

Original Research

An Observational Study To Diagnose Kukundara Marma Injury

Tyagi Ankit^{1*}, Meshram Akashdeep², Soni Bhoomi³

¹PhD Scholar, Faculty of Ayurved, Department of Rachana Sharir, Parul Institute of Ayurved, Parul University, Vadodara, Gujarat & Associate Professor, Department of Rachana Sharir, Quadra institute of ayurveda, Roorkee, Uttrakhand

²Professor, Department of Rachana Sharir, Parul Institute of Ayurved, Parul University, Vadodara, Gujarat

³Associate Professor, Department of Shalya tantra, Quadra institute of ayurveda, Roorkee, Uttrakhand

***Corresponding Author:** Dr. Ankit Tyagi

*PhD Scholar, Faculty of Ayurved, Department of Rachana Sharir, Parul Institute of Ayurved, Parul University, Vadodara, Gujarat & Associate Professor, Department of Rachana Sharir, Quadra institute of ayurveda, Roorkee, Uttrakhand. Email id: drankittyagi88@gmail.com Contact no: 919760277631

ABSTRACT:

Kukundara is one of the Vaikalyakara Marma, two in number, present on both sides of the spine, related to the dorsolateral aspect of the pelvic bone and structurally categorized as Sandhi Marma. According to the Susruta Samhita, an injury to the Kukundara marma results in loss of movement and loss of sensation, which requires further emphasis on anatomical, functional and clinical reasons supported by current science. Regarding its location and identification, there are many disagreements among authors in the interpretation of a particular structure. Therefore, there is a need to identify the specific anatomical structure, its location and regional involvement to determine the structural composition of the Kukundara Marma and evaluate its involvement in the injury. The study was a retrospective clinical observational study of thirty patients to confirm the localization and impact of Kukundara Marma injuries. The data subjected to statistical evaluation showed that in this study, 46.7% were male and 53.3% were female, while the age group was 31-50, 50% Among the causes of injury, 70% were traumas in the lumbosacral region. The reference zone of pain was more in the leg area 42.3%, Chestahani found in 90% of cases. Gait was abnormal in 90%. The examination was positive in 53.3%. The exact localization of the Kukundara Marma on the side of the spine and the outer part of the buttock region was mainly related to the neurovascular structure that was present in close connection with the lower part of the sacroiliac joint. Therefore, a study was conducted to establish a diagnostic criterion for the evaluation of signs and symptoms of Kukundara marma injury.

Keywords: Kukundara marma, sacroiliac joint, sciatic nerve, diagnostic criterion

INTRODUCTION:

According to Susruta Samhita, Viddalakshanai Kukundra Marma is said to be "sparshaagyanam adhakaye Chesthaopaghatha" and more emphasis should be placed on anatomical, functional and clinical aspects. ⁽¹⁾ According to J.N Mishra, Kukundara Marma is one of the three lower Perusta Marmas highlighted in this connection. dorsolateral to the pelvis. ⁽²⁾ According to Ghanekar, Marma Kukundara is located in a vulnerable area surrounded by bony prominences such as ischial tuberosity, greater trochanter and iliac crest. The same author interprets Kukundara as ischial tuberosity. ⁽³⁾ According to Rasyogasagar, Kukundara is interpreted as the anterior superior iliac spine. ⁽⁴⁾ According to J.N Mishra, the position of Kukundara Marma is interpreted as slightly below the side of the pelvic bone. ⁽⁵⁾ Therefore, it is essential to identify the specific anatomical structures involved, as there is considerable disagreement among authors when interpreting specific structures. Damage causes loss of function and anesthesia. The Samhita describes the entire area and effect of the damage, but which specific sandhi should be considered as Kukundra Marma and which specific sections should be considered as Arda Angula, with a detailed description of its identification and

involvement (1/2) Pramana needs further explanation, the location and determination of anatomical structures, the effect that a person suffers from the loss of sensation and loss of movement in the lower limb due to the effects of more trauma or damage to this particular part, must be anatomically with the help of Modern science should be emphasized. There is minimal information about the consequences of damage to these parts and how to detect them. Therefore, this study was conducted in order to fully comply with the diagnostic criteria in identifying the location and specific anatomical structures with regard to Viddarakshana.

AIM AND OBJECTIVES:

1. To evaluate structural component, involve in injury.
2. To establish diagnostic criteria to assess sign and symptoms

Methodology:

A retrospective clinical observational study of 30 patients with history of trauma, randomly selected from OPD and IPD Ayurveda Quadra Institute, Roorkee, for sensory loss/alteration in lower limbs and movement of lower limbs. Presents with symptoms of weakness/immobility. . Evaluation is performed in the following steps using appropriate tests in patients who fully meet criteria for hip injury, numbness or loss of sensation, pain radiating to the lower extremity, and change in motion. A modified straight leg raise test suitable for assessing pain. straight leg raising test and double leg raising test, gap test, sacroiliac wound test, Patrick Faber test, posterior cut test (femoral thrust) patella, Achilles tendon, plantar reflex.

RESULTS & DISCUSSION:

RESULTS

Table-1 Age group wise distribution

Age group	Frequency	Percent
18-30	2	6.7
31-50	18	60.0
51-70	10	33.3
Total	30	100.0

Table-2 Gender of the case

Gender	Frequency	Percent
Male	14	46.7
Female	16	53.3
Total	30	100.0

Table-3 Pain referral zone

PAIN REFERRAL	NUMBER	PERCENT
Gluteal	2	6.6%
Thigh	7	23.3%
Knee	2	6.6%
Leg	13	43.3%
Foot	6	20%
Total	30	100%

Table-4 Movement involvement of the cases

Cheshtahani	Frequency	Percent
normal movement of lower limb	2	6.7
difficult to do the movement of lower limb without support	23	76.7
movement of lower with support	4	13.3
unable to do the movement	1	3.3
Total	30	100.0

Table-5 Cause of injury

Past illness	Frequency	Percent
trauma at lumbosacral region	24	80.0
any others	6	20.0
Total	30	100.0

Table-6.1 sensation affected

Touch	Frequency	Percent
Present	28	93.3
Absent	1	3.3
less compare to earlier	1	3.3
Total	30	100.0

Table-6.2 sensation affected

Pain	Frequency	Percent
Present	28	93.3
Absent	1	3.3
less compare to earlier	1	3.3
Total	30	100.0

Table-7 Gait involvement

Gait	Frequency	Percent
Normal	2	6.7
lurching gait	5	16.7
antalgic gait	21	70.0
unable to walk	2	6.7
Total	30	100.0

Table-8 Examination

Examination	Frequency	Percent
Positive	16	53.3
Negative	14	46.7
Total	30	100.0

Table- 9 Test positive

Test	Positive/negative	Number-30	Percent
Posterior shear test	Positive	19	63.3
SLR&DSLRL	Positive	28	93.3
Gapping test	Positive	10	33.3
Sacroiliac squish test	Positive	3	10.0
FABER test	Positive	26	86.7

Kukundara word refers to two dimples present on each side of vertebral column in lower part of body as per surface marking. Kukundara marma comes under sandhi marma, vaikalyakara in nature, 1/2 angula in pramana according to Susruta and Vagbhata both. In human body out of 44 vaikalayakara marma, Kukunadara marma are 2 in number which are present in prushthavamsha & cause deformity after injury. As acharya has specified the pramana of Kukundara as 1/2angula and impact of injury is adhoshakhagata chestshani and samgnaanasha the most probable structures are related with soft tissue associated with sacroiliac joint. Hence it was taken hypothetically the lower part of sacroiliac joint and 1/2angula pramana was marked circumferentially to explore the structures related to this sandhi and causing viddha lakshana related to adhahkaya.

Discussion based on viddha lakshana

The viddhalakshana of Kukundara marma is “sparshaagyanam adhakaye chesthaopaghatha”. In the present study 60% (n=18) are present in 31-50 age group. Chestahani found in 90% cases (n=28) but out of these 76.7% (n=23) are of grade 1, 13.3 % (n=4) grade 2, 3.3 % (n=1) are of grade 3. This assessment is for muscles strength. Walking and posture is mainly control by gluteal region muscles because they stabilize and accelerate the pelvis, other muscles play synergistic role with these muscles.⁽⁶⁾ Sparshagyanam in the present study was divided in to four types of sensation i.e. Touch, Pain, Temperature, and Position. ⁽⁷⁾In this touch discrimination is altered in 6% (n=2), pain discrimination absent in 6% (n=2), temperature discrimination altered in 3.3% (n=1), position discrimination altered in 3.3%(n=1). This data related to loss of sensation/altered sensation suggest that the sensory information is not carried properly or it is completely absent. As per the author of clinical neuroanatomy the root cause for loss of sensation in the lower limb may stem from pinched nerve in the Kukundara marma pradesha and which radiates towards low back, buttocks, thigh, groin, hip, leg and also foot. In the clinical observation of patients with injury to sacroiliac joint it was seen that all the above said symptoms were seen along with the transient numbness, prickling or tingling sensation. The pain was ranging from dull aching to sharp stabbing which was further observed increasing while the person was involved in physical activity. Gait is manner of walking, stepping, and running. In the present study Gait is abnormal in 90 % (n=28) out of these lurching gait is present in 16.7 % (n=5), antalgic gait present in 71% (n=21). Antalgic gait refers pain during walking. Lurching gait occurs when gluteus medius & minimus is injured because these two muscles stabilize the pelvis during walking.⁽⁸⁾ Right ankle reflex is altered in 10% (n=3), left ankle reflex is altered in 3.3% (n=2). Right plantar reflex is altered in 13% (n=4), left plantar altered in 3.3% (n=1). Ankle area is innervated by spinal nerve S1 and plantar area by spinal nerve L5, S1. Cutaneous nerve supply is sural nerve and medial & lateral plantar nerves respectively.⁽⁹⁾In the present study examination is positive in 53.3% (n=16). The test used in clinical observation was sacroiliac stress test. Localized pain over the sacroiliac joint combined with three or more test giving positive findings has made diagnosis of sacroiliac joint syndrome.⁽¹⁰⁾ According to Laslett and Williams posterior shear or “Thigh thrust” test have the highest level of interexaminer reliability as compare to others. Posterior shear test is positive in 63.3% (n=19). This test stresses not only sacroiliac joint and associated ligaments also like sacrotuberous ligament.⁽¹¹⁾ Straight leg raise test and double leg raise test was positive in 93.3%(n=28). In this the angle at which pain was felt during passive SLR was noted and then by making the patient passively to raise both legs simultaneously the level of

angulation was noted at the point of which pain provoked. As per the standard formula- if angle of DSLR > SLR the lesion more likely due to sacroiliac involvement.⁽¹¹⁾ On this basis the involvement of the region related to viddha lakshana of Kukundara marma was able to analyze taking the support of above said test. Gapping test (sacroiliac stretch) test was positive in 33.3% (n=10). This test stresses the anterior ligaments of the sacroiliac joint in case of strained ligaments or sacroiliac joint inflammation.⁽¹²⁾ Sacroiliac squish test was positive in 10% (n=3). This test stresses the posterior sacroiliac ligaments. Pain in sacroiliac, buttock or thigh region indicate sprain of these ligaments.⁽¹²⁾ Patrick's FABER test was positive in 86.7% (n=26). This test stresses the sacroiliac joint and hip also, if pain is present in gluteal region, it is due to sacroiliac joint irritation.⁽¹³⁾ In the present study also it was observed that out of 30 observed cases of trauma to gluteal region and radiating pain towards the course of sciatic nerve with altered sensation and movement, most of the individuals were without any findings of fracture related to sciatic nerve. But on symptomatic and examination base there is involvement of sacroiliac joint or Kukundara marma area due to impact of injury over the marked area. In present study pain referral zone was found more in leg region 43.3% (n=13), followed by thigh region 23.3% (n=7) It was also seen that the impact of injury to the sacroiliac joint was radiating in different direction like low back region, gluteal region, lower limb, up to the level of knee, posterior lateral part of calf and foot. There was diffused referral pain which was observed during examination of patient. The reasons for diffuseness of sacroiliac joint referral pain depends up on various factor like a) adjacent structure affected by intrinsic joint pathology, b) pain referral patterns dependent on the distinct location of injury in sacroiliac joint, c) joint innervation being highly variable and complex, d) pain referred in a sclerotomal fashion.⁽¹³⁾ In this study the referral pain was due to trauma to gluteal region and injury to sacroiliac joint.

Conclusion:

The discussion regarding Vaikalayakarata (distortion by injury) of Kukundara Marma is confirmed by retrospective clinical observation of 30 cases involving injury and vascular injury in the lower back or gluteal region leading to compression on the sciatic nerve which is the main nerve of this region and trauma. Sensitization can lead to functional and sensory changes in the lower limbs. Kukundara Marma was found to influence referral pain in a wide range of areas including the lower back region, gluteal region and also towards the lower limbs and groin. This shows the importance of Kukundara Marma which causes sensory and motor deficits related to neurovascular structures and is present in the region of Kukundara Marma pradesh (region).

REFERENCES:

1. Susruta, Dalhana, Gayadas Acharya, Susruta Samhita, Sharira Sthana, chapter6.in: Acharya JT, edi. Nibandha Sangraha. reprint ed. Varanasi: Chaukhambha Surabharati Prakashan, 2003.p.373
2. Mishra JN and Chauhan PK. Marma and its management. 1sted.Varanasi: Chaukhambha orientalia; 2005;p.179
3. Susruta, Sushruta Samhita, Sharira Sthana, chapter6.in: Ghanekar BG, Ayurveda Rahasya Dipika commentary.reprint ed. New Delhi: Meharchand Lachhmandas Publications;2013;p.196-97
4. Hariprapannaj VP. Rasyogasagar vol-1.Varanasi:Krishnadas academ;1999;p.142
5. Mishra JN and Chauhan P K. Marma and its management. 1sted.Varanasi: Chaukhambha orientalia; 2005;p.180
6. B. D. Chaurasya. Dr. Krishna Garg, editor. B. D. Chaurasya's Human Anatomy. Vol 2. 5 thed. CBS Publishers; p-71-72
7. Bickley L.S, Szilagy PG et al's, The nervous system;Bates guide to physical examination & history taking ed.10th New delhi; wolters Kluwer Lippincott Williams & wilkins, p-690-693
8. B. D. Chaurasya. Dr. Krishna Garg, editor. B. D. Chaurasya's Human Anatomy. Vol 2. 5 thed. CBS Publishers; p-75

9. Bickley L.S, Szilagy PG et al's, The nervous system; Bates guide to physical examination & history taking ed.10th New delhi; wolters Kluwer Lippincott Williams & wilkins, p-699-701
10. Morris C.E, Posterior joint syndrome; Low back syndromes integrated clinical Management; New Delhi; Mcgraw-hill medical publishing division, p-234
11. Morris C.E, Posterior joint syndrome; Low back syndromes integrated clinical Management; New Delhi; Mcgraw-hill medical publishing division, p-235
12. Morris C.E, Posterior joint syndrome; Low back syndromes integrated clinical Management; New Delhi; Mcgraw-hill medical publishing division, p-236-237
13. Cailliez J, Chaminade et al, Traumatic sciatic paralysis after inferior gluteal artery rupture Case report and proposed decision algorithm: Science Direct, 2013 march [cited 2015 03]; vol44(3):p-32-34: <http://www.sciencedirect.com/science/article/pii/S157234611200374>