



# A CASE STUDY TO EVALUATE SANDHANEYYA EFFECT OF RASONADIYOGA IN THE MANAGEMENT OF BAHIRPRAKOSHTASTHI BHAGNA W.S.R TO COLLE'S FRACTURE.

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**Abstract:** Fractures are common musculoskeletal injuries, with Colle's fracture (Bahirprakoshtasthi Bhagna) frequently affecting elderly women due to osteoporosis and accidental falls. Ayurveda, through Bhagna Chikitsa as described by Acharya Sushruta, recommends methods like Anchana (traction), Peedana (compression), Samkshepana (approximation), Bandhana (immobilisation), and internal Sandhaneeya (bone-healing) medicines. A clinical trial was conducted comparing Rasonadiyoga — a classical formulation from Bhaishajya Ratnavali containing Rasona, Madhu, Laksha, ghrīt, and sita — with standard calcium and vitamin D3 supplements in Type 1 & 2 Colle's fractures. The study observed faster pain relief by day 14, early callus formation by day 28, and complete fracture union by day 42 in the Rasonadiyoga group. No side effects were reported. The formulation proved to be a safe, effective, and economical alternative for fracture healing, validating the classical principles of Ayurvedic Bhagna Chikitsa

**Key Words** - Bhagna, Colle's fracture, Bahirprakoshtasthi bhagna, Rasonadiyoga, Bhagna chikitsa

## 1. INTRODUCTION

Colle's fracture accounts for 17.5% of global fractures, with elderly postmenopausal women at higher risk due to osteoporosis. In India, its urban prevalence is 12–15 per 10,000 annually. Allium sativum (garlic), the main ingredient in Rasonadiyoga, enhances bone healing by increasing alkaline phosphatase activity by 40% and accelerating fracture repair by 30–35% in animal studies. Ayurveda recommends Rasonadiyoga as an Asthi Sandhankara Dravya for fractures, alongside mechanical methods like Anchana, Peedana, Samkshepana, and Bandhana. This study clinically evaluates Rasonadiyoga's Sandhaneeya effect in Colle's fracture, integrating Ayurvedic principles with modern research.

## 2. CASE REPORT

A 27-year-old male patient presented to the Shalyatantra OPD with complaints of pain, swelling, deformity, and restricted movements over the right wrist following a fall on an outstretched hand while slipping one day prior to presentation. The patient experienced difficulty in lifting objects and wrist movements. He had taken NSAIDs from a local practitioner which provided temporary relief.

**History of Present Illness** The patient was apparently asymptomatic one day before injury. Following trauma due to fall on outstretched hand, he developed severe pain, swelling, deformity, and restriction of wrist movements. Symptoms persisted despite analgesics, following which he visited the Shalyatantra OPD.

**Past History** - No history of trauma, systemic disorder, or family history of similar complaints

**Examination of Right wrist joint**

**Inspection**- Swelling over distal radius , Dinner fork deformity present, No external bruising

**Palpation** - Severe tenderness over distal radius. Bony irregularity palpable , Pain on dorsiflexion and supination movements, Restricted and painful wrist movements, Finger movements normal . Neurovascular status normal.

### 3.MATERIALS AND METHODS

**Study Type**- Randomized Controlled Clinical Trial

**Study Setting**- OPD, IPD, and attached Orthopedic services of the hospital.

**Randomization** - Simple random sampling.

**Investigations** - X-ray wrist joint AP and Lateral view CBC And BSL if required

**Assessment and Follow-up** Assessment was carried out on 0th, 14th, 28th, and 42nd day.

**Follow-up** X-rays were taken during 4th and 6th week

#### **Selection Criteria**

The patients were taken for the study as per the following Inclusion and Exclusion criteria.

#### **Inclusion criteria**

1. Patients in the age group 18-60 years.
2. Patients of either sex.
3. Patient who are willing for trial and ready to give informed consent
4. Patients having Colle's fracture type 1 (Transverse fracture of distal radial metaphysis) and type 2 (type 1 + ulnar styloid fracture) [FRYKMAN CLASSIFICATION] which can be reduced by closed reduction method with or without general anaesthesia.
5. Fractures of styloid process of ulna.
6. Cracked, broken and displaced colle's fracture.
7. Patients requiring external fixation and k- wiring

#### **Exclusion criteria**

1. Patients above the age of 60 years and below the age of 18 years.
2. Patients having uncontrolled diabetes and hypertension, SERO positive, tuberculosis, Cardiac or systemic disorders.
3. Patients with history of ischemic heart disease, metastatic tumour, injury to the blood vessels and nerves.
4. Patient is not willing to undergo trials or refused to give informed consent.
5. Fractures other than colle's fracture.
6. Open or compound fractures.
7. Colle's fracture having significant angulation and deformity.
8. Patients suggestive of Osteomyelitis and other bone diseases
9. Radio-ulnar Subluxation.
10. Fractures requiring open reduction and internal fixation

## Withdrawal criteria

- 1.If patient develops any adverse effect of drug.
2. If patient develops complications.
3. If patient is not responding to treatment and aggravation of symptoms
4. If patient refuses to continue the treatment.
5. Patients who are not cooperating with treatment protocol.

## 4. ASSESSMENT CRITERIA

### • SUBJECTIVE CRITERIA

Pain	Visual Analog Scale (VAS) 0–10
tenderness	No tenderness (0) Mild (1) Moderate (2) Severe (3 — wincing & withdraws)
Crepitus	Present(1) / Absent (0)
Wrist ROM	Present(1) / Absent (0)
Finger movements of affected hand	Present(1) / Absent (0)

### • OBJECTIVE CRITERIA

Bone Union (Radiological)	No union (0) Secondary union (1) Primary union (2)
Callus Formation (X-ray)	No visible callus (0) Patchy/hollow callus (1)Uniform but radiolucent callus (2) Callus same as bone cortex (3)
Swelling (in mm)	Measured at affected wrist over successive follow-ups (0th, 14th, 28th, 42nd day)
Malunion	Present (1) / Absent (0)

## 5. DRUG REGIMEN-

Drug: Rasonadiyoga (Kalka)  
 Dose: 5 gm twice daily after food  
 Duration: 6 weeks  
 Follow-up: Day 14, 28, 42

## SUPPORTIVE MANAGEMENT-

Cast immobilization  
 Limb elevation  
 Active finger movements  
 Ice fomentation if needed

## 6. STANDARD OPERATIVE PROCEDURE

**Required Instruments & Materials:** Khalva Yantra , Dried raw drugs ,Weighing machine ,Clean container, Tablespoon ,Takra (buttermilk)

### Purvakarma

Examine the patient

Routine blood investigations (CBC, BSL if required)

Rasona ShuddhiAs per Sharangadhara Samhita Madhyama Khanda 5/8-9

Select ripened Rasona (garlic) bulbs

Remove husk and sprout from each bulb

Soak cleaned garlic in buttermilk (Takra) overnight for purification

Dry and store purified Rasona

### Pradhana karma

Take equal quantities of:Rasona,Madhu , Laksha ,Ghrita ,Sita

Pound and grind together using Khalva Yantra to prepare a soft paste (Kalka)

Dosage:5 gm twice daily (BD) orally, after food

Saviryataavadhi (shelf life): 3 hours

### Paschatkarma

Keep affected limb elevated

Ensure immobilization with proper cast

Encourage active finger movements

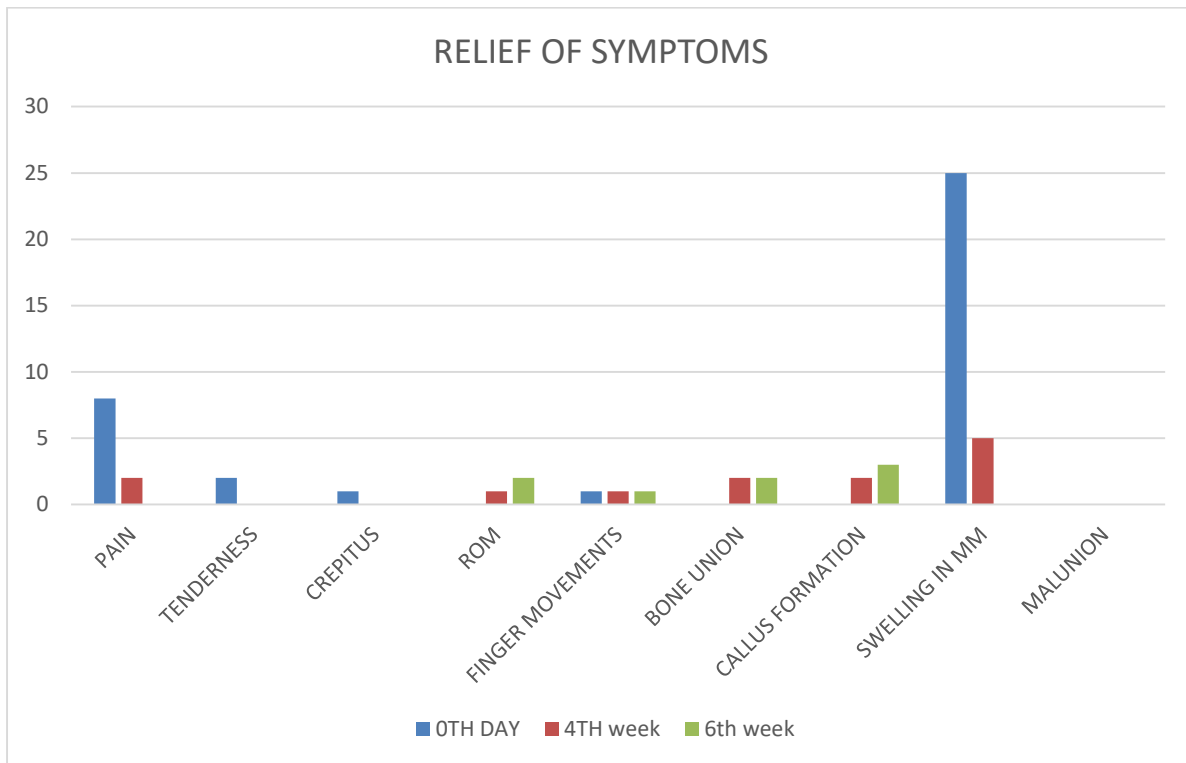
Monitor for:Distal discoloration, Numbness,Avoid wetting or cutting the cast, Ice fomentation if necessary

## 7. X- RAY FINDINGS (Before and after treatment)

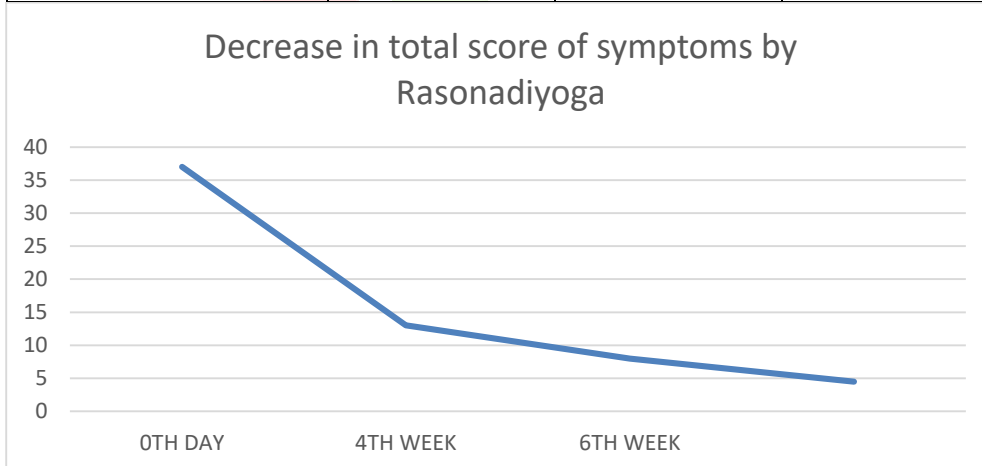


Day 0 (Pre-Treatment)	Transverse fracture of distal radius, approx 2 cm proximal to articular surface (Type 1 Frykman).Dorsal displacement of distal fragment.“Dinner fork deformity” visible on lateral view.
6 <sup>th</sup> week(after treatment)	Well-organized, uniform callus bridging fracture site (radiolucent compared to normal cortex). No significant angulation or displacement. No malunion signs (radial length and inclination maintained). Fracture line faintly visible or beginning to obliterate

### 8. OBSERVATION



Parameters	0 <sup>th</sup> day	14 <sup>th</sup> day	28 <sup>th</sup> day	42 <sup>nd</sup> day
Pain	8	5	2	0
Tenderness	2	1	0	0
Crepitus	1	0	0	0
ROM	0	0	1	2
Finger movements	1	1	1	1
Bone union	0	1	2	2
Callus formation	0	1	2	3
Swelling in mm	25 mm	15 mm	5mm	0mm
Malunion	0	0	0	0



## 9. RESULT

Rasonadiyoga showed significant effectiveness in managing Colle's fracture. Pain, tenderness, crepitus, and swelling reduced by 100% over 42 days. Bone union and callus formation achieved 100% improvement, with no malunion observed. The total symptom score decreased by 83.78%, indicating substantial relief and bone healing within 6 weeks.

## 10. DISCUSSION-

Colle's fracture remains one of the most common skeletal injuries, especially in elderly individuals due to osteoporosis. In Ayurveda, it corresponds to Bahirprakoshtasthi Bhagna, with well-defined management guidelines by Acharya Sushruta under Bhagna Chikitsa, involving mechanical stabilization and internal medications like Sandhaneeyadravyas. This study aimed to evaluate the clinical efficacy of Rasonadiyoga, a classical formulation known for its bone-healing properties, in managing such fractures.

The patient showed progressive improvement in pain, swelling, tenderness, and wrist mobility within six weeks of treatment. Notably, radiological assessments demonstrated early callus formation by the 4th week and complete primary bone union by the 6th week. These outcomes reflect the osteogenic, anti-inflammatory, and analgesic effects of Rasonadiyoga, particularly attributed to Rasona (garlic) and its active compound diallyl disulfide, which enhances alkaline phosphatase activity and supports osteoblast function. Other ingredients like Laksha, Ghrita, Madhu, and Sita complemented fracture healing through tissue nourishment and anti-inflammatory actions.

The integration of Ayurvedic internal therapy with modern immobilisation techniques proved effective, achieving timely fracture healing without adverse effects. While these results are promising, limitations like single-case observation and absence of biochemical markers highlight the need for larger, controlled clinical trials to further validate Rasonadiyoga's role in fracture care.

## 11. CONCLUSION

The present clinical study evaluated the Sandhaneeya (bone-healing) effect of Rasonadiyoga in managing Bahirprakoshtasthi Bhagna (Colle's fracture), revealing notable improvements in pain, swelling, and joint mobility over 42 days, with radiological confirmation of satisfactory callus formation and primary bone union by the 6th week. No adverse effects were noted, highlighting both the safety and therapeutic efficacy of the formulation.

The osteogenic, anti-inflammatory, and analgesic properties of Rasonadiyoga's ingredients, especially Rasona (garlic), alongside Madhu, Laksha, Ghrita, and Sita, played a pivotal role in promoting fracture healing. This study underscores the clinical value of Bhagna Chikitsa as described by Acharya Sushruta, advocating for its integration into modern orthopedic protocols while recommending larger controlled trials to validate these promising outcomes.

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