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REVIEW ARTICLE

A Conceptual Study of Pramana Sharir in Relation to Gulpha Sandhi Measurement

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ABSTRACT

Background: Pramana Sharir is an important branch of Ayurveda that deals with the measurement and proportion of the human body. It helps in understanding normal body structure, individual constitution, strength, growth and clinical assessment. Gulpha Sandhi, which is commonly correlated with the ankle joint, is an important weight-bearing joint of the lower limb. Its measurement has relevance in anatomical understanding, clinical examination, deformity assessment, trauma evaluation and functional analysis.

Aim: To study the concept of Pramana Sharir in relation to Gulpha Sandhi measurement and its anatomical and clinical importance.

Objectives: To review the Ayurvedic concept of Pramana Sharir. To understand the role of Anguli Pramana in body measurement. To study the classical and anatomical importance of Gulpha Sandhi. To correlate Gulpha Sandhi with the modern ankle joint. To assess the clinical utility of Gulpha Sandhi measurement.

Materials and Methods: This is a conceptual review study. Classical references were collected from Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya and relevant Ayurvedic commentaries. Modern anatomical, anthropometric and clinical references related to ankle joint measurement were also reviewed.

Results & Discussion: Pramana Sharir gives a practical and individualized method of body measurement. Gulpha Sandhi is described as an important structural and functional joint of the lower limb. Its measurement may help in assessing normal proportion, swelling, deformity, injury and functional limitation.

Conclusion: Pramana Sharir provides a scientific and practical base for understanding human body measurement. Study of Gulpha Sandhi measurement can bridge Ayurvedic structural concepts with modern anatomical and clinical assessment.

Keywords: *Pramana Sharir, Gulpha Sandhi, Anguli Pramana, Ankle Joint, Anthropometry, Ayurveda*

INTRODUCTION

Ayurveda explains the human body through both structural and functional perspectives. The study of Sharir is not limited to gross anatomy only, but also includes proportion, measurement, strength, constitution and clinical relevance. Pramana Sharir is one of the important concepts that describes the measurement of body parts with the help of Anguli

Pramana. This method is individualized because the unit of measurement is based on the person's own finger breadth. Therefore, it gives a body-specific method rather than a fixed universal scale. This concept is useful in the assessment of normal body proportion, growth, development and pathological changes.[1]

In classical texts, Acharya Charaka and Acharya Sushruta have given importance to body measurement for understanding Ayushya, Bala, Samatva and clinical prognosis. Measurement of body parts helps in identifying whether the body is well-proportioned or not. A properly proportioned body is considered important for strength, stability and health. The lower limb has special importance because it supports the body weight and helps in locomotion. In this context, Gulpha Sandhi holds a significant place as it connects the leg with the foot and supports standing, walking and movement.[2]

Modern anatomy correlates Gulpha Sandhi with the ankle joint, which is formed mainly by the lower end of tibia, fibula and talus. It is a major synovial hinge joint involved in dorsiflexion and plantar flexion. Clinically, ankle measurement is used in the assessment of swelling, edema, deformity, trauma, ligament injury, arthritis and rehabilitation progress. Thus, the study of Pramana Sharir in relation to Gulpha Sandhi measurement is useful for understanding the connection between Ayurvedic body measurement and modern anthropometric examination.[3]

AIM AND OBJECTIVES

Aim: To study the concept of Pramana Sharir in relation to Gulpha Sandhi measurement and its anatomical and clinical importance.

Objectives:

- To review the Ayurvedic concept of Pramana Sharir.
- To understand the role of Anguli Pramana in body measurement.
- To study the classical and anatomical importance of Gulpha Sandhi.
- To correlate Gulpha Sandhi with the modern ankle joint.
- To assess the clinical utility of Gulpha Sandhi measurement.

MATERIALS AND METHODS

The present study is a conceptual review based on classical Ayurvedic texts and modern anatomical literature. References related to Pramana Sharir, Anguli Pramana, Sandhi Sharir and Gulpha Sandhi were reviewed from Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya and available commentaries. Modern references were collected from standard anatomy, orthopedics and anthropometry books. The collected material was analyzed to understand the concept of body measurement, its relevance in Gulpha Sandhi and its possible clinical application in ankle joint assessment.[4] Anthropometry was considered as the modern scientific method for recording body measurements, while Pramana Sharir was considered as the Ayurvedic method of measuring body parts by the individual's own Anguli.

MEASUREMENT PROTOCOL FOR GULPHA SANDHI

For the proposed measurement of Gulpha Sandhi, apparently healthy adult subjects may be selected. The subject should be asked to sit comfortably on a chair or examination table, keeping the knee flexed at 90 degrees and the foot placed in neutral position. The ankle region should be exposed properly. A non-stretchable measuring tape should be used for circumference measurement, and a spreading caliper or vernier caliper may be used for bimalleolar width. The measurement should be taken at the level of medial and lateral malleoli because this region represents the anatomical area of Gulpha Sandhi. In Ayurvedic literature, Gulpha is also described as an important Marma region with measurement value, which supports the anatomical importance of this site.

First, individual Anguli Pramana should be measured. For this, the breadth of the middle finger at the proximal interphalangeal joint may be taken as the standard unit of Swa-Anguli. The value should be recorded in centimeters. Then, Gulpha Sandhi circumference should be measured by placing the measuring tape around the ankle joint at the level of both malleoli. The tape should be kept horizontal and snug, but not tight. Measurement should be taken separately on the right and left sides. Three readings should be taken for each side, and the mean value should be considered as the final measurement.

After recording the circumference in centimeters, the value should be converted into Anguli Pramana by dividing the Gulpha Sandhi circumference by the individual's own Anguli measurement. This helps to obtain a personalized measurement of Gulpha Sandhi Pramana. The same method may be applied for comparison between right and left ankle joints. Any difference between both sides may be noted for swelling, deformity, trauma, edema or structural variation. This protocol connects the Ayurvedic concept of Swa-Anguli Pramana with modern anthropometric assessment, as both deal with systematic body measurement.

Formula

> *Gulpha Sandhi Pramana = Gulpha Sandhi circumference in cm ÷ Individual Anguli Pramana in cm*

Proposed Numerical Recording Format

Table 1. Proposed numerical recording format

Sr. No.	Measurement Parameter	Method of Measurement	Unit
1	Individual Anguli Pramana	Breadth of middle finger at proximal interphalangeal joint	cm
2	Right Gulpha Sandhi circumference	Tape measurement at malleolar level	cm
3	Left Gulpha Sandhi circumference	Tape measurement at malleolar level	cm
4	Right Gulpha Sandhi Pramana	Right circumference ÷ individual Anguli	Angula
5	Left Gulpha Sandhi Pramana	Left circumference ÷ individual Anguli	Angula
6	Average Gulpha Sandhi Pramana	Right + left Gulpha Pramana ÷ 2	Angula

AYURVEDIC REVIEW

Pramana Sharir means the study of body measurement. The term Pramana refers to measurement, dimension or standard, while Sharir refers to the human body. In Ayurveda, measurement is not only used for physical description but also for understanding health status, strength and proportion. A well-measured and proportionate body indicates proper development of Dhatu, balanced Dosha and good functional capacity. Classical texts explain body measurement through Anguli Pramana, where the individual's own finger breadth is used as a measuring unit. This makes the method personalized and suitable for clinical assessment.[5]

Importance of Anguli Pramana

Anguli Pramana is an individualized unit of measurement. It is based on the width of the person's own finger. This concept shows that ancient Ayurvedic scholars understood the importance of relative body proportion. A tall person and a short person cannot be assessed by the same fixed measurement only. Therefore, Anguli Pramana gives a proportional method. It helps in assessing whether a body part is suitable according to the person's own body frame. This is very close to the modern idea of anthropometry, where body size, proportion and ratio are studied for clinical and research purposes.[6]

Concept of Sandhi in Ayurveda

Sandhi means joint. It is the site where two or more bones meet. Sushruta Samhita gives a detailed description of Sandhi and classifies them according to structure and function. Sandhi plays an important role in movement, stability and body mechanics. The normal function of a Sandhi depends on the proper condition of Asthi, Snayu, Mamsa, Sira and nearby structures. Any abnormality in these structures may lead to pain, swelling, stiffness or deformity. Therefore, measurement of a joint area can help in understanding its normal and abnormal state.[7]

Ayurvedic Understanding of Gulpha Sandhi

Gulpha Sandhi is the joint region present between the leg and the foot. It may be correlated with the ankle joint. It is an important weight-bearing structure and helps in walking, standing, jumping and maintaining body balance. In Ayurvedic understanding, the lower limb is responsible for Gamana Karma, and Gulpha Sandhi acts as an essential mechanical support in this function. Because this region bears body weight, it is commonly affected by trauma, swelling, stiffness and pain. Measurement of Gulpha Sandhi may help in identifying changes in size, shape and proportion.[8]

Gulpha Sandhi and Marma Importance

The ankle region is also clinically important because of the presence of vital structures. Gulpha Marma is described among the important Marma points. Injury to this region may produce pain, difficulty in walking, stiffness or functional disability. This indicates that ancient scholars recognized the clinical sensitivity of the ankle region. The measurement of Gulpha Sandhi can therefore be useful not only for anatomical assessment but also for identifying swelling, injury and deformity around a sensitive functional area.[9]

Clinical Relevance of Gulpha Sandhi Pramana

In clinical practice, Gulpha Sandhi Pramana may be useful for comparing both ankles, assessing unilateral swelling, observing post-traumatic changes and evaluating treatment response. If one Gulpha Sandhi is larger than the other, it may indicate swelling, inflammation, edema, fracture, ligament injury or deformity. In chronic conditions, repeated measurement can help in monitoring improvement. In Ayurvedic management, where conditions like Sandhigata Vata, Vatarakta, Shotha and trauma-related disorders may involve the ankle, measurement provides an objective clinical parameter.[10]

Samprapti in Flow Chart Wise

Nidana such as trauma, excessive walking, improper posture, obesity, aging or Vata Prakopa

↓

Vitiation of Vata Dosha with possible association of Kapha or Pitta

↓

Affliction of Asthi, Sandhi, Snayu and local Srotas at Gulpha Sandhi

↓

Local Shotha, Shoola, Stambha and restricted movement

↓

Change in normal Gulpha Sandhi Pramana due to swelling, deformity or tissue involvement

↓

Functional difficulty in walking, standing and ankle movement

↓

Clinical need for measurement, comparison and follow-up assessment.[11]

MODERN REVIEW

Anatomy of Ankle Joint

The ankle joint is a synovial hinge joint formed by the distal end of tibia, distal end of fibula and trochlea of talus. The tibia and fibula form a socket-like structure called the ankle mortise, in which the talus fits. The joint mainly allows dorsiflexion and plantar flexion. Stability is maintained by bony arrangement, joint capsule, medial ligament, lateral ligament and surrounding tendons. The medial malleolus and lateral malleolus are important landmarks during measurement and clinical examination of the ankle.[12]

Movements and Functional Importance

The ankle joint plays a major role in locomotion. During walking, dorsiflexion allows the leg to move forward over the foot, while plantar flexion helps in push-off. The ankle also contributes to balance and posture. Although the talocrural joint mainly performs hinge movement, nearby subtalar and midtarsal joints help in inversion and eversion. Proper alignment and strength of the ankle region are necessary for smooth gait. Even mild swelling or pain at the ankle may disturb walking and daily activities.[13]

Anthropometric Measurement of Ankle

Modern clinical practice uses ankle circumference, bimalleolar width, foot length, ankle range of motion and limb girth comparison for assessment. Ankle circumference is usually measured with a flexible tape around the malleolar region.

It is commonly used in edema assessment, sports medicine, orthopedics, physiotherapy and rehabilitation. Bilateral comparison is very useful because natural body variation is common. Repeated measurement helps in observing progression or recovery. This approach is conceptually similar to Pramana Sharir, where measurement helps in understanding structural status.[14]

Clinical Conditions Related to Ankle Measurement

Ankle measurement is useful in conditions such as sprain, fracture, arthritis, cellulitis, venous edema, lymphatic swelling, obesity-related joint stress and post-operative rehabilitation. In acute injury, swelling around the ankle may increase circumference. In chronic deformity, bony changes may alter joint shape. In arthritis, joint line swelling and stiffness may be observed. In rehabilitation, reduction of swelling and improvement in movement are positive signs. Therefore, ankle measurement is a simple, low-cost and clinically useful method.[15]

RESULT AND FINDINGS

- Pramana Sharir gives an individualized method of body measurement.
- Anguli Pramana is useful because it considers the person's own body proportion.
- Gulpha Sandhi can be correlated with the modern ankle joint.
- The ankle joint is a major weight-bearing joint and has high functional importance.
- Measurement of Gulpha Sandhi may help in assessing swelling, deformity, trauma and treatment response.
- Ayurvedic measurement concepts show similarity with modern anthropometry.
- Bilateral comparison of Gulpha Sandhi can be clinically useful.
- Gulpha Sandhi Pramana may be included as an objective parameter in Ayurvedic clinical studies related to ankle disorders.[17]

DISCUSSION

Pramana Sharir is not merely a descriptive anatomical concept; it is a clinical tool. The use of Anguli Pramana shows that Ayurveda considered individual variation in body structure. This is important because normal measurement differs from person to person according to age, height, body frame, nutrition and physical activity. In this way, the classical system of measurement has a practical approach. When applied to Gulpha Sandhi, it helps to understand whether the ankle region is proportionate and structurally normal in relation to the individual body.[18]

The Gulpha Sandhi is functionally important because it supports body weight and helps in movement. Any abnormality at this joint may affect gait and daily activities. In Ayurvedic clinical conditions such as Sandhigata Vata, Vatarakta, Shotha, Abhighata Janya Vikara and Sira Snayu Gata Vikara, the ankle region may show pain, swelling, stiffness and restricted movement. In such conditions, measurement of Gulpha Sandhi can work as a simple objective parameter along with symptoms. It can also help in comparing before-treatment and after-treatment status.[19]

Modern anthropometry and clinical ankle examination also support the value of measurement. Ankle circumference and bimalleolar width are commonly used in clinical and research settings. These methods help in documenting swelling, deformity and recovery. The Ayurvedic concept of Pramana Sharir can therefore be integrated with modern clinical assessment. Such integration may improve objectivity in Ayurvedic research, especially in studies related to joint disorders, edema, trauma and rehabilitation. Thus, Gulpha Sandhi Pramana has both classical and modern relevance.[20]

CONCLUSION

Pramana Sharir is an important concept of Ayurveda that explains body measurement through an individualized and proportion-based approach. Gulpha Sandhi, correlated with the ankle joint, is a major functional joint of the lower limb. Its measurement has value in understanding normal anatomy, identifying swelling or deformity, comparing both sides and assessing treatment response. The concept of Anguli Pramana shows similarity with modern anthropometry because both focus on measurement and proportion. Therefore, the study of Pramana Sharir in relation to Gulpha Sandhi measurement can provide a useful bridge between Ayurvedic anatomical concepts and modern clinical assessment.

DECLARATIONS

Conflict of Interest: Nil

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