

**INTEGRATED REHABILITATION (*DASHAMULA QUATHA AVAGAHA* WITH PHYSIOTHERAPY) OF COLLE'S FRACTURE –
CASE REPORT**

¹Dasari Srilakshmi,

¹Ayurveda Physician and Physiotherapist, Jayalakshmi Integrated Rehabilitation Unit, SGS Hospital, Sri Ganapathi Sachchidananda Ashram, Mysore-25, India.

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ABSTRACT

Colle's fracture is the commonest type of wrist and hand fractures. It is associated with a traumatic history of fall, on an outstretched hand, common in females over 40 years of age usually associated with osteoporosis. Majority of Colle's fracture is displaced and presents with 'dinner-fork' deformity. After 5-6 weeks of immobilisation consolidation of the fracture is firm enough, though not completely united, to ensure no further displacement. Hence post-immobilisation rehabilitation can be started to avoid any stiffness or pain in wrist joint. In this paper a 33 years old female patient had suffered left colle's fracture and immobilised for 6 weeks. After immobilisation an integrated approach was chosen as choice of treatment, using both Ayurveda treatment – *Dashamula quatha avagaha* (immersion sudation in medicated decoction) along with Physiotherapy modalities – wax therapy and exercise therapy. The rate of recovery is faster measuring in terms of pain, movements, oedema and stiffness due to cumulative effects of treatments than only with Physiotherapy.

Key words: Colle's fracture, integrated rehabilitation, *Dashamula quatha avagaha*, wax therapy, case report.

INTRODUCTION:

Colle's fracture is most commonly occurring wrist and hand injury in an accident unit, mainly caused by a fall on an outstretched hand. It occurs in persons over 40 years of age and especially in women. This suggests an association with osteoporosis. In a few cases there is a crack without displacement, but in majority of the cases fracture and the displacement occur transversely about two centimetres above the lower articular surface of the radius. In a normal wrist, articular surface points downwards and slightly forwards, where as in Colle's fracture facing downwards and backwards. The lower fragment is also driven upwards and impacted into the upper fragment. This typical displacement presents as 'dinner-fork' deformity. ^(1,2,3)

After closed reduction, immobilisation is done which are of two variations, the complete encircling plaster and the dorsal plaster slab. In management of a Colle's fracture, re displacement of bone is most common complication checked by radiography a week after the initial reduction and again in 2nd week. Despite immobilisation in plaster there is a risk of re displacement in the early days. Usually, it is impossible to correct a displacement by manipulation if it has been allowed to persist for more than two weeks. Hence it is important to ensure that any re displacement is detected and corrected early. Plaster is usually retained for 5-6 weeks, though union is far from consolidation even at six weeks, it is firm

enough to ensure that no further displacement will occur.^(4,5)

After the plaster has been removed a rehabilitation course including joint mobilisation and muscle-strengthening exercises for the wrist and fingers should be commenced. In Ayurveda, Acharya Sushruta explained about fractures in detail in *Bhagna chikitsa adhyaya* (chapter on treatment of fractures). The three main principles of fracture treatment are the same we follow to the present day. First principle being reduction (*Bhagnasthapana*), secondly retention (*Bhagnasthirikarana*), and finally rehabilitation (*Punarcheshthapracharam*).

⁽⁶⁾ This paper presents a case report of a left Colle's fracture of a 33 years old female with thin built, who approached for rehabilitation with immense pain, stiffness, sensitive skin and oedema after immobilisation for 6 weeks. Aiming at optimal recovery at the earliest possible, integrated rehabilitation was given for 2 weeks at hospital and 1 week as home program and patient recovered completely.

Case report:

A 33 years old female had left Colle's fracture after a fall accidentally on her outstretched hand. Closed reduction and immobilisation were done by complete plaster of Paris for 6 weeks. Post-immobilisation without any complications, patient approached SGS Hospital for rehabilitation. She presented with complaints of severe pain, oedema, stiffness of wrist and finger joints along with sensitivity of skin for touch and heat.

Physical examination:

The left forearm and wrist presented with tenderness and oedema above left wrist to distal interphalangeal joints. Skin is smooth, thin and very sensitive to touch, pressure and heat. Patient had severe pain on attempt to mobilisation exercises, so didn't not cooperate for the same. Active range of motion (AROM) of wrist is very minimal ranged up to 10°-15°, inclusive of extension and flexion together. Finger

flexion was not full and could make half fist without complete closure.

Past history: The patient did not have any relevant treatment history prior to this incident. All other general health was good.

Informed Consent: Informed written consent was obtained from the patient before the treatment.

Integrated therapeutic intervention: Treatment details were explained in patient's local language about the treatment protocol and prognosis, with the written consent of the patient. Before starting with mobilisation exercises as part of exercise therapy; wax therapy was given in the morning OPD (OPD.No-JAC-A-468/25) and *Dashamula quatha avagaha* was given during evening OPD for two days at comfortable warm temperatures (*Sukoshna*) so that patient could tolerate. From day 3, following wax therapy mobilisation exercises were done to improve the range of wrist and finger joints and the same exercises were encouraged actively after *dashamula quatha avagaha*.^(7,8,9) Details are described in Table:1

RESULTS:

On day one patient was not willing for mobilisation exercises due to stiffness, pain and oedema. After two days treatment with *Dashamula quatha avagaha* and wax therapy above symptoms had reduced considerably. Hence from day 3 mobilisation exercises were commenced and active assisted exercises were encouraged. After 15 days of wax therapy and mobilisation exercises in the morning and; *Dashamula avagaha* followed by active exercises in the evening, patient recovered faster compared to only with Physiotherapy. From 16th day to 21st day active exercises were taught to continue as home program, and use hot water dip for pain relief if any. As movements were full in 15 days but was not free. i.e. terminal range movements were painful hence a hot water dip for wrist and fingers was

advised. Integrative treatment results are explained in Table 2.

Table 1: Procedures of integrative treatments for left hand Colle's fracture		
Treatment modalities	Duration	Procedures followed
Physiotherapy – Wax therapy	1-15 days	daily morning, three repetitions on wrist joint covering the lower forearm till metacarpal and phalanges followed by exercise therapy.
Exercise therapy	3-15 days	Included mobilisation exercises of 3 sets of 10 repetitions to improve joint range. Active exercises to improve muscle tone and bulk 3 sets of 20 repetitions.
Ayurvedic treatment – <i>Dashamula quatha avagaha</i>	1-15days	In the evening patient was given <i>dashamula avagaha</i> for 15 minutes. Active exercises were encouraged 3 sets of 20 repetitions after <i>Avagaha</i> to improve muscle tone and bulk.
Home program	16-21days	Continuation of active exercises 4 sets of 20 repetitions and hot water dip only when pain persists during movements.

Integrative treatment results are explained in Table 2.

Table 2: Results of integrative treatments in left hand Colle's fracture		
Duration	Symptomatic relief	Active AROM
Before treatment	Tenderness of skin. Stiffness, pain, oedema in wrist, MCP (metacarpophalangeal) and IP (inter phalangeal) joints.	Very minimal range at wrist joint 10°-15° range of both wrist flexion and extension. Could only make half way through fist – 30° MCP and 90° PIP (proximal IP) joint flexion. No supination and pronation movements.
After 2 days	Pain and oedema reduced considerably and patient was willing for mobilisation exercises.	Same as above.
Day 3-15	Gradual reduction in tenderness of skin, pain, stiffness and oedema in wrist, MCP and IP joints.	Could retain all AROM fully. Grip improved and was good. Little difficulty in final degree supination.
Day 16-21	Home program- pain, stiffness and oedema reduced completely.	Left hand movements are full and free without pain like right hand.

DISCUSSION: Colle's fracture is common in women above 40 years but this patient seemed to be much younger to the general age group involved in such fractures. Fracture could have been due to the amount of impact on fall. After 6 weeks immobilisation, Orthopaedician advised for joint mobilisation through Physiotherapy. Post-immobilisation patient was suffering from skin sensitivity, very sensitive to touch and heat as well. Patient also had oedema, pain and stiffness of wrist joint, MCP joints, proximal and distal IP joints. Both Physiotherapy and Ayurveda treatments were selected as both

are local and external modalities. Wax therapy and mobilisation exercises are the conventional mode of treatment. Considering all the symptoms *Dashamula quatha avagaha* was included as it is *Sotha hara* (reduces oedema), *Shula hara* (reduces pain) and is also anti-inflammatory in action. With both *Dashamula quatha avagaha* and Physiotherapy, they helped to reduce the tenderness in skin, pain, stiffness and oedema in wrist, carpals and fingers. Wax therapy works on principle of latent heat where the wax solidifies from liquid form dissipating heat to the underneath tissues

where wax is applied. Due to the sudden raise in temperature the heat is spread to the tissues faster compared to simple hot water immersion. There is a sudden vasodilatation with sudden rush of blood thereby slushing the pain inducing chemicals. Hence there is an instant relief of pain and suppleness of joints due to application of heat through wax therapy. So, patient feels relieved with pain temporarily. Therefore, it is immediately followed by mobilisation exercises after wax therapy which will be easy on joints. After mobilisation exercises again wax therapy was applied in alteration. This helps joint mobilisation with less pain and increased patient tolerance. Evening session included *Dashamula quatha avagaha* that is good in reducing inflammation, pain and oedema. Hence after 15 minutes of *Avagaha* the local blood supply is improved and patient is encouraged to do active exercises inside the *Dashamula quatha* and outside after the *Avagaha* completes. With integrated treatments there was improvement in active range, muscular strength and tone in a short duration of 2 weeks and 1 week of home program exercises, which were reduced due to 6 weeks immobilisation. After integrated rehabilitation was completed left wrist, metacarpal and interphalangeal joint movements were all full and free without pain like right hand. Preparations and treatment procedures are simple and effective that can be followed as OPD treatments.

CONCLUSION: Colle's fracture without any complications post-immobilisation was treated with integrated approach. The recovery is faster compared to only Physiotherapy in relieving symptoms like stiffness, pain and oedema. With 15 days of integrated treatments all ranges of left wrist and fingers were full and 7 more days of home program all movements were full and free.

Declaration:

This is to state that manuscript is prepared by me (author) without any AI help or AI generated content.

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Corresponding Author: Dr. Dasari Srilakshmi, Ayurveda Physician and Physiotherapist, Jayalakshmi Integrated Rehabilitation Unit, SGS Hospital, Sri Ganapathi Sachchidananda Ashram, Mysore-25, India.
Email: drdasari24@gmail.com

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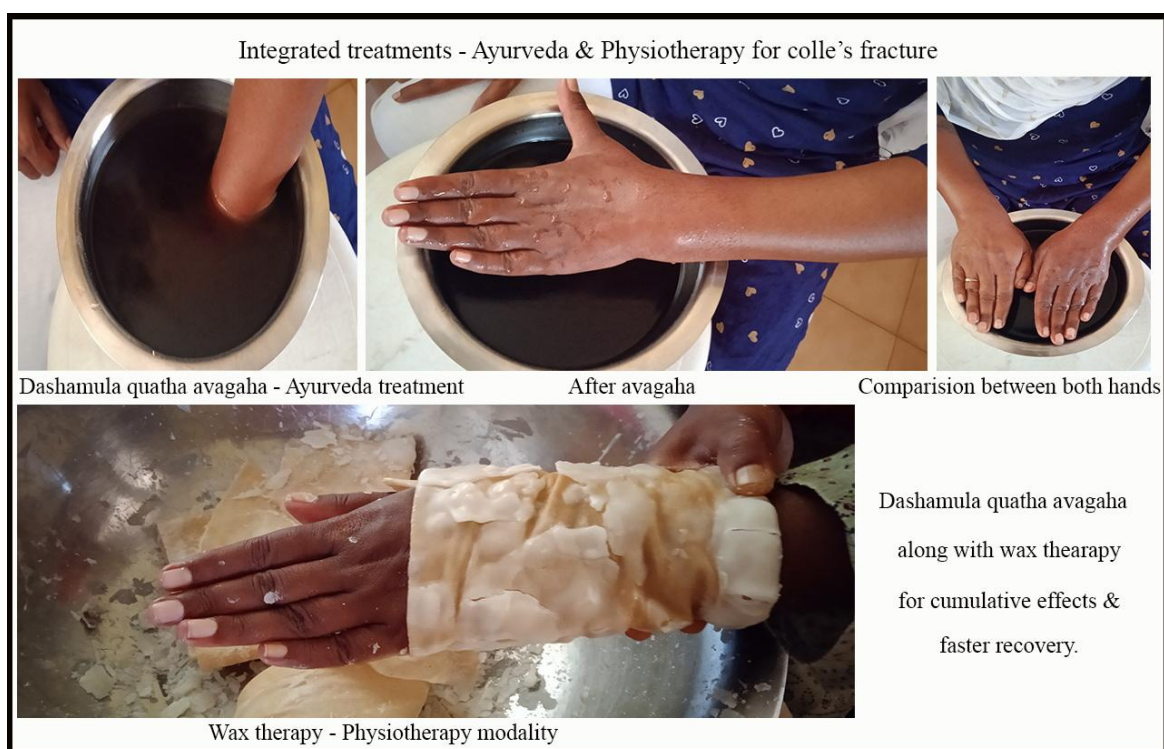


Figure 1 : Integrated treatment of left Colle's fracture.