WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 14, Issue 19, 164-171. Review Article ISSN 2277–7105

EXPLORING KURCHA: ITS SIGNIFICANCE AND APPLICATIONS IN CONTEMPORARY SCIENCE

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Article Received on
11 August 2025,

Revised on 31 August 2025,
Accepted on 20 Sept. 2025

https://doi.org/10.5281/zenodo.17213671

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ABSTRACT

In Indian surgery and anatomy, marma science and therapy is an unexplored topic. The whole field of Indian surgery could shift into varied methods with the study of Marma science. Marma science is the most important of India's hidden sciences. Before addressing Marma in the "Pratyeka marmanirdeshyam" chapter, Acharya Sushruta discussed "Sharira sankhya vyakarana," which includes "Kurcha" (aponeurosis) as a vital physical component. The foundation of all activities in the human body. The Ayurvedic branch of Rachana Sharir constitutes an exception to this rule. The work of the father of surgery, Acharya Sushruta, in his well-known book Sushruta Samhita is very extraordinary. The Shareera sthana's importance in describing the human body's anatomy is still noteworthy. Regarding Kurcha shareera, there are primarily three sources available: Ashtanga Sangraha, Bhavaprakasha prathamkhanda, and Sushruta Samhita Shareersthana. They believe that there are six KURCHAS, and they may be located in Hastha, Pada, Greeva, and Medhra. Greeva and Medhra have one apiece, while Hasta and Pada have two each. Different definitions of Kurcha-related words may be found in dictionaries. For example, a bundle, a handful of Kusa grass, a peacock feather, etc. It is referred to as Kunchika in the Sushruta Samhita; Kunchala denotes brush-like structure. Using Ayurvedic literature and anatomical, physiological, and therapeutic perspectives, this study aims to establish a link between the idea of Kurcha and contemporary physical structures that resemble it.

INTRODUCTION

A famous therapeutic method in India is Ayurveda. It is more than simply a life science; it is a wealth of information. Despite being extremely old by historical standards, its ideas still hold true today. This fact is also true for Sharir, a subset of Ayurveda. Indeed, Sushruta's work in his well-known book Sushruta Samhita is extraordinary. The importance of the Shareera sthana in describing the human body's anatomy is still noteworthy. For the benefit of the body itself, anatomy knowledge is crucial since it provides insight into how to treat it. A skilled medical professional longs to understand anatomy. The information about various sections is the focus of anatomical knowledge.

Understanding the precise meaning of the terms used to explain any basic concept is essential for having a proper understanding of Ayurveda. Similarly, as the terms used in Ayurveda and Sanskrit have broad definitions and could not align with modern books, this criterion might be extended to all concepts of Sharir. Using Ayurvedic literature and anatomical, physiological, and therapeutic perspectives, the current work aims to build a bridge of knowledge between the idea of Kurcha and contemporary physical structures that resemble it.

AIMS AND OBJECTIVES

1. To investigate different interpretations and the precise meaning of Kurcha in classical writings.
2. To compare and identify similar and distinct points of view in classical writings.
3. To identify and validate associated structures according to contemporary literature.

MATERIALS AND METHODS

By compiling the references regarding Kurcha, a comprehensive literary analysis of both contemporary and Ayurvedic literature was undertaken. It was completed with an emphasis on the following resources.

DISCUSSION

Kurcha shareera

The main concepts utilized in the context of "Kurcha" are explained in terms of their Nirukti (meaning of the word), Vyutpatti (word development), and translation into current scientific terminology.

Regarding Kurchashareer, there are primarily three sources available: Ashtang Sangraha,[1] Bhavaprakasha Prathamkhanda,[2] and Sushruta Samhita Shareera sthana.[3] According to their perspective, there are six KURCHAS: Hastha, Pada, Greeva, and Medhra. Greeva and Medhra have one apiece.[4] while Hasta and Pada have two each. Different definitions of Kurcha-related words may be found in dictionaries. For example, a bundle, a handful of Kusa grass, a peacock's feather, etc.[5]

Correlated structures in Hand

Palmar aponeurosis: The long flexor tendons of the palm are covered by this strong, distinct triangular portion of the hand's deep fascia, which also covers the soft tissues. The tendon of the palmaris longus muscle and the flexor retinaculum are connected with the proximal end of the palmar aponeurosis. At the digit roots, the distal end of the aponeurosis splits into four longitudinal bands. Each band is united with the fibrous digital sheath and affixed to the base of the proximal phalanx.[6]

Applied aspects: Fibrous contracture of the palmar aponeurosis cause Dupuytren's disease (contracture), a degenerative disorder with an unclear origin that primarily affects the little and ring fingers.

Correlated structures in Foot

Plantar aponeurosis: The plantar aponeurosis is formed by a significant thickening of the middle portion of the plantar fascia. It is composed of weaker, thinner medial and lateral sections and a strong, thick center component.

Bands of thick fibrous connective tissue are organized longitudinally to form the plantar aponeurosis, which covers the whole sole.

It emerges from the tuber calcanei posteriorly and spreads out onto the sole, where it gets a little thinner and wider. To cover the digital tendons, the plantar aponeurosis splits into five bands. They attach to the great toe's sesamoids and the edges of the fibrous digital sheaths. Three compartments of the foot's sole—a medial compartment, a lateral compartment, and a central compartment—are formed by vertical septa that extend deeply from the edges of the central portion of the plantar aponeurosis.[7]

Applied aspect: As intermittent claudication (calf cramps caused by activity and alleviated by rest) is suspected, it is crucial to palpate the dorsalis pedis pulse. The dorsalis pedis pulse

is often felt on the dorsum of the foot, directly lateral to the extensor hallucis longus tendon, where the artery crosses the navicular and cuneiform bones. Distal to this, near the proximal end of the first interosseous space, it can also be felt. Arterial insufficiency is indicated by a decreased or nonexistent dorsalis pedis pulse. The dorsalis pedis artery may not be in its normal place in 14% of persons, or it may be missing or too tiny to palpate. Therefore, arteriosclerotic illness is not always present when a dorsalis pedis pulse is not seen.

Correlated structures in Neck

Ligamentum nuchae: The ligamentum nuchae is a bilaminar fibroelastic intermuscular septum that is physically different from the neck's supraspinous and interspinous ligaments but sometimes seen as homologous. Its posterior free border is a mix of its thick bilateral fibroelastic laminae. This boundary, which runs from the external occipital protuberance to the C7 spine, is superficial. As a septum for the bilateral attachment of cervical muscles and their sheaths, the fibro elastin laminae are joined to the medial sides of the bifid spine of cervical vertebrae, the posterior tubercle of C1, and the median portion of the external occipital crest. Additionally, the posterior spinal dura has a midline connection at the atlanto-axial and atlanto-occipital levels. The ligamentum nuchae is the decreased, significantly thicker representative in bripeds. Complex elastic ligament which in quadruped’s aids suspension of the head and controls its flexion.[8]

Applied aspects: The cervical region's well-developed section of the supraspinous ligament is called the ligamentum nuchae. It extends from the external occipital protuberance to the tip of the spinous process of the vertebra prominence (often C7) via the tips of the cervical vertebrae's spinous processes. One may think of the supraspinous ligament as the interspinous ligament's superficial extension. This later ligament extends from the base to the tip of each spinous process, running between the neighboring vertebrae. The aponeurotic attachments of the neighboring and subjacent muscles make up the majority of the ligamentum nuchae. These muscles are the splenius capitis, rhomboideus minor, trapezius, and serratus posterior superior, ranging from superficial to deep. The occiput and C1 and C1 and C2 have fibrous linkages between the ligamentum nuchae and the spinal dura. Between C2 and C3, they discovered interconnections to the spinal dura and ligamentum flavum. Compared to the attachments at higher levels, these were less noticeable. In contrast to earlier reports, they did not discover any direct connections between the rectus capitis posterior minor and the spinal dura.

This thin membrane extends from the top border of the C1 posterior arch to the posterior border of the foramen magnum. It's important to note that while the trigeminal nerve innervates the majority of the cranial dura, the upper cervical nerve innervates the infratentorial region, which is the part beneath the cerebellar tent. The outside, or endosteal, layer and the inner, or meningeal, layer make up the cerebral dura. These two levels are connected for the majority of the cranial cavities, with the exception of the area where they split to make room for the dural sinuses. Additionally, the outer layer terminates where it attaches to the foramen magnum. But at this point, the inner layer becomes the spinal dura after continuing through the foramen magnum. The outer layer of the cerebral dura is analogous to the spinal canal's periosteum. In conclusion, based on their relationship to the spinal dura, we see a number of cervical parts connected to the cranial dura mater. Both the ligamentum nuchae and, to a lesser extent, the ligamentum flavum join directly to the spinal dura. Both the cervical spinal dura and the cranial dura in the posterior cranial fossa receive sensory innervation from the upper cervical nerves. The sensory components of the deep back muscles and the skin of the back are supplied by these same nerves. Even though the accessory nerve innervates the trapezius, the upper cervical nerves provide its sensory innervations.

Correlated structures in Pubic region

Suspensory ligaments of penis: The fundiform and triangle ligaments, which are connected with its fascia and primarily composed of elastin fibers, support the penis' body. Originating from the lowest segment of the linea alba, the fundiform ligament divides into two lamellae that wrap around the penis before joining the scrotal septum below. Attached above the front of the pubic symphysis, the triangular suspensory ligament integrates with the fascia penis on both sides below. It extends deep to the fundiform ligament. However, the two structures above don't appear to may seem more brush-like, as those found in the Pada and Hasta regions. However, Sushruta could have discovered these structures using his antiquated dissection technique and identified them as "Kunchi," thus the name "Kurchas." Dissection techniques in the past were very different from those in the present, and the tools employed were also different. Additionally, it is said that the Medhra Pradesha (penile area) possesses Dhamani Sannipata, which is comparable to the brush-like artery structures that span the penile region.[9]

Applied aspects: Males penis is held tight to the pubic bone and supported when erect by the suspensory ligament, which is connected to the pubic symphysis. By surgically severing this ligament, the penis can extend further by hanging more outside the body. In order to promote a longer penis overall, the ligament is then urged to repair in an expanded condition.

The penis cannot attain a high angle of erection when engorged until this ligament has fully healed. Determine the fundiform ligament of the penis at the base of its body. The anterior abdominal wall's membranous Scarpa's fascia is the source of this ligament. From the Linea alba to the penis, the fundiform ligament wraps around it laterally before terminating in the scrotal septum. The penis is supported in a sling-like manner by the fundiform ligament. Determine the penis suspensory ligament by looking deep into the fundiform ligament. The deep fascia of the penis, also known as Buck's fascia, is where this brief, robust ligament connects. It originates from the front surface of the pubic symphysis.

Kurcha as Marma

Etiomology Kurcha assumes its name from the root words,, kur+chat‟ according to Sabdakalpadruma.

Kurcha marma of Upper limb

Name	**Kurcha marma**
Number	02
Location	**क्षिप्रस्योपरिष्टादुभयतः कूर्चो नाम !**
Rachana anusara	**Snayu**
Parinama anusara	**Vaikalyakara**
Pramana anusara	**4 Angula**
Structures	**1. Palmar aponeurosis** **2. Adductor pollicis** **3. Opponens pollicis muscle** **4. Lumbrical muscle** **5. Dorsal and palmar interossei** **6. Tendons of flexor digitorum profundus** **7. Radial artery, Deep palmar arch** **8. Median nerve**
Sign of injury	**भ्रमणवेपने Tremors and bending palm**

Kurcha marma of Lower limb

Name	Kurcha marma
Number	02
Location	**क्षिप्रस्योपरिष्टादुभयतः कूर्चो नाम !**
Rachana anusara	**Snayu**
Parinama anusara	**Vaikalyakara**
Pramana anusara	**4 Angula**
Structures	**1. Oblique head of adductor hallucis** **2. Flexor hallucis brevis** **3. Tendon of tibialis posterior** **4. Deep plantar artery** **5. Deep plantar arch** **6. Medial plantar nerve**
Sign of injury	**भ्रमणवेपनेTremors and bending foot**

CONCLUSION

Kurcha Marmas are anatomically complex locations mainly linked to the palmar and plantar aponeuroses. They are defined as brush-like structures (Kunchi) found in the palms, soles, neck, and genital area. Being that conditions like Dupuytren's contracture, fibrotic alterations, and inflammatory outgrowths frequently appear at these locations, their association with structures like the palmar and plantar aponeurosis emphasizes their clinical relevance. These

areas are susceptible to damage because of the way many tendons converge to produce brush-like structures. Serious functional deficits such as shaking, tremors, walking instability, and an inability to grip objects—described in Ayurvedic classics as Bhramana and Vepana—can result from deep damage to Kurcha Marmas. Kurcha Marmas are therefore essential anatomical and clinical markers that connect traditional Ayurvedic knowledge with contemporary medical knowledge of fibrous and aponeurotic disorders.

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