

RESEARCH PAPER

Surgical Neck of Humerus Fracture Managed through the Principles of *Bhagna Chikitsa*: A Case Report

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ABSTRACT

Background: Fracture of the surgical neck of the humerus is a common proximal humeral injury in elderly individuals, typically resulting from a fall, and is associated with pain, swelling and restriction of shoulder movement. Contemporary management ranges from conservative sling immobilisation to surgical fixation, guided by fracture displacement, bone quality and patient factors. Classical Ayurvedic surgical literature describes the management of fractures under the broad heading of *Bhagna Chikitsa*, with a specific classical description of the treatment of a fractured arm bone (*Bahu Bhagna*).

Case Presentation: We report the case of an 84-year-old woman who presented with pain, swelling and ecchymosis of the left shoulder and proximal arm following a fall. Radiographic and computed-tomographic evaluation demonstrated a fracture pattern involving the proximal humerus. The patient was managed over two documented hospital admissions, spanning 22 November 2025 to 3 February 2026, with repeated shoulder *Bandhana* (bandaging), *Pada Sweda*, *Taila* application and *Lepana*, together with a structured regimen of internal Ayurvedic medication.

Conclusion: Sushruta's description of *Bahu Bhagna Chikitsa*, in which a fractured arm bone is treated according to the principles laid down for a fractured thigh bone, together with the general principles of *Sthapana* and *Bandhana* described in the *Bhagna Chikitsitam*, offers a coherent classical framework within which this case of proximal humeral fracture may be discussed. The case is presented to illustrate this correlation and to encourage further systematic, CARE-compliant documentation of Ayurvedic management of proximal limb fractures.

Keywords: surgical neck of humerus; proximal humerus fracture; *Bhagna Chikitsa*; *Bahu Bhagna*; *Bandhana*; Ayurveda; case report

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INTRODUCTION

The surgical neck of the humerus, the region immediately distal to the humeral head and tuberosities, is a common site of proximal humeral fracture, particularly in elderly individuals in whom reduced bone strength predisposes to fracture even after a low-energy fall. Proximal humeral fractures are the third most common fragility fracture after those of the hip and distal radius, with an annual incidence that rises sharply after the age of eighty (1). Clinically, the injury presents with pain, swelling, ecchymosis, tenderness and restriction of shoulder movement, and assessment of the

limb, including its neurovascular status, together with appropriate imaging, is essential to guide management (1,2).

The management of displaced fractures of the surgical neck of the humerus remains an area of active debate in contemporary orthopaedic practice. The PROFHER randomised clinical trial, which specifically examined patients with displaced fractures involving the surgical neck, found no significant difference in patient-reported outcomes between surgical and non-surgical treatment over two years (3). Subsequent narrative reviews have confirmed that conservative management, comprising

sling immobilisation and early, graded physiotherapy, remains an appropriate option for many elderly patients, particularly those with lower functional demands or a higher surgical risk, while operative fixation is reserved for selected displaced or unstable patterns (2,4,5).

Ayurvedic surgical literature describes fractures under the broad heading of *Bhagna*, with *Asthi Bhagna* referring specifically to injury involving bone. *Acharya Sushruta*, in the *Nidana Sthana* of the *Sushruta Samhita*, classifies *Sandhi Mukta* (dislocation) into six varieties and *Kanda Bhagna* (fracture of the shaft of a long bone) into twelve varieties (Sushruta Samhita, *Nidana Sthana*, Chapter 15) (6,7). In the *Chikitsa Sthana*, *Sushruta* devotes a specific verse to the treatment of a fractured arm bone, *Bahu Bhagna*, directing that it be managed according to the principles laid down for a fractured thigh bone (*Chikitsa Sthana* 3/34) (8), in addition to the general principles of *Sthapana* (reduction) and *Bandhana* (immobilisation) that govern the management of *Bhagna* as a whole.

This case-based article focuses specifically on the surgical-neck region of the humerus in an elderly patient and interprets the documented management through this classical framework. The case is reported in accordance with the CARE (CAse REport) guidelines for the transparent and complete reporting of clinical case reports (9).

LITERATURE REVIEW

The classical framework of *Bhagna Chikitsa* described by *Acharya Sushruta* in the *Chikitsa Sthana* of the *Sushruta Samhita* provides several verses of direct relevance to a fracture of the arm and shoulder girdle. These are reproduced below in the original Sanskrit, together with their English rendering and correlation with the present case.

1. *Sthapana*: General Methods of Reduction

पीडनैश्चैव सर्वास्तु सङ्क्षेपैर्बन्धनैस्तथा । आञ्जनैः सन्धीञ्छरीरे
चलानप्यचलानपि । एतैस्तु स्थापनोपायैः स्थापयेन्मतिमान् भिषक् ॥१६॥

Sushruta Samhita, Chikitsa Sthana 3/15-16

Meaning: An intelligent physician should restore and maintain all joints of the body, whether movable or immovable, by the means of *Pidana* (pressure), *Sankshepa* (approximation), *Bandhana* (bandaging) and *Anchana* (traction). This general statement of the methods of *Sthapana* underlies the specific direction, discussed below, for the management of a fractured arm bone.

2. *Bahu Bhagna Chikitsa*: Treatment of a Fractured Arm Bone

सन्नमुन्नमयेत् स्विन्नमक्षकं मुसलेन तु । तथोन्नतं पीडयेच्च बध्नीयाद् गाढमेव च
। ऊरुवच्चापि कर्तव्यं बाहुभग्नचिकित्सितम् ॥३४॥

Sushruta Samhita, Chikitsa Sthana 3/34

Meaning: Continuing the preceding verse's direction that a depressed fragment of a fractured clavicle be elevated and an elevated fragment pressed down, using a rod where required, and firmly bandaged, *Sushruta* states that the treatment of a fractured arm bone (*Bahu Bhagna*) should be carried out in the same manner as that of a fractured thigh bone. This is the most specific classical citation available for the present case: *Sushruta* explicitly directs that an injury of the arm bone receive the same careful reduction, splinting and firm bandaging accorded to a fracture of the thigh, rather than being managed as a lesser injury.

3. *Sthana-sthite Sandhau*: Continuation of Care Once the Joint is Restored

आञ्छेदूर्ध्वमधो वाऽपि कटिभग्नन्तु मानवम् । ततः स्थानस्थिते सन्धौ बस्तिभिः
समुपाचरेत् ॥२६॥

Sushruta Samhita, Chikitsa Sthana 3/26

Meaning: A fracture of the *Kati* (pelvic girdle) should be corrected by traction upward or downward as required, and once the joint is restored to and maintained in its proper position ("*sthana-sthite sandhau*"), the patient should be further treated with *Basti* (medicated enemata). Although this verse specifically concerns the *Kati*, the underlying principle, that supportive treatment must continue once the fragment or joint has been brought into and held in its correct position, is directly applicable to the sustained, repeated *Bandhana* documented over two admissions in the present case of a shoulder-girdle fracture.

PATIENT INFORMATION

An 84-year-old woman presented after a fall, following which she developed sudden-onset pain over the left shoulder, associated with swelling and bluish-purple discolouration (ecchymosis) extending over the shoulder and proximal arm. She experienced severe restriction of shoulder movement and difficulty performing activities of daily living involving the affected limb. No other comorbidity was volunteered in the available clinical records. For the purposes of this report and in keeping with patient confidentiality, the patient is identified only as "the patient", and all identifying information, including her name and hospital identification number, has been removed from the accompanying images.

CLINICAL FINDINGS

On examination, swelling, tenderness and ecchymosis were noted over the left shoulder region, with pain

aggravated by attempted movement of the left upper limb. The neurovascular status of the affected limb was intact. Figure 1 shows the ecchymosis over the shoulder and proximal arm at presentation.



Figure 1. Clinical photograph showing ecchymosis (bluish-purple discoloration) over the left shoulder and proximal arm following the fall.

TIMELINE

Date	Event
Date of fall (2025)	Fall with sudden-onset left shoulder pain, swelling and ecchymosis; patient evaluated clinically and radiologically.
17 November 2025	Computed-tomographic 3-D reconstruction of the left shoulder girdle performed.
22 November 2025	First hospital admission for management of the left shoulder injury.
09 December 2025	Discharge at the end of the first documented admission.
13 December 2025	Second hospital admission for continued management.
16–21 December 2025	Inpatient follow-up; shoulder bandage repeated, with additional internal medication documented; symptoms later described as reduced.
20 December 2025 onward	Supportive care with rest and continued bandaging; general status repeatedly recorded as stable.
03 February 2026	Completion of the second documented inpatient course; discharge.

DIAGNOSTIC ASSESSMENT

The hospital case sheets recorded the diagnosis as "*Bhagna*". Plain radiography of the left shoulder (Figure 2) and a subsequent computed-tomographic three-dimensional reconstruction of the shoulder girdle (Figure 3) were performed and were interpreted by the treating team as showing a fracture pattern involving the proximal humerus. It should be stated as a limitation, in the interest of transparency, that the available records

did not include a separately worded radiology report explicitly using the term "surgical neck", so that the specific localisation of the fracture line to the surgical neck represents the corresponding author's interpretation of the imaging pattern in the context of the clinical presentation, rather than a verbatim radiological diagnosis. For the reader's orientation, Figure 4 provides a schematic illustration of the typical location of a surgical-neck fracture relative to the greater tuberosity and humeral head.

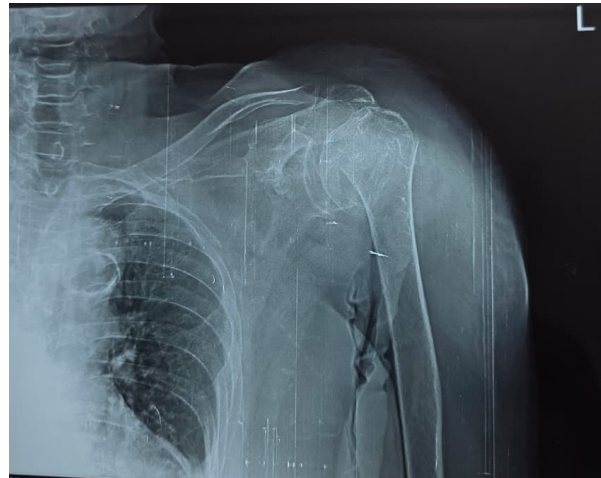


Figure 2. Radiograph of the left shoulder (marked L) showing a fracture involving the proximal humerus.

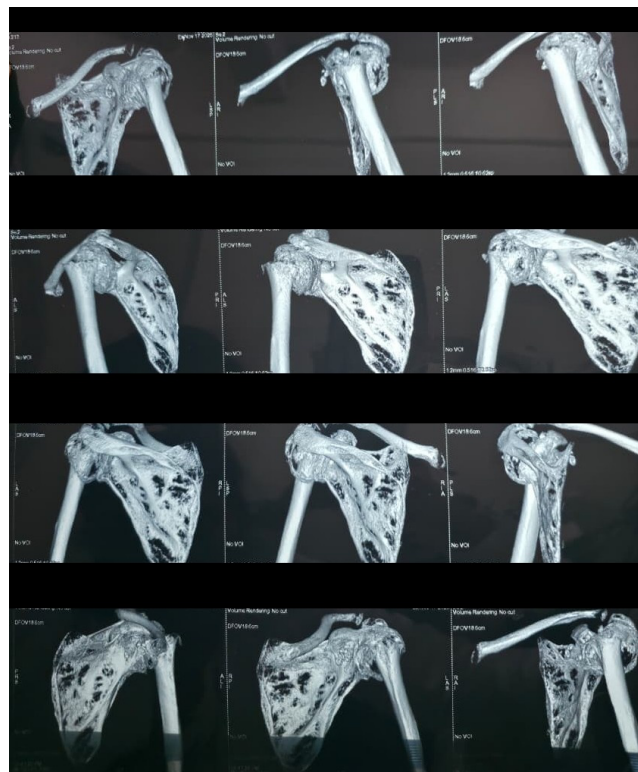


Figure 3. Three-dimensional computed-tomographic reconstruction of the left shoulder girdle, shown from multiple projections, demonstrating the fracture pattern of the proximal humerus. Patient name and hospital identification number have been redacted from the original image header bands to preserve confidentiality.

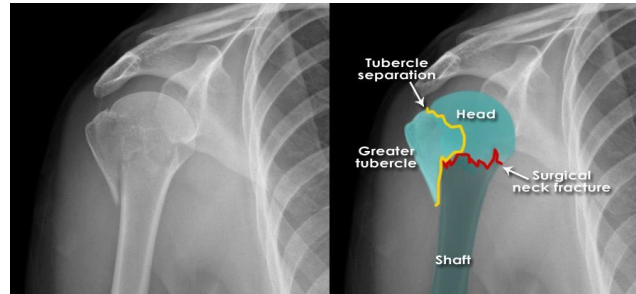


Figure 4. Schematic illustration of the anatomical location of a surgical-neck fracture of the humerus, shown for orientation only; this is a diagrammatic reference image and not the patient's own radiograph. (Source: educational reference illustration; authors should confirm permission for reuse or substitute the patient's own annotated film before submission.)

THERAPEUTIC INTERVENTION

The patient was admitted and managed with a combination of external Ayurvedic procedures and

internal medication, selected with reference to her age, the site of fracture, and the degree of pain, swelling and restriction of movement. The external procedures administered are summarised in Table 1.

Procedure	Duration / Frequency	Drug or material used
<i>Bandhana</i> (shoulder bandage)	22 Nov 2025 – 02 Feb 2026; 21 applications	<i>Vikeshika</i> formulation, comprising <i>Raktachandana</i> (<i>Pterocarpus santalinus</i> L.f.), <i>Haritaki</i> (<i>Terminalia chebula</i> Retz.), <i>Vibhitaki</i> (<i>Terminalia bellirica</i> (Gaertn.) Roxb.), <i>Triputa</i> , and <i>Haridra</i> (<i>Curcuma longa</i> L.)
<i>Pada Sweda</i> (foot sudation)	27 Nov 2025 – 27 Jan 2026; 8 sessions	Supportive <i>Vata</i> -pacifying procedure
<i>Taila</i> application	27 Jan 2026 – 03 Feb 2026; 4 sessions	<i>Murivenna Taila</i> , applied as whole-body massage
<i>Lepana</i> (local paste application)	27 Jan 2026 – 03 Feb 2026; 4 sessions	<i>Eladi Churna</i>

Internal Ayurvedic medications administered during the course of treatment are summarised in Table 2.

Medicine	Dose	Frequency	Anupana / mode
<i>Amruthottaram Kashayam</i>	15 mL + 60 mL lukewarm water	6 a.m. – 6 p.m.	Lukewarm water
<i>Chandraprabha Vati</i>	1 tablet	Twice daily	Orally
<i>Dhanwantharam</i> tablet	1 tablet	Twice daily	Orally
Painrest tablet	1 tablet	Twice daily	Orally
<i>Gorochanadi Gulika</i>	1 tablet	Twice daily	Orally
Biogest	1 tablet	Twice daily	Orally

The associated hip injury documented in the second admission, managed separately with hip bandage, ankle support and, later, *Kapadasayanam*, is noted here for completeness but is treated as associated management

rather than the primary subject of this report, which intentionally concentrates on the shoulder and surgical-neck region.



Figure 5. Clinical photograph showing Bandhana (shoulder bandaging) being performed on the affected left shoulder. The patient's facial features have been obscured to preserve confidentiality.

FOLLOW-UP AND OUTCOMES

The documented outcome was primarily clinical rather than radiological. During the early period of treatment, the records note persistence of symptoms. Later entries, particularly from 16 December 2025 onward, record no fresh complaints, a stable general status and, at one point, symptoms described as reduced. Repeated shoulder bandaging was documented throughout both admissions, spanning a prolonged period of conservative, supportive management from 22 November 2025 to 3 February 2026, with the shoulder remaining the major treatment focus throughout. Objective measures such as shoulder range of motion in degrees, a validated functional score (for example, the Oxford Shoulder Score used in the PROFHER trial (3)), or serial radiographic assessment of union were not documented in the available records, and their absence is acknowledged as a limitation.

DISCUSSION

A fracture of the surgical neck of the humerus in an elderly patient presents a particular challenge because pain, reduced shoulder movement and the possibility of displacement can significantly affect activities of daily living, and because osteoporotic bone quality complicates both conservative and operative management (1,2). Modern management is guided by fracture pattern, displacement, patient factors, neurovascular status and functional demand, and the

landmark PROFHER trial, which specifically enrolled patients with displaced fractures involving the surgical neck, found no significant advantage of surgical fixation over structured non-surgical treatment in patient-reported outcomes at two years (3). This finding lends contemporary support to a primarily conservative, bandage-and-rehabilitation-based approach of the kind documented in the present case, particularly in an elderly patient in whom surgical risk must be carefully weighed (4,5).

From the Ayurvedic surgical perspective, the verses reproduced in the Literature Review above are directly applicable to the present case. The specific direction that a fractured arm bone (*Bahu Bhagna*) be treated according to the principles laid down for a fractured thigh bone (*Chikitsa Sthana* 3/34) (8) indicates that *Sushruta* regarded injury to the long bone of the arm as requiring the same careful splinting, lubrication and firm bandaging as a major weight-bearing bone, rather than as a lesser injury.

The general methods of *Sthapana*, namely *Pidana*, *Sankshepa*, *Bandhana* and *Anchana* (3/15-16) (8), together with the caution that a bandage be neither too loose, which fails to secure the joint, nor too tight, which produces swelling and suppuration (3/8) (8), correlate with the repeated shoulder bandaging documented over a prolonged, two-admission course in this patient, with reassessment and adjustment of the bandage at each stage. The principle captured in the verse "*sthana-sthite sandhau*" (*Chikitsa Sthana* 3/26) (8), namely that

supportive treatment should continue once the joint or fragment has been brought to and maintained in its proper position, is equally applicable here, in that bandaging continued across both admissions rather than being discontinued once initial stability was achieved.

The two-admission chronology of this case, spanning from 22 November 2025 to 3 February 2026, with an interruption between 9 and 13 December 2025, is itself noteworthy. The persistence of symptoms in the earlier phase followed by a documented reduction in fresh complaints in the later phase is consistent with the expected, gradual time-course of fracture healing in an elderly patient, which classical teaching likewise recognised as slower in advanced age than in youth. This discussion intentionally prioritises the surgical neck of the humerus and treats the concurrently managed hip injury as associated rather than primary, in keeping with the stated focus of this report.

This case report has several limitations. First, as already noted, the available records did not include an explicit written radiological statement localising the fracture to the surgical neck, so this localisation reflects clinical interpretation rather than a verbatim report. Second, the records did not permit classification of the fracture by displacement, angulation or a standard modern system such as the Neer classification. Third, no objective shoulder range-of-motion measurement, serial radiographic union assessment, or standardised functional outcome score was available. Fourth, because multiple interventions, both external and internal, were administered concurrently, and the case records are observational, the clinical response documented cannot be attributed to any single component of treatment. These limitations restrict the report to an illustrative, hypothesis-generating role rather than one of comparative or causal inference.

PATIENT PERSPECTIVE

A first-person account of the patient's own experience of her injury, pain and recovery was not recorded in the clinical documentation available for this report, and is therefore not included, in order to avoid attributing views to the patient that were not directly expressed in the source records. Systematic, prospective recording of the patient's own account of pain, function and treatment satisfaction is recommended for future case documentation of this kind, in keeping with the CARE guideline recommendation (9).

INFORMED CONSENT

Written informed consent for the publication of this case report and the accompanying clinical images was obtained from the patient or her legally authorised representative, given her age. The authors confirm that all identifying information, including the patient's name and hospital identification number, has been removed or obscured from the text and images reproduced in this article, and that the patient's facial features visible in the original photographic records have been rendered unidentifiable.

CONCLUSION

This case of a fracture of the surgical neck of the humerus in an 84-year-old woman, managed conservatively across two hospital admissions with repeated *Bandhana*, *Pada Sweda*, *Taila* application, *Lepana* and a structured regimen of internal medication, is discussed in relation to *Sushruta*'s specific classical directions for *Bahu Bhagna* and the general principles of *Sthapana* and *Bandhana* described in the *Bhagna Chikitsitam*. The clinical course, characterised by early persistence of symptoms followed by gradual symptomatic improvement, is compatible with both the expected time-course of fracture healing in an elderly patient and the sustained, calibrated external support that classical Ayurvedic teaching prescribes. Further prospective case documentation, incorporating radiological confirmation, standardised functional outcome measures and CARE-compliant reporting, is required to strengthen the evidence base for the Ayurvedic management of proximal humeral fracture.

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AUTHOR CONTRIBUTIONS

Dr. Saifudheen P (HOD & Associate Professor) conceived the case report, supervised the clinical management, and reviewed the classical Ayurvedic literature and the manuscript for intellectual content. Dr. Arjun N (Associate Professor) contributed to the review of literature, drafting of the manuscript and critical revision. Dr. Soorya A, Dr. Dhanasree U S and Dr. Febina Shereen (Interns) contributed to clinical data collection, compilation of case records, and preparation of the manuscript. All authors read and approved the final version for submission.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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