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Case Study

ROLE OF *AGNIKARMA* AND *PATRA POTTALI PINDA SWEDANA* IN POST TRAUMATIC ELBOW STIFFNESS

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ABSTRACT
Post-traumatic elbow stiffness is a challenging and disabling condition that profoundly limits joint mobility, compromises functional capacity, and affects quality of life. It commonly arises following blunt trauma, fractures, surgical interventions, or prolonged immobilization, often leading to impairment of the entire upper limb. The elbow's complex anatomy and its tendency towards periarticular fibrosis make it particularly susceptible, so even minor injuries can result in significant restriction of movement and difficulty in performing daily activities. Conventional management- including physiotherapy, splinting, manipulation, and surgical arthrolysis-may yield variable results and is sometimes associated with recurrence or complications. In Ayurveda, such conditions are classified as *Abhighataja Vyadhi* (traumatic disease), predominantly involving vitiation of *Vata Dosha* with concurrent *Kapha Dosha*, manifesting as *Shoola* (pain), *Stambha* (stiffness), *Shotha* (swelling), and *Gati Vaigunya* (restricted movement). The line of treatment is primarily aimed at *Vata–Kaphahara Chikitsa*, as the pathology is dominated by the vitiation of these *Doshas*. In the present case, therapeutic intervention (*Agnikarma* and *Patra Pottali Pinda Swedana*) led to remarkable clinical improvement, with restoration of near-normal range of motion (flexion from 30°to 135°, Extension from 30°to 0°), complete relief from pain and tenderness, normalization of local temperature, and a significant enhancement of functional ability.

INTRODUCTION
The elbow joint is a hinge-type of synovial joint, connects the upper arm to the forearm permitting flexion and extension of the forearm. The normal range of flexion extension of elbow is 0°–145°. The functional range of motion required for daily activities is 30°–130° of flexion extension and 50° of supination to 50° of pronation. Flexion of elbow up to 149° may be required for some activities like using a cell phone and typing on a keyboard.[1] Muscles contributing to function are all flexion (Biceps Brachii, Brachialis, and Brachioradialis) and extension muscles (Triceps and Anconeus). Stiffness of elbow is defined as flexion <120° and loss of extension >30°.[2]

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Post-traumatic stiffness of the elbow is a common and functionally disabling complication following injuries such as fractures, dislocations, or soft-tissue trauma around the elbow joint. Owing to the elbow's complex anatomy and its predisposition to periarticular fibrosis, even minor trauma can result in significant restriction of motion. Loss of elbow mobility profoundly affects activities of daily living, as a functional arc of motion is essential for tasks involving feeding, personal hygiene, and occupational activities. Post-traumatic or post-surgical immobilization may result in intra-articular adhesions that limit motion. [3] A 50% reduction in elbow range of motion can lead to an 80% decline in upper limb functionality. Post traumatic stiffness is a prevalent complication and major cause of functional impairment following elbow injury, with an occurrence rate of 10-15% among trauma patients.[4] Stiffness of elbow causes difficulty in placement of hand in space and hence limits the functional capacity. It has been postulated that stiffness following surgery or injury to a joint develops

as a progression of four stages, which include bleeding, oedema, granulation tissue, and fibrosis.[5] Current treatment options range from conservative to surgical, with varying rates of success, invasiveness, and complications. Non operative treatment options include therapy, bracing, and manipulation. The operative treatment is arthrolysis, which may be performed via an arthroscopic or open approach.

In Ayurveda, post-traumatic conditions can be correlated with *Abhighataja Vyadhi*, which refers to diseases or disorders arising as a consequence of trauma or injury. *Abhighata* (trauma or injury) leads primarily to *Vata Dosha Prakopa* (vitiation of *Vata Dosha*), due to disruption of normal tissue integrity and function, with association of *Kapha Dosha.* Depending on the site and severity of injury, *Maṃsa* (muscle), *Asthi* (bone), *Snayu* (ligaments), and *Kandara* (tendon) *Dhatus* are commonly involved, leading to symptoms such as *Shoola* (pain), *Stambha* (stiffness), *Shotha* (swelling), *Gati Vaigunya* (restricted movement), and *Daurbalya* (weakness). Improper or delayed healing may further cause *Srotorodha* (blockage of channels) and *Ama* (accumulation of toxin) formation, contributing to chronicity of symptoms. Thus, post-traumatic conditions in Ayurveda are considered *Vata-Pradhana* or *Vata-Kapha* dominant disorders. As the *Sheeta* (cold), *Ruksa* (dry), and *Sthira* (static) *Gunas* (properties) of *Vata* and *Kapha,* the therapeutic interventions possessing *Ushna* (hot), *Snigdha* (unctuous), and *Tiksna* (penetrating) properties drugs and treatment are beneficial.

Patient Information

A 20-year-old male patient came to the OPD of RGGPGACH, Paprola, with pain and swelling of the right elbow along with inability to flex the right upper limb for the past 7 days. He had a history of trauma while travelling in a running bus, during which he accidentally collided with a metal rod/pillar inside the bus, resulting in a direct blow to the right elbow. Immediately following the injury, the patient developed pain and swelling around the right elbow joint, which was gradual in onset and progressive in nature. The pain was moderate in intensity, aggravated by movement of the right elbow, and relieved partially by rest and immobilization. The swelling was localized to the elbow region and was associated with restriction of movements, particularly flexion of the right arm. The patient initially took treatment at a local clinic, where he was managed conservatively with analgesics and exercises. Following this, there was partial reduction in pain and swelling with significant difficulty in flexing the right elbow, with persistent stiffness. There was no history of Hypertension, T2DM, Thyroid dysfunction or other chronic illness.

Clinical Findings

Presented with pain and swelling of the right elbow along with inability to flex the right upper limb (actively, passively). On examination his vital was stable. No pallor, icterus, cyanosis. Swelling present in right elbow joint. On systemic examination –no abnormality detected.

Ashthavidha Pariksha

His *Nadi* (pulse) was *Niyamita* (regular)*, Mutra* (urine) was *Peeta* (yellowish)*, Mala* (stool) was *Abadha* (Well formed), *Jihva* (tongue) was *Anavrit* (uncoated)*, Shabda* (speech) was *Spashta* (clear)*, Saparsha* (temperature) was *Ushna* (hot)*, Drik* (eyes) was *Nirmala* (clear), *Akriti* (shape) was *Madhyama* (normal).

Local Examination

Table 1: Examination of Elbow joint

S.No.	Elbow joint	Normal Range	Right	Left
1	Pain		VAS6	VAS0
2	Tenderness		Present	Absent
3	Temperature		Raised	WNL
4	Flexion [using Goniometer]	145°-150°	30°	WNL
5	Extension [using Goniometer]	0°	30°	WNL

Timeline

The patient was treated with *Agnikarma* using a *Panchadhatu Shalaka* (rod of five metals) at the site of maximum tenderness, followed by *Patra Pottali Pinda Swedana* with *Kottamchukkadi Taila*.

Agnikarma- Informed written consent was obtained from the patient prior to the procedure. The site was identified and marked at the point of maximum tenderness over the right elbow with the aid of a sketch. The *Panchadhatu Shalaka* (rod of five metals*)* was heated until it attained red-hot temperature. The patient was positioned and *Agnikarma* was performed using the heated *Panchadhatu Shalaka* (rod of five metals) by creating *Bindu* (dot like shape) at intervals of 0.5–1cm over the demarcated area (figure -1). A

total of 20–25 spots were created. Immediately following *Agnikarma*, *Aloevera* pulp was applied to the site. Patient was advised to take rest and avoid contact with water at the treated site.

Figure 1: *Agnikarma*

Patra Pottali Pinda Swedan *-Abhyanga* (oil massage of *Kottamchukkadi Taila*) done prior the procedure (except *Agnikarma* marks). The prepared *Pottali* was heated with *Kottamchukkadi Taila* and after checking the temperature over the dorsum of hand, applied over right elbow in a circular motion and linear motion over arm and fore arm with mild pressure, progressively applying deeper pressure as tolerated by the patient for 35-40 minutes daily. Throughout the procedure, *Pottali*'s temperature was maintained by reheating it.

Figure 2: Treatment protocol

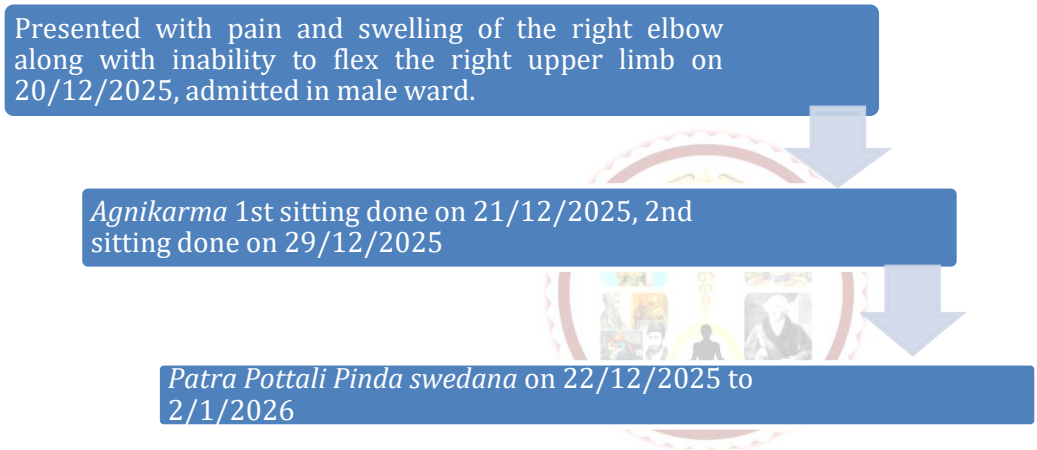
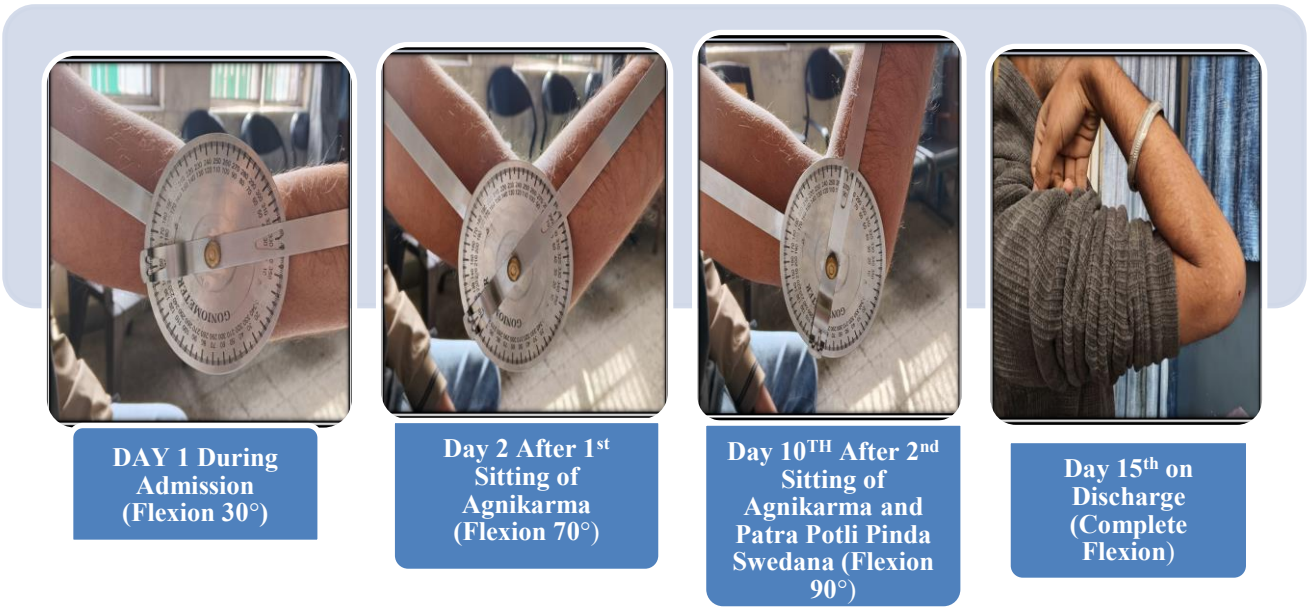


Figure 3: Range of motion of elbow joint



Diagnostic Assessment

Stiffness of elbow is defined as flexion <120° and loss of extension >30°. [2] Diagnosis was made through patient history, physical examination. Pain was assessed by VAS (Visual Analog Scale), Range of motion was assessed by Goniometer.

RESULTS

After 15 days of therapy patient had complete relief in pain, swelling and range of motion.

Table 2: Results

	Before treatment	**After treatment**
Pain	VAS6	VAS0
Tenderness	Present	Absent
Temperature	Raise	WNL
Flexion	30°	135°
Extension	30°	0°
Daily activities	Unable to perform	Able to perform

DISCUSSION

Abhighataja Vyadhi (traumatic disease), predominantly involving vitiation of *Vata Dosha* with concurrent *Kapha Dosha*, manifesting as *Shoola* (pain), *Stambha* (stiffness), *Shotha* (swelling), and *Gati Vaigunya* (restricted movement). The line of treatment is primarily aimed at *Vata–Kaphahara Chikitsa*, as the pathology is dominated by the vitiation of these *doshas*. Considering the predominance of *Sheeta* (cold), *Ruksa* (dry), and *Sthira* (static) *Gunas* (properties) of *Vata* and *Kapha*, therapeutic interventions possessing *Ushna* (hot), *Snigdha* (unctuous), and *Tiksna* (penetrating) properties were selected. *Agnikarma* was employed to provide immediate relief by counteracting of *Sheeta* (cold) and *Sthira* (static) *Gunas* (properties) enhancing local circulation, and alleviating pain. Additionally, *Patra Pottali Pinda Swedana* is administered to induce *Swedana* (sudation), reduce stiffness, improve mobility, and pacify the aggravated *Vata* and *Kapha Doshas* through its *Ushna* (hot) and *Snigdha* (unctuous) actions.

Agnikarma is a para-surgical procedure, *Agni* and *Karma* means the *Karma* accomplished by the application of *Agni*. *Agnikarma* acts mainly by pacifying *Vata* and *Kapha Dosha* through the properties of *Agni* such as *Ushna (hot), Tikshna* (sharp or penetrating), *Sukshma* (minute), and *Ashukari* (quick-acting). The application of therapeutic heat removes *Sheeta* (coldness), *Stambha* (stiffness), and *Gaurava*, (heaviness) which are the chief qualities responsible for pain and stiffness. *Agnikarma* counter acts on it due to its *Ushna Guna* (hot property), as it is exactly opposite to *Sheeta Guna* (cold property) of *Vata*. *Agni* through *Agnikarma* to *Asthi Sandhi* (bony joints) by approaching *Twak Dhatu* (skin), it produces direct impact on localized *Dhatvagni* (secondary level metabolism) and *Bhutagni* (tertiary level metabolism). [6] According to Hoff's principle the basal metabolism of the body increases by certain Percentage for every 1 degree rise in body temperature. Rise in temperature induces relaxation of muscles and hence muscle spasm with inflammation and pain gets reduced. Muscle relaxes most readily when tissues are warm which in turn reduces the spasm, inflammation and pain.[7]

Patra Pottali Pinda Swedana it is type of *Sweda* (sudation) where the fomentation is done by heated bolus bags containing *Vata-Kaphahara* leaves of medicinal plants. It is a therapy that combines the synergistic effects of *Snehana* (oleation), *Swedana* (fomentation), and the pharmacological properties of medicinal leaves to produce both local and systemic therapeutic benefits. The therapy involves the application of warm boluses (*Pottali*) prepared with *Vata-Kaphahara* herbs, herbal powders, and medicated oils, which generate controlled heat that penetrates the tissues, enhances peripheral circulation, and improves tissue metabolism. The *Snigdha* (unctuous) quality of the medicated oils, together with the *Ushna* (hot) and *Tikshna* (sharp) properties of the herbs, help pacify aggravated *Vata* and *Kapha Doshas*, reduce *Stambha* (stiffness), *Shoola* (pain), and *Shotha* (inflammation), and promote relaxation of muscles and soft tissues. Repeated fomentation through these warm herbal boluses gradually softens connective tissues, increases joint mobility, and nourishes deeper structures such as *Mamsa* (muscle), *Sanayu* (ligament), and *Asthi* (bone) *Dhatu*. The dual approach of *Patra Pottali Pinda Swedana* combining *Snehana* (oleation) and *Swedana* (fomentation) ensures that tissues are first lubricated and softened, which facilitates deeper penetration of heat and medicinal compounds. *Swedana* (fomentation), in turn, opens bodily channels, enhances circulation, and aids in the expulsion of toxins, thereby contributing to both detoxification and rejuvenation of the body.

Kottamchukkadi Taila acts primarily through its strong *Vata-Kaphahara*, *Ushna* (hot) and *Tikshna* (sharp) qualities, making it highly effective in painful, stiff, and inflammatory musculoskeletal conditions. The oil contains drugs such as *Kustha (Saussurea lappa)*, *Sunṭhi (Zingiber officinale)*, *Vacha (Acorus calamus*), *Devadaru* (*Cedrus deodara)*, *Shigru* (*Moringa oleifera*) *Lahsun* (*Allium sativum)*, *Rasna* (*Pluchea lanceolate*), *Dadhi* (yogurt), *Chincha* (*Tamarindus indica*) *Ras*, overall properties of drugs are *Tikta* (bitter)*, Katu* (pungent) in taste, *Laghu* (light), *Ruksha* (dry) in nature, *Ushna* (hot potency), it is indicated in all *Vataj* disorders and *Vata Kaphaj* disorders, acts like *Lekhana* (scrapping), *Srotoavardhagna* (clears obstruction of channels), *Shothahar* (reduce swelling)

CONCLUSION

This case demonstrates the effectiveness of *Agnikarma* along with *Patra Pottali Pinda Swedana* in the management of post-traumatic elbow stiffness. The significant improvement in elbow range of motion and restoration of functional ability indicate that these interventions can serve as a safe, non-invasive, and cost-effective therapeutic option. Timely intervention is essential to prevent progression to chronic fibrosis and irreversible restriction of joint movement. In the present case, the successful outcome achieved without the need for invasive surgical procedures highlights the potential of these therapies as an effective alternative or adjunct in the early management of post-traumatic elbow stiffness.

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