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Case Report

Effective management of Colles fracture using Murivenna and Abha Guggulu – A case report

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ABSTRACT

Colles fracture is the commonest fracture encountered in orthopedic practice that demands prompt therapeutic intervention, and adequate follow-up to ensure complete healing. Various types of fractures, methods of reduction, and healing have been explained in the classical *Ayurveda* texts. These techniques are scientific and time-tested. This paper aims to report the successful management of Colles fracture case using *Ayurveda* and modern techniques with the use of *Murivenna* (an oil-based herbal formulation mentioned in the contemporary texts of *Ayurveda*), half-cast POP, and aluminum splinted bandage along with the internal medicine *Abha Guggulu*. A 75-year-old moderately built woman diagnosed with Colles fracture was treated with a closed manipulative reduction technique followed by a below-elbow half-cast POP and an aluminum splint. *Murivenna* was poured anteriorly to the fractured site and *Abha Guggulu* was administered internally. Re-bandaging was done on the 7th day and 21st day. The bandage was removed on the 35th day. The patient's condition improved considerably with a good range of wrist movements and then she was advised to commence rehabilitation. This integrative method, adhering to *Ayurvedic* principles and modern techniques is unique, patient-friendly, and without adverse events.

1. Introduction

Colles fracture of the wrist is one of the most common fractures of the distal radius with dorsal angulation caused by a fall over an outstretched hand, with the wrist in dorsiflexion. This 'FOOSH injury' or 'fall on the outstretched hand' can occur in all age groups, with a high prevalence among young athletes and the elderly. In the elderly, osteoporosis is one reason that increases the risk for these fractures [1]. Clinical symptoms include pain, edema, and decreased range of movements. As the incidence of distal radius fractures has increased in recent years [2], novel and effective methods are required to improve the treatment strategies, contributing to pain reduction and preventing deformity.

In *Ayurveda*, the fractures are meticulously explained by *Acharya Sushruta* in the chapter *Bhagna chikitsa* (treatment of fractures). Accordingly, the three main principles of fracture treatment are *Bhagnasthapana* (reduction), *Bhagnasthirikarana* (retention), and *Punarcheshthapracharam* (rehabilitation). Besides, applicants are also mentioned to reduce local swelling and inflammation [3].

Here, we report a case of Colles fracture in an elderly woman, who was advised for K-wire (Kirschner wire) fixation by an orthopedic surgeon. As she was reluctant to undergo surgical management, she approached an *Ayurveda* hospital where she was treated with an advanced integrated method adhering to the principles of *Ayurveda*.

2. Patient information

2.1. Patient information

A 75-year-old moderately built female patient with no relevant medical or surgical history visited our OPD on January 28, 2019, the day of the fracture.

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2.2. Symptoms

The patient complained of severe pain in the left forearm and swelling at the wrist after a fall on her outstretched left hand, accidently while doing household chores.

2.3. Medical history

The patient does not have any other significant disease, medical or genetic history. The patient did not have any relevant treatment history prior to this incident.

3. Clinical findings

On physical examination of the left forearm, dinner fork deformity was present (Fig. 1), with tenderness and swelling in the wrist. The springing test of the radius was positive along with restricted wrist movements. But the external skin was intact without any bruising or injury and the neurovascular status of the affected extremity was satisfactory with no associated injuries to the joints above and below the injury.

4. Diagnostic assessment

The complaints presented by the patient together with the interpretation of anteroposterior and lateral views of the X-ray left forearm, diagnosed Colles fracture with radial and dorsal displacement as shown in Fig. 2a.

5. Therapeutic interventions

Internally, *Abha Guggulu* weighing 500 mg was given – 2 tablets, twice daily, after meals for 5 weeks.

Externally, the therapeutic intervention included closed manipulative reduction and immobilization using half-cast POP and an aluminum splint.

Fig. 1. Classic dorsiflexion deformity or 'dinner fork' deformity during the initial visit.

Fig. 2a. Anteroposterior and lateral X-ray view of the left wrist joint.

5.1. Procedure

The patient was advised to lie down in supine position. The radial and dorsal displacement were corrected by closed manipulative reduction without anesthesia by the first author (GAB).

For correcting the radial displacement, while maintaining slight ulnar deviation, gentle but constant traction and counter traction were applied at the distal end and elbow of the affected hand. The dorsal displacement was then corrected by applying pressure with the right thenar eminence placed on the displaced dorsal fragment while supporting the proximal fragment with the left thenar eminence of the physician.

Later, a gauze was applied over the hand and a continuous stream of *Murivenna* was poured on the anterior aspect of the fractured area, over the gauze. The hand was then covered with cotton and a below elbow , half-cast POP was applied over the posterior, medial, and lateral aspects in tandem with an aluminum splint to its anterior aspect. Traction and counter traction were

Fig. 2b. Re-X-ray taken after reduction and immobilization.

maintained till the end of bandaging to avoid displacement of fractured fragments. After this reduction and immobilization, a neurovascular assessment of the hand was performed and a repeat radiograph was taken to ensure that the bone was properly aligned (Fig. 2b).

5.2. Advice and recommendations

1. Patient was advised to report immediately if she experienced symptoms such as severe pain, edema, numbness, tingling sensation, discoloration of the fingers, and decreased range of finger movements.
2. She was advised to move her fingers regularly to preserve function and facilitate proper blood circulation.
3. She was advised to pour approximately 5 ml of *Murivenna* daily on the affected area, anteriorly.

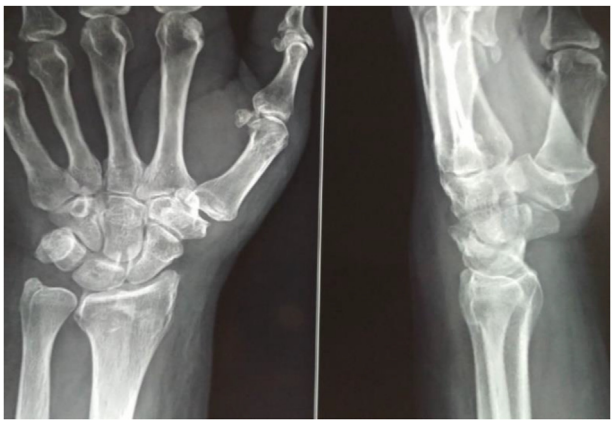


Fig. 3. X-ray on 56th day showing callus formation is complete.

6. Follow-up and outcomes

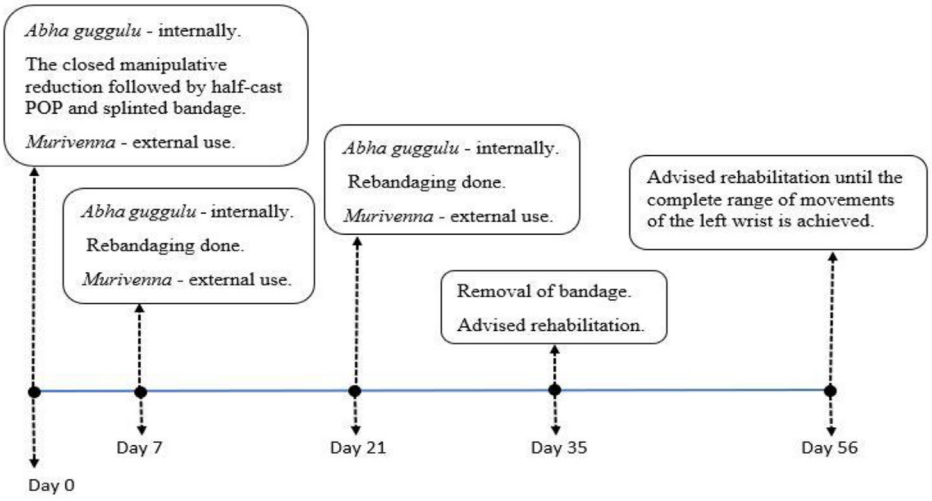
	First follow-up	Second follow-up	Third follow-up	Fourth follow-up
Day of visit	On 7th day	On 21st day	On 35th day	On 56th day
Pain	Reduced	Reduced by 50%	Absent	Absent
Tenderness	Reduced	Reduced by 50%	Absent	Absent
Swelling	Reduced	Reduced by 50%	Reduced by 75%	Absent
Rebandaging	Along with traction and counter traction, a new half-cast POP and an aluminum splint was done. *Murivenna* was poured. The neurovascular status of the affected limb was satisfactory.	Along with traction and counter traction, a new half-cast POP and an aluminum splint was done. *Murivenna* was poured. The neurovascular status of the affected limb was satisfactory.	Bandage removed. The neurovascular status of the affected limb was satisfactory.	The range of wrist movements was nearly complete except for dorsiflexion.
Advice	Continue internal medicine and external pouring of *Murivenna*. Continue finger movements gently.	Continue internal medicine and external pouring of *Murivenna*. Continue finger movements and start to mobilize the elbow and shoulder joint.	Advised to undergo rehabilitation. Wrist movements were allowed to commence along with other joint movements.	Advised to continue rehabilitation till the complete range of movements were regained.

On the 56th day review, the range of wrist movements was almost complete except for dorsiflexion due to early mobilization. A radiological image of the 56th day showing callus formation is shown in Fig. 3. Hence, the patient was advised to continue rehabilitation till the complete range of movements were restored. The compliance of the patient towards treatment and advice was good. No adverse events were reported throughout the course of treatment.

7. Discussion

Colles fracture demands prompt reduction followed by splinting, casting, surgical repairing, and appropriate follow-up to ensure proper healing [1].

After confirming the diagnosis, all the treatments in this case were planned and executed, by strictly adhering to the *Ayurvedic* principles of *Bhagna chikitsa*. *Murivenna* was prescribed for external



Timeline of intervention (day of visit and treatment provided)

application and *Abha Guggulu* for intake. A previous clinical study of *Abha Guggulu* for fracture management and *Murivenna* for sports injuries showed significant results in restoring functional loss [4,5]. The anti-inflammatory, analgesic, cold potency, and binding effects of both *Abha Guggulu* and *Murivenna* might have facilitated the complete healing of the fracture. Moreover, the generous pouring of gentle streams of *Murivenna* normalizes the vitiated *vata pradhana tridoshas*. Conservative *Ayurvedic* fracture management consists of applying gauze with the bark of various trees as splints, which needs weekly follow-ups for replacing these with fresh materials. But the innovative use of half-cast POP and aluminum splinted bandage reduced the number of weekly follow-ups, compared to the aforesaid conservative *Ayurvedic* management. Apart from attaining early structural and functional restoration, it also abolishes the common adverse effects like plaster sores, heaviness, and itching due to the POP cast.

Nevertheless, most Colles fractures are surgically managed these days, closed reduction and cast immobilization remain important treatment options for avoiding complications. Conservative *Ayurvedic* management for Colles fracture promotes healing with adequate follow-ups and interventions. Thus, integrative fracture management using half-cast POP, aluminum splinted bandage and *Murivenna* were found to be highly effective for structural and functional restoration of the affected hand without complications.

The author has successfully managed nearly 50 such cases with this improvised method.

The strength of this particular case report is that despite being referred for surgery, the patient was successfully treated merely by *Ayurvedic* principles. Analgesics or antibiotics were never required during the course of the treatment either. The limitation noted was that the patient was bounded to have a number of repeated hospital visits which is, though, lesser than conventional *Ayurvedic* medicine, but still higher than contemporary medicine.

8. Ingredients of *Murivenna* and *Abha Guggulu*

Serial No.	*Murivenna (Anubhūta yoga,* Ayurvedic Formulary of India - AFI)	*Ābhā guggulu (Bhaishajya Ratnavali – Bagna chikitsa adyaya)*
1	*Tamula patra* (*Piper betle*)	*Babula Twak* (*Acacia arabika*)
2	*Shigru patra* (*Moringa oleifera*)	*Triphala* (*Embilica officianalis*, *Terminalia chebula*, *Terminalia bellarica*)
3	*Ghrta kumari* (*Aloe barbadensis*)	*Trikatu* (*Piper nigrum*, *Zingiber officianale*, *Piper longum*)
4	*Paribhadra* (Erythrina ariegate)	*Guggulu* (*Commiphora mukul*)
5	*Karanja patra* (*Pongamia glabra*)	*Grta* (Ghee)
6	*Palandu* (*Allium cepa*)	
7	*Madangandhi (Spermacoce articularis)*	
8	*Shatavari* (*Asparagus racemosus*)	
9	*Kanjika* (Fermented rice liquid)	
10	*Narikela taila* (Coconut oil – Coco nucifera)	
11	Water	

Patient's perspective

The patient was satisfied with the treatment provided and with the improvements in her symptoms. The details of which in her own words were attached as supplementary material.

Informed consent

Informed consent obtained from the patient for publishing their details and photographs was attached as supplementary material.

Author's contributions

Dr. Gikku Alias Benny: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Supervision, Dr. Teena Varghese: Resources, Writing - Original Draft, Dr. Swathy Vijayakumar: Visualization, Formal analysis, Dr. Delvin T Robin: Methodology, Validation, Formal analysis, Writing - Review & Editing, Supervision, Project administration.

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None.

Data availability

The contents of this manuscript were obtained from the clinical experience of the first author, major classical textbooks of *Ayurveda*, and by reviewing published national and international journals.

Declaration of competing interest

None.

Acknowledgments

Not applicable.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jaim.2023.100786.

References

[1] Summers K, Fowles SM. Colles' fracture. In: StatPearls [Internet]. StatPearls Publishing; 2022. https://www.ncbi.nlm.nih.gov/books/NBK553071/.
[2] Nellans KW, Kowalski E, Chung KC. The epidemiology of distal radius fractures. Hand Clin 2012;28(2):113–25. https://doi.org/10.1016/j.hcl.2012.02.001.
[3] Srikantha Murthy KR. Suśruta saṃhitā, Cikitsāsthāna; Bhagna cikitsā: Chapter 4, Verse 6-12 (Reprint ed.). Varanasi: Chaukhambha Orientalia; 2012. p. 422–3.
[4] Panigrahi HK. The effect of *Ābhā guggulu* in the clinical management of fractures. Ancient Sci Life 1997;17(1):3–9.
[5] Sharma S, Killedar R, Bagewadi D, Shindhe P. Protocol based management of common sports injuries by integrated approach of Sandhi Marmabhighata – an open labeled clinical trial. J Ayurveda Integr Med 2021;12(1):119–25. https://doi.org/10.1016/j.jaim.2020.12.009.