of intake of digestion food)
9	*Vyayamshakti* (power of performing exercises)	10	*Vaya* (age)

Out of these 10 *parikshya,* only *pramana* & *sara* gives the idea about *Ayu* of an individual. *Pramana* comes under *Rachana*, and *sara* in *kriya.* Hence, here, we are relating with the *pramana* of *sharir* described by *Brihadtrayee*.

In *Brihadtrayee sharir pramana* is given as 84 *anguli* according to *Aacharya Charaka*, 120 *anguli* according to *Aacharya Sushruta* and 3.5 *Hasta* according to *Aacharya Vagbhata*.

The unit of measurement given by *Aacharya Charaka* and *Sushruta* is *anguli* and the unit of measurement given by *Aacharya Vagbhata* is *Hasta.* But exact sites for the measurement of the same are not found in respective *Samhita's*.

Hence, this study is focused to find out about details regarding the *angula pramana*.

Aim:

1. To fix measurement site of '1' *angula*

Objectives:

1. To understand the concepts of *ayurveda* related to *pramana sharir*.
2. To understand the unit given by *Aacharya Sushruta* and *Charaka* i.e. *angula pramana* in terms of SI unit of measurement (cms) for better understanding according to present era.

Materials:

1. Review from *ayurveda*, modern literature and previous work done.
2. Vernier calliper
3. Measuring tape
4. Data sheet for measurement records
5. '6' volunteers whose ayam-vistaar is equal (± 1-2 cms)

Inclusion criteria:

1. Volunteer whose *ayam* and *vistaar* is same (± 1 - 2cms) this difference is included on the basis of findings from the thesis work of Dr. Uday Bhoir. [5]
2. Sex: either
3. Age: between 25 to 40 years.

(In this experiment people below 25 years could not be included in this research because their *dhatus* are not *paripakva* (i.e. not fully developed) according to *Sushruta* [6] and modern concept [7]. Also people above 40 years shall not to be included in this research according to *Sushruta* as *dhatus* starts deteriorating [8] and also according to modern their posture doesn't remain straight consequently causing error in measurement of normal height).

Exclusion criteria:

1. Postural deformity-either congenital or acquired.
2. Deformity in upper or lower extremity - either congenital or acquired.

METHODS

Intention of this study:

No one has done any work regarding *Sushruta's* concept of *Swapanitala sankuchitani* [9] (clinched fist) for measurement of 4 *swaangula.* Therefore, researcher decided to utilise this concept for derivation of '1' *swaangula* from 4 *swaangula* by reverse method.

This study was performed in two parts.

Part 1- based on theoretical measurement of one *angula* in cms

Part 2- based on Practical determination of site for measurement of one *swaangula*

Part 1 (Theoretical measurement of one *angula* in cms)

According to *Charaka Samhita*:

A person, whose *ayam* and *vistaar* is equal, is booned by *ayu*, *bala*, *oja*, *sukham*, *aishwarya*, *vittam* etc.[10]. Hence, he is considered as overall well grown, healthy human along with all body parts normal including ***angula*** **etc**.

Therefore according to *Charaka*:

Human height of an individual is = 84 *swaangula pramana*

If measured height of same individual is = N cms then

84 *swaangula* of that person should be equal to N cms.

Therefore, theoretically measurement of ***one angula*** of aforesaid *ayamvistaar sam* (AVS) human in cms can be derived as –

Measurement of height of AVS individual in cms (N) divided by 84 *angula* i.e. Formula for '1' *angula* in cms = N/84)

Output of Part 1

Formula for theoretical *pramana* for one *angula* in cms is derived as N/84.

Part 2-(Practical determination of site for measurement of one *swaangula*)

One *angula* in cms derived from part 1 multiplied by '4' gives us theoretical *pramana* of '4' *angula* in cms (i.e. FA in cms).

It is assumed that, this theoretically derived FA in cms should match somewhere on the *Swapanital sankuchitani (i.e*. clinched fist of AVS volunteer) practically.

For this, firstly researcher observed a method commonly practiced in *Ayurveda* clinics for calculating 4 *swaangula pramana*, but through literature review it was found that this method was already tried by a researcher and discarded it as *pramana* obtained from this method measured less than expected 4 *swaangula*.[11]

Hence, another method was devised as shown in photograph no. 1. This new devised method is according to the concept (*swapanitalasankuchitsammitani*) of *Sushruta*, it states that *pramana* of 1st , 2nd and 3rd set of *Marma* are given as one *angula*, two *angula* and three *angula* respectively but for the fourth set of *Marma, Sushruta* has mentioned the word *swapanitalasankuchitsammitani*, instead of saying it 4 *angula*.

Therefore, researcher interpreted and found out a conclusion that *swapanitalasankuchitsammitani* should be equal to 4 *angula*. Measurement of this site is obtained by taking measurement at knuckles from lateral to medial of clinched fist with the help of Vernier calliper (see photograph no. 1). Measurement of this site showed much nearer to expected 4 *swaangula pramana* than the method commonly practiced in *Ayurveda*.

Photograph no.1

Photograph showing measurement site for *swapanitala sankuchit pramana*

- Hence, after taking measurement of FA practically, we utilised this FA in cms for deducing one *angula* in cms practically from formula (FA in cms / 4).
- **Output of Part 2:** *Pramana* of '1' *swaangula* is derived practically from theoretical '4' *swangula pramana* by fixing the site of measurement of *swapanitala pramana* practically.

Observations

TABLE 2: Observations of volunteers showing selection criteria

	A	B	(A-B)
Sr. no.	***Ayam* (in cms)**	***Vistaar* (in cms)**	**Difference (in cms) (*ayam-vistaar*)**
1	153.3	151.5	1.8
2	171.7	173.2	-1.5
3	157	157.5	-0.5
4	162	164	-2
5	152.7	152.5	0.2
6	168.6	168.9	-0.3

Note – difference in column (A-B) is considered as standard error.

Table 3: Observations of pilot study showing difference in theoretically derived and practically measured *swapanitala Sankuchit pramana* (4 *angula*)

		A	B	(A-B)
Sr. no.	*Ayam* (in cms)	Theoretically derived 4 *angula* (*Swapanitala Sankuchit pramana*) in cms (Ayam / 84 × 4)	Practically measured 4 *angula* (*Swapanitala Sankuchit pramana*) in cms	Difference in cms
1	153.3	7.3	7.2	0.1
2	171.7	8.17	8.1	0.07
3	157	7.47	7.5	-0.03
4	162	7.71	7	0.71
5	152.7	7.27	7.1	0.17
6	168.6	8	7.2	0.8

Above table shows difference between theoretically derived and practically measured *swapanitala Sankuchit pramana* (4 *swaangula*). One *angula pramana* can be deduced by dividing *swapanitala Sankuchit pramana* by 4.

Statistical analysis

Statistical analysis of six volunteers

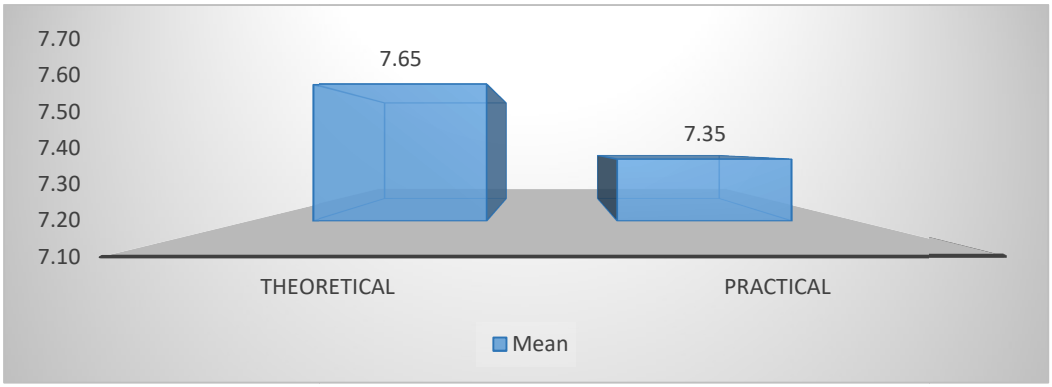
Comparison of theoretically derived and practically measured *swapanitala Sankuchit pramana*

a. Table form
b. Diagram form- Bar Diagram

a. TABLE 4:

	N	**Mean**	**SD**	**SE**	**t-Value**	**P-Value**
Theoretical	6	7.65	0.37	0.15	1.352	0.206
Practical	6	7.35	0.40	0.16		

b. BAR DIAGRAM NO.1



For comparison between theoretically derived and practically measured *swapanitala Sankuchit pramana* we have used t-test. From above table we can observe that P-Value is greater than 0.05 hence we conclude that there is no significant difference between theoretical and practical value.

Results

The *pramanas* obtained from practically measured *swapanitala Sankuchit pramana* were compared with the theoretically deduced *swapanitala Sankuchit pramana* by using t-test.

It was observed that P-value was greater than 0.05 showing that there was no significant difference between the two criteria.

DISCUSSION

No one has done any work regarding *Sushruta's* concept of *Swapanitala sankuchitani* (clinched fist) for measurement of 4 *swaangula.* Therefore, this concept is utilised for derivation of '1' *swaangula* from 4 *swaangula* by reverse method.

For this, firstly commonly practiced method in *Ayurveda* clinics was observed for calculating 4 *swaangula pramana*, but this method is already discarded by a researcher as *pramana* obtained from this method measured less than expected 4 *swaangula.*

Hence, another method was devised as shown in photograph no.1. This new devised method is according to the concept (*swapanitalasankuchitsammitani*) of *Sushruta*. In which measurement of *swapanitala Sankuchit pramana* is obtained by taking measurement at knuckles lateral to medial of clinched fist with the help of Vernier calliper (see photograph no. 1).

Measurement of this site showed much nearer to expected 4 *swaangula pramana*. Finally, this measurement site for FA as shown in photograph no. 1 derived from this new method was utilised for derivation of '1' *swaangula* from 4 *swaangula by dividing swapanitala Sankuchit pramana* by 4 using reverse method.

CONCLUSION

1. Site for measurement of *swapanitala pramana* is derived. In which measurement of a closed fist at width of knuckles lateral to medial is considered as *swapanitala pramana* i.e. equal to '4' *angula* (as shown in photograph no. 1). This interpretation is based on the reference from *Sushruta sharirshtana* 6th chapter.
2. To measure *pramana* of *one swaanguli*, researcher formulated new method which suitably called as retrograde method i.e. from *swapanitala sankuchit pramana* as described in above point i.e. *swapanitala sankuchit pramana* (4 *angula*) / 4 = '1'*Swaanguli pramana*

REFERENCES

1. Dr. Ramkaran Sharma and Vaidya Bhagwan Dash, editor, commentary by Chakrapani Datta on Agnivesha Charaka Samhita vimansthan, chapter 8, verse117, Chaukhamba series Varanasi, 2009, P-271, 272.
2. Priya Vrat Sharma commentary by Dalhana on Sushruta Samhita, sutrasthan, chapter 35, verse 12, Vol-I Chaukhamba Visvabharti Varanasi, 2010, P-330.
3. Kaviraja Atrideva Gupta, Vaidya Yadunandana Upadhyaya editor, Astangahrdayam of Vagbhata ,sharirsthan ,chapter-3, Chaukhamba Prakashan Varanasi, 2012, P-263.
4. Dr. Ramkaran Sharma and Vaidya Bhagwan Dash, editor, commentary by Chakrapani Datta on Agnivesha Charaka Samhita vimansthan, chapter 8, verse94, Chaukhamba series Varanasi,2009,P-260,261.
5. DR. U. B. Bhoir, to evaluate the hypothesis of Sama ayama vistaar given by Charaka acharya. Bharati Vidyapeeth Deemed University college of Ayurveda, Pune-43, Maharashtra (India),2002
6. Priya Vrat Sharma commentary by Dalhana on Sushruta Samhita, sutrasthan, chapter 35, verse 13, Vol-I Chaukhamba Visvabharti Varanasi, 2010, P-331.
7. Dr. krishana Grag editor, edition 4th, B D Chaurasia handbook of general anatomy, CBS publishers and distributers PVT. LTD, 2009, P-46
8. Priya Vrat Sharma commentary by Dalhana on Sushruta Samhita, sutrasthan, chapter 35, verse 29, Vol-I Chaukhamba Visvabharti Varanasi, 2010, P-336.
9. PriyaVrat Sharma commentary by Dalhana on Sushruta Samhita, sharirsthan, chapter 6, verse 28,29, Vol-II ChaukhambaVisvabharti Varanasi, 2010, P-196.
10. Dr. Ramkaran Sharma and Vaidya Bhagwan Dash, editor, commentary by Chakrapani Datta on Agnivesha Charaka Samhita vimansthan, chapter 8, verse117, Chaukhamba series Varanasi,2009,P- 272.
11. Sashikant K Muley, Ajit A. Surve and Swati D. Bhingare, Scientific study of Charakaokta anguli praman in reference to human height, An International quarterly journal of research in Ayurveda, 2013-Oct-Dec.

Source of Support: Nil
Conflict Of Interest: None Declared

How to cite this URL: Pooja Chauhan & Pandit S.V: Pilot Study For Fixation Of Measurement Site Of '1' Angula. International Ayurvedic Medical Journal {Print} 2018 {cited March, 2018} Available from: http://www.iamj.in/posts/images/upload/1023_1028.pdf