

# A Critical Review On ‘Bhagna’

**Dr. Akansha Negi, <sup>2</sup>Dr. Vimal kumar,  
<sup>3</sup>Dr. Ajay kumar Gupta**

<sup>1</sup>PG scholar, <sup>2</sup>Assistant Professor, <sup>3</sup>H.O.D. and Professor  
<sup>1,2,3</sup>, P.G. department of Shalya Tantra, Uttarakhand Ayurveda  
University, Rishikul Campus, Haridwar Uttarakhand India

## Abstract

Ayurveda is a complete science of life, where we get elaborate descriptions about the prevention of disease in a healthy individual, as well as the management of diseases. The most important supportive framework of the body is Asthi. In the vast literature of Ayurveda, orthopaedic condition (Fracture) are well elaborated in the name of Bhagna. The fracture is a condition characterized as a break in the movements/continuity of bones and in Ayurveda it is termed "Bhagna". Acharya Sushruta provided detailed descriptions of the classification, causes, clinical features, and management of Bhagna. Bhagna is categorized into various types based on the nature of bone displacement and the involved anatomical structures. The management principles include Bhagna Sthapana (reduction of fracture), Bandhana (immobilization), and the use of herbal formulations and dietary regimens to promote proper healing and restoration of function. These principles show remarkable similarities with modern orthopedic fracture management techniques such as reduction, immobilization, and all the methods that are being practiced today for the management of Bhagna have their roots in the basic principles given by Acharya Sushruta as Aanchhana, Peedana, Sankshepa, and Bandhana. This article aims to review the classical Ayurvedic concept of Bhagna, its classification, diagnostic features, and therapeutic approaches, and to explore its relevance in contemporary fracture management.

**Keywords** – Bhagna, Sandhimukta, Aanchhana, Peedana, Sankshepa, Lepana.

## 1. Introduction

The most ancient practiced medical science is Ayurveda, a holistic system of medicine that describes the human body in terms of Dosha, Dhatu, and Mala. Among the Sapta Dhatu (seven body tissues), Asthi Dhatu is considered one of the most important structural and supportive frameworks of the body, providing stability, posture, and protection to vital organs. In the Vedic period, the divine twin physicians Ashwini Kumaras were described as performing remarkable surgical procedures such as limb replacement and head fixation, indicating the early concept of advanced surgical practices in ancient India. The renowned Indian sage Acharya Sushruta systematically developed, practiced, and documented surgical techniques and provided detailed descriptions of the aetiopathogenesis (causative factors and development of disease), symptomatology (clinical features), classification of Bhagna, and management of Bhagna principles.

## SHABDHOTPATTI

The word Bhagna is derived from the word Bhanj-dhatu and Katupratyaya meaning to break<sup>(1)</sup>.

## VYAKHYA

Bhanjayateeti bhagnam<sup>(2)</sup>

## PARYAYA

Bhagna, Bheda, Bhedana, Bhanjana, Vibhanga.

## ETIOLOGY OF BHAGNA

iruihMuizgkj{kksi.kO;kye`xn”kuizHk`frfHkjfHk?kkrfo”ks’kSjUSDfo/keLFukHk<sup>3</sup>~xeqifn”kfUr<sup>(3)</sup>  
A ¼lq°fu 15/3½

**Patana:** “Patana” means falling, such as fall from a height, fall into a pit, or fall onto the ground with outstretched hands.

**Peedana:** “Peedana” refers to injury caused by violent pressure or compression exerted directly or indirectly on the bones.

**Prahara:** “Prahara” means a strong blow delivered with blunt objects, such as a stick (lathi) or a fist (mushti prahara).

**Akshepana:** “Akshepana” refers to trauma resulting from violent jerks, vigorous movements, or sudden and forceful muscular contractions.

**Vyala Mrugadashana:** “Vyala Mrugadashana” refers to trauma caused by the bites, clawing, or attacks by wild animals, which were more common in ancient times.

**Balavad Vighraha:** “Balavad Vighraha” means strong block from heavy or strongly built personality.

**Abhigata Vishesha:** “Abhigata Vishesha” means trauma caused by different reasons, resulting in varieties of fracture, including different bones.

## Classification of Bhagna

### ACCORDING TO ACHARYA SUSHRUTA'S CLASSIFICATION<sup>(4)</sup>

On the basis of structure involved, Bhagna has been broadly classified into two types -

1. Sandhimukta - Dislocation of a joint
2. Kanda Bhagna - Fracture of a bone

### Types of Kanda Bhagna<sup>(5)</sup>

1. **Karkataka:** This type of fracture resembles the shape of a crab. The condition in which the fractured bone is depressed at both articular extremities and protrudes at the center, is referred to as Karkataka<sup>(6)</sup>.
2. **Ashwakarna:** The fracture is characterized by the bone protruding upwards, resembling a horse's ear, and is referred as Ashwakarna<sup>(7)</sup>.

3. **Churnitam:** A fracture where the bone is crushed into fine fragments or powder. This Bhagna can be clinically identified by the presence of crepitus<sup>(8)</sup>.
4. **Pichhitam:** This fracture occur when the bone is compressed between two opposing forces, resulting in transverse expansion and significant swelling<sup>(9)</sup>.
5. **Asthichhallita:** In Asthichhallita, the periosteum is fractured, causing the fracture segment to slightly elevate on one side<sup>(10)</sup>, as the bark detaches from the main stem.
6. **Kanda Bhagna:** A fracture of the shaft of the bone, where the broken part shows abnormal movement.
7. **Majjanugatam:** In this type of fracture, one bone fragment gets impacted into another bone causing displacement of bone marrow.
8. **Atipatitam:** A fracture that occurs throughout the shaft of the bone is named as Atipatita. Here the fragments are completely separated, and the separated fragments hang, or are angulated<sup>(11)</sup>
9. **Vakra:** A fracture where the bone bends but does not break, commonly seen in children's soft bones.
10. **Chihnnam:** Fracture in which the continuity of the bone is breached at one side while the other side remains intact is known as Chhinnam.
11. **Patitam:** A fracture in which a bone is partially fractured and cracked at multiple sites, resulting in severe pain in the affected part.
12. **Sputita:** In this fracture there will be pricking pain due to sharp points of bristles. Such type of Bhagna mostly occurs in small bones, teeth etc.

### Types of Sandhimukta

1. **Uthpishtha-** Uthpishtha refers to dislocation at the site of fracture, where the broken bone fragments are displaced from their normal position.
2. **Vishlishta-** Vishlishta refers to subluxation injury, where a joint or bone is partially dislocated. The bone loses its normal alignment but remains partly in contact with the adjoining structure, often causing pain, swelling, and limited movement.
3. **Vivartita-** Vivartita refers to fracture or injury where the bone is displaced laterally from its normal position.
4. **Avakshiptha-** Avakshiptha refers to dislocation of joint in the downward direction, where the bone moves out of its normal position towards below, often causing pain, swelling, and restricted movement.
5. **Athikshipta-** Athikshipta refers to dislocation where one bone fragment rides over the other at the fracture site. It causes shortening of the limb, deformity, and loss of normal alignment.
6. **Theeryakkshipta-** Theeryakkshipta refers to dislocation where the bone or joint is displaced sideways (laterally) from its normal position.

## According to Acharya Vagbhatta's Classification<sup>(12)</sup>:

1. **Sandhi Bhagna**- Fractures occurring at the joints (articular fractures), affecting the joint structure, movement and involve the articulating ends of bones.
2. **Asandhi Bhagna**- Fractures occurring in the shaft or diaphysis of the bone, where the joint is not involved. These are fractures of the long bones or other non-articular regions.

## ACCORDING TO MADHUKOSH TIKAKAR

Classification of Bhagna<sup>(13)</sup> on the basis of their clinical manifestation as-

1. **Savrana Bhagna**<sup>(14)</sup>- A fracture where the bone protrudes through the skin after injury.
2. **Avrana Bhagna** - A closed fracture where the bone is broken but the skin remains intact, showing no visible wound.

## ACCORDING TO ACHARYA SHARANGADHAR

Acharya Sharangadhara has described the eight varieties of Bhagna, similar to Acharya Sushruta.

1. **Bhagna Prista** - The bone is fractured but the ends remain in place; the fracture is like a simple crack.
2. **Vidarita** - The bone is split or torn apart; often severe and displaced.
3. **Vivartita** - The bone is displaced from its normal position.
4. **Vishlishata** - The bone is shattered or fragmented into multiple pieces (comminuted fracture).
5. **Adhogata** - The fracture is displaced downwards along the bone axis.
6. **Urdhvagata** - The fracture is displaced upwards along the bone axis.
7. **Sandhi-Bhagna** - Fracture occurring at a joint or near the ends of bones (similar to epiphyseal or articular fractures).
8. **Tiryaka-Kshipata**- The bone is fractured in a diagonal or oblique direction; often from twisting or torsional injury.

## GENERAL SIGNS AND SYMPTOMS<sup>(14)</sup>

- **Shwayatu Bahulya**- Diffuse swelling at the fracture site, present in most fractures (hairline to comminuted).
- **Spandana**- Throbbing sensation, twitching or pulsation felt at the fractured site.
- **Vivartana**- Displacement of the fractured bone fragments from their normal position.
- **Sparsha Asahishnutha**- Tenderness at the fracture site. Invariably present .in all types of fractures.
- **Avapeedyamane Shabdha**- Presence of crepitus is a definitive sign of fracture, which confirms the diagnosis
- **Srasthangata**- Flaccidity or loss of tone in the muscles surrounding the fracture.
- **Vividha Vedhana Pradhurbhava**- Different types of pain due to trauma, nature of bone fractured, displacement, and soft tissue injury.

- **Sarva Avastasu Na Sharmalabha**- Inability to get comfort in any posture; patient remains restless until fracture is immobilized.

### Effect of Trauma over the Bones as described by Acharya Sushruta :- <sup>(15)</sup>

r:.kkLfFkuh uE;Urs HkT;Urs uydktfu rQA dikyktfu fofHk|Urs LQqVfUr :pdkfu pAA  
¼lq°fu 15@17½

Rk:.kkLfFk - Cartilaginous bones are prone to Greenstick fracture

uydkLfFk - Long bone are prone to metaphyseal or diaphyseal fracture

dikyLfFk - Fracture of Flat bones shows multiple cracks

:pdkLfFk - Small bone gets fragmented

### PROGNOSIS:

- ❖ **Sadhya<sup>(16)</sup>** –
  - All the three stages of middle age (Baal, Yuva, Pragalbh).
- ❖ **Krichhsadhya<sup>(17)</sup>**-
  - Churnitam, Chinnam, Atipatitam, Majjanugatam Bhagna
  - Elderly, children, or individuals with weakness or emaciation.
  - Patients with chronic respiratory conditions such as cough or asthma.
- ❖ **Asadhya<sup>(18)</sup>**-
  - Fractures of skull, spine, pubic joint, intermammary region, temporal region, back, and forehead
  - Fractures with dislocation or severe displacement
  - Congenital bone weakness
  - Deformities arising from improper reduction, immobilization, or movement after setting

### Modern Correlation of Bhagnawith Fracture: -

### ETYMOLOGY OF FRACTURE

The word “fracture” is derived from the Latin term “Fract,” which means discontinuity in a substance. From this word, other terms like “fracture,” “fragile,” “fraction,” “refraction” etc., are originated. In medical science, fracture means a break or discontinuity of bone or cartilage.

**DEFINITION** - A fracture is present when there is loss of continuity in the substance of a bone. The term covers all the bony disruptions, ranging from hairline fracture at one end to multifragmentary (or comminuted) fractures at the other.<sup>(19)</sup>

### CLASSIFICATION OF FRACTURE AS PER CONTEMPORARY MEDICAL SCIENCE <sup>(20)</sup>

- ❖ **Based on etiology**- a) Traumatic b) Pathological
- ❖ **Based on displacement**- a) Undisplaced b) Displaced

- ❖ **Based on external environment-** a) Closed fracture or simple fracture b) Open fracture or compound fracture
- ❖ **Based on fracture pattern-** a) Transverse fracture b) Oblique fracture c) Spiral fracture d) Segmental fracture
- ❖ **Based on complexity of treatment-** a) Simple b) Complex

### Diagnosis of Fracture: -

1. By assessing the symptoms of the patient
2. By proper history taking
3. Using radiological examination **Plain X – ray**: Should show joint above and joint below at least 2 views, special views on request.  
**X- ray rule of 2s –**  
2 slides = bilateral  
2 views = AP + lateral  
2 = joint above + below  
2 times = before + after reduction
4. MRI, CT scans to rule out exact site and type of fracture

### BHAGNA CHIKITSA- includes:

1. Principles of Bhagna Chikitsa.
2. General Management of Bhagna.
3. Specific Management for different types of fractures.
4. Medicinal preparations for different kinds of fractures.
5. Pathya- Apathya.
6. Clinical criteria of fracture healing

### PRINCIPLE OF BHAGNA CHIKITSA<sup>(21)</sup>

आञ्छनैः पीडनैश्चैव सङ्क्षेपैर्बन्धनैस्तथा॥

सन्धीञ्छरीरे सर्वास्तु चलानप्यचलानपि |

एतैस्तु स्थापनोपायैः स्थापयेन्मतिमान् भिषक् || (Su. Chi. – 3/19)

Acharya Sushruta, the father of ancient Indian surgery described a systematic four-step management protocol for Bhagna. The treatment principles are as follows:

1. Aanchhana - To Apply Traction
2. Peedana - Manipulation by local pressure
3. Sankshepa - Opposition and Stabilization of fractured part of bone
4. Bandhana - Immobilization

1. Aanchhana- Aanchhana is the fundamental step in the reduction of Bhagna (fracture) as described by Acharya Sushruta. It refers to the application of controlled longitudinal traction along the axis of the injured bone to correct displacement and restore normal anatomical alignment.

2. Peedana- Peedana is a reduction technique in the management of Bhagna described by Acharya Sushruta. It refers to the application of gentle, sustained, and controlled pressure to approximate and properly position the fractured bone fragments following traction (Aanchhana).

3. Sankshepa- Sankshepa refers to the stage of opposition and stabilization of the fractured bone fragments in the management of Bhagna. Sankshepa involves bringing the fractured ends into proper apposition and maintaining them in a stable, anatomically aligned position.

4. Bandhana- Bandhana constitutes the final stage in the management of Bhagna. And serve multiple therapeutic purposes like to stop bleeding, provide structural support to injured tissues, keep topical medications at the application site, reduce oedema, correct deformity, and offer symptomatic relief. They also help to maintain splints and dressings in the desired position. Proper application of the bandage is essential; it should be firm enough to provide stability yet not too tight as to cause swelling, blebs, pain, or circulatory compromise, nor so loose as to permit instability of the fracture site.

अवनामितमुन्नह्येदुन्नतं चावपीडयेत्

आञ्छेदतिक्षिप्तमधो गतं चोपरि वर्तयेत्<sup>(22)</sup> | (Su. Chi. -3/17)

- **Avanaamita (depressed) Bhagna** should be elevated.
- **Unnata (elevated) Bhagna** should be pressed down (Avanamana).
- **Atikshipta (thrown beyond / dislocation) Bhagna** should be set properly after maneuvering in the opposite direction of displacement (Aanchhana).
- **Adhogata (lowered down) Bhagna** should be stretched upward.

## GENERAL MANAGEMENT OF BHAGNA

The other treatment modalities described by Acharya Sushruta are-

- ❖ **Parisechana<sup>(23)</sup>** is described as an initial therapeutic measure in the management of Bhagna. It involves the gentle pouring or irrigation of a lukewarm medicated decoction over the fracture site. This procedure serves both cleansing and therapeutic purpose. In cases of open fractures, Parisechana helps to remove debris and contaminants from the wound, thereby reducing the risk of infection. Additionally, the use of warm (Sukhoshna) medicated liquids alleviates pain, minimizes swelling, and provides local soothing effects at the injured site. Specifically, lukewarm Chakrataila is recommended for Parisechana when pain is present at the fracture site.
- ❖ **Lepana<sup>(24)</sup>** is a classical procedure in fracture management. It involves the topical application of a medicated paste (Lepa) over the fracture site to support healing and protect the injured area. Lepa is prepared using Manjishtha, Madhuka, and Raktachandana mixed

with Shatadhautta Ghrita and Shali (rice) powder, which together provide anti-inflammatory, analgesic, and wound-healing properties.

- ❖ **Kusha Bandhana** is a classical technique described for the stabilization of fractured bones using natural splints. In ancient times, the bark of various trees such as Madhuka, Udumbar, Aswath, Palash, and Vat was employed due to limited resources. The inner soft layer of the bark acted as a cushion to protect the fractured bone, while the outer tough layer provided rigidity and strength, ensuring effective stabilization.

## SPECIFIC MANAGEMENT FOR DIFFERENT TYPES OF FRACTURES

Vishesh Chikitsa refers to the site-specific management of fractures. This approach ensures precise alignment, stabilization, and optimal healing for each type of fracture.

1. **In Utpishta and Vishlishta Bhagna :-**
  - Any movement should be avoided in this type of Bhagna.
  - Sheeta Pariseka and Pradeha are carried out
2. **Anguli Bhagna :-**
  - Dislocated or fractured finger should be fixed properly at its original position.
  - Bandaged with normal adjacent finger.
  - Ghrita Seka
3. **Paada Tala Bhagna :-**
  - Aabhyang with Ghrita.
  - Placed in normal Anatomical position.
  - Bandhan
  - Vyaayaama is prohibited strictly.
4. **Janghaa and Uru Bhagna :-**
  - Aanchana - Both the ankle joints should be held firmly by a strong man and the distal bone fragment is rotated in circular movements till both the fragments are in complete apposition.
  - Bandhan – Bark of tree or Cloth
  - Pashchaat Karma: Kapaata Shayana
5. **Kati Bhagna :-**
  - Aanchana (in upwards and backward direction)
  - Basti (Sneha Basti)
6. **Parshukaa Bhagna :-**
  - Aabhyanga with sarpee
  - Bandhan with Kavalikaa
  - Patient is allowed to sit in Tailapoorna Dronee
7. **Skandha Bhagna :-**
  - Shoulder Joint is brought in its normal position by Mushala.
  - Svastika Bandha.

**8. Hasta Tala Bhagna:-**

- Aam Taila Parisheka followed by bandaging of hands in a way that palms of both the hands are joined together and fingers are opposing each other.

**9. Hanusandhi Vishlesh :-**

- Panchangi Bandh after opposing the fractured bones together.

**10. Fracture of nose-**

- In case of depressed or deviated nose, lift anteriorly to elevate the bones with the help of elevator.
- Tubes with both the ends open are positioned inside the nostrils
- Ghrita Seka and bandaging.

**11. Kapal Bhagna:-**

- Ghrita and Madhu soaked bandage is placed over fractured area if no Cerebrospinal Fluid leakage is present
- Ghritapaan for 1 week

**12. Urdhvakaayika Bhagna:-**

- Karnapoorana
- Ghritapaana
- Nasya.

**13. Savrana Bhagna (Fracture with wound /Compound Fracture) :-**

- Pratisaarana with Nyagrodhaadi Kashaya mixed with Sarpi and Madhu.
- Afterwards the Fracture is treated accordingly.

**PATHYA-APATHYA**

- Lavana, Katu, Kshara, and Amla Rasa should not be used by a patient who has shattered bones.
- The patient should be provided a diet that includes Shali rice, meat soup, milk, ghee, soup of Satina pulse, and any other nourishing and beneficial food and drink.
- A Vranipurush should generally not be administered milk, but a case of fracture makes an exception.

**FRACTURE MANAGEMENT**

Treatment of a fracture can be considered in three phases:

- 1- Emergency care
- 2- Definitive care
3. Rehabilitation

**1- Emergency care –**

Immediate management of a fracture begins at the site of the accident and focuses on minimizing further injury and controlling swelling. The classical principles align closely with the modern **RICE protocol**:

- **Rest** – Immobilize the injured part using a splint or support to prevent movement and further damage.
- **Ice therapy** – Apply cold packs to reduce swelling and relieve pain.
- **Compression** – Use gentle pressure or bandaging to control swelling and support the injured area.
- **Elevation** – Raise the affected limb above heart level to minimize edema and facilitate circulation.

These measures stabilize the fracture temporarily and prepare the patient for safe transport to a medical facility for definitive treatment.

## 2- Definitive care-

The definitive treatment of a fracture is guided by three fundamental principles:

- (i) **Reduction** – This involves the careful ‘setting’ of displaced bone fragments into their correct anatomical alignment. Reduction can be performed non-operatively (closed reduction) or operatively (open reduction) depending on the type and severity of the fracture.
- (ii) **Immobilisation**- Immobilisation is necessary to maintain the bones in reduced position. Immobilisation can be achieved externally, using plaster casts, splints, or bandages, or internally, through surgical fixation with rods, plates, or screws.
- (iii) **Preservation of Function** – Maintaining the functional capacity of the affected limb is critical. Physiotherapy and controlled exercises should be initiated throughout the treatment, even during immobilisation, to prevent stiffness, muscle atrophy, and loss of joint mobility.

## 3. Rehabilitation

Regardless of the cause, fractures can significantly disrupt daily life, causing pain, immobility, and a need for extensive rehabilitation. Physical therapy plays a crucial role in recovery, helping patients regain strength, mobility, and function. Acharya Sushruta had also highlighted the rehabilitation under Hasta Tala Bhagna in which he had mentioned first about the Mritapinda Dharan then Lavana Pinda Dharana and then as the strength or gripping power increases he wrote about Pashana Dharan to gradually returning to the full activity

## Conclusion

Ayurveda has given abundant importance to Asthi Sharir by describing it as Saara (base) of body. Fracture (Bhagna) are a common musculoskeletal injury resulting from trauma, falls, or pathological weakening of bones, and they can significantly impair mobility and daily functioning. The concept of Bhagna described in classical Ayurvedic literature represents a comprehensive understanding of fractures and dislocations. Clinically, fractures are classified based on completeness, displacement, and location, each presenting with characteristic symptoms such as pain, swelling, deformity, and functional loss. Classical Ayurvedic texts, particularly Sushruta Samhita, explain etiology, classification, types, general features, special features, prognosis and followed by Pathya Apathya (do's and don'ts) of Bhagna. The treatment of the Bhagna includes comprehensive management protocol, including general principles like traction (Aanchana), manipulation (Peedana), stabilization (Sankshepa), bandaging (Bandhana), cleansing (Parisechana), and

application of medicated pastes (Lepana), as well as site-specific treatments (Vishesh Chikitsa) for fractures of different bones. Allopathic science parallels, such as immobilization, reduction, and physiotherapy, highlight the relevance of these classical principles even today. Early intervention, careful stabilization, and structured rehabilitation are crucial for restoring function, preventing complications, and ensuring optimal recovery.

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