

## ROLE OF ASTHISHRANKHALA IN THE MANAGEMENT OF ASTHI- BHAGNA W.S.R TO COLLE'S FRACTURE

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### ABSTRACT :

Colle's fracture is the commonest fracture in people above forty years of age, and is particularly common in women because of post-menopausal osteoporosis. So the problem faced by the medical practitioner regarding colle's fracture provides much scope for systematically study. In present study clinical evaluation was done to evaluate the effect of *Asthishrankhala* (*Cissus quadrangularis Linn.*). 10 registered, clinically diagnosed and confirmed patients of colle's fracture were selected for the present clinical trial from OPD/IPD of NIA, Jaipur. They were treated with both external and internal application of *Asthishrankhala* (*Cissus quadrangularis Linn.*). At the end of study it was found that results were highly significant in that therapy.

**Key words:** Colle's fracture, *Asthishrankhala*, *Asti bhagna*

**INTRODUCTION:** Colle's fracture is a fracture at the distal end of the radius, at its cortico-cancellous junction (about two cm from the distal articular surface) with typical displacement.<sup>1</sup> It mostly results from a 'slip and fall' on an outstretched hand. No detailed description of this disease is available in ancient text. Colle's fracture may be correlated with a type of *kandbhagna* describe in twelve type of *kandbhagna* in *Sushuta Samhita Nidan Sthan*<sup>2</sup>. It is the commonest fracture in people above forty years of age, and is particularly common in women because of post-menopausal osteoporosis<sup>3</sup>. So the problem faced by the medical practitioner regarding colle's fracture provides much scope for systematic study. Few traditional practitioners specifically dealing with fractures, called 'Bone setters', have been effectively using herbal drugs over many centuries. Many of these drugs are simple, easily available, cost effective and potent. For an un-displaced fracture immobilization with below elbow plaster cast for six week is

standard treatment and for displaced fracture standard management is manipulative reduction followed by immobilization with Colle's cast.<sup>4</sup> The scientific evaluation of such drugs along with their fundamental principles is essential for their universal acceptance. Hence in this study an attempt is made to prepare a drug about which there are textural references regarding *Astibhagna Sandhan*. Through clinical trial in the present study it has been tried to prove the efficacy of the *Asthishrankhala* in early mobilization for the management of Colle's fracture. There are so many complications of plaster treatment. some of this are impairment of circulation(tight cast), plaster sores, excessive pain, disturbed sleep, recurrence of swelling over toes or swelling over toes or fingers, low grade fever, soakage of the plaster.<sup>5</sup> There are various fractures healing promoter drug described in Ayurveda books<sup>6</sup> and *Asthishrankhala* is one of them<sup>7</sup>. So I have decided to evaluate the effect of the drug

in early mobilization in the management of Colle's fracture.

#### AIMS AND OBJECTIVES:

##### Primary Aim:

- To decrease the period of immobilisation

##### Secondary Aim:

- To evaluate the efficacy of *Asthishrankhala*
- To evaluate the effect of *Asthishrankhala* on healing time
- To provide cheap, economic and side effect free drug

#### MATERIALS & METHOD:

**1. SELECTION OF PATIENTS:** 10 clinically diagnosed Patients of Colle's fracture have been selected from the OPD & IPD units of P.G. Department of Shalya Tantra, NIA, Jaipur.

- A) Age group: Between 30-70 yrs.
- B) Sex: Either Sex
- C) Study Design : Randomized
- D) Study Center : Uni-central
- E) Sample Size and Method: Total 10 Patients

#### 2. DRUGS:

##### *Asthishrankhala Lepa*

**Drug Dosage:** 15 gms *Churna* mixed with water, after every 24 hrs. *Lepa* was changed.

**Site of lepa:** At the fracture site and 3cm above and below the fracture site

**Preparation method:** The *lepa* was prepared daily with water.

##### *Asthishrankhala Churna*

**Drug Dosage:** 3gms. BD, with cow's milk as *Anupana*.

**Preparation method:** The *Churna* was prepared in NIA pharmacy.

**3. Drug administration:** As mentioned above for both, *Asthishrankhala Churna* and *Asthishrankhala Lepa*. The *Churna* was administered inter-

nally, whereas *Asthishrankhala Lepa* was applied externally.

#### 4. Duration of Clinical Trial:

Duration of immobilization - 4 weeks  
Duration of oral drug administration - 6 weeks

Duration of *Lepa* - 2 weeks

#### 5. INCLUSION CRITERIA:

- Patients of age group 30-70 yrs. of either sex.
- Patient is willing for trial and ready to give informed consent.
- Patient having Colle's fracture which can be reduced by closed reduction method with or without general anaesthesia.

It is not possible to find all these features in all the patients but the presence of maximum features was the main stay of diagnosis.

#### 6. EXCLUSION CRITERIA:

- Patient is not willing to undergo trials or refused to give informed consent
- Patients below 30 yrs. or above 70 yrs. of age.

➤ Patients having TB, Hypertension, Diabetes, Cardiac disorder or some constitutional disorder.

- All fracture other than Colle's fracture.
- Open fracture.
- Multiple fractures.
- Subluxation of the inferior radio-ulnar joint.
- Colle's fracture having significant angulation and deformity.
- Fracture required open reduction and internal fixation.

**7. Investigations:** X- Ray - X ray was taken on day 1 to diagnose the fracture, its type, severity and prognosis. The follow up x ray was taken at the end of third week, & six week.

**Serum alkaline phosphate** - On day 1, at 3 weeks, at 6 weeks.



## 8. OBSERVATION OF PATIENT DURING TREATMENT:

Standard treatment for colle's fracture –  
Immobilisation for six weeks  
Duration of study: 6 weeks.  
Time interval for assessment of progress:  
Weekly.

## 9. ASSESSMENT CRITERIA:

The improvement in the patient was assessed mainly on the basis of relief in the cardinal sign & symptoms of disease.

### A) Subjective criteria:

#### (Table-I) ASSESSMENT OF SYMPTOMATIC RELIEF (IN %) :

S. No.	Symptom	Relief in %
1	Swelling	84.62
2	Tenderness	64.29
3		60.00
4	Loss of function	64.29

#### (Table-II) ASSESSMENT OF PAIN:

Symptom	N	Mean B.T	Mean A.T	Mean Diff.	Mean %	S.D	S.E	T Value	P Value	Result
Pain	10	1.3	0.2	1.1	84.62	0.56	0.17	6.12	<0.001	HS

#### (Table-III) ASSESSMENT OF SWELLING:

Symptom	N	Mean B.T	Mean A.T	Mean Diff.	Mean %	S.D	S.E	T Value	P Value	Result
Swelling	10	1.4	0.5	0.9	64.29	0.56	0.17	5.01	<0.001	HS

#### (Table IV) ASSESSMENT OF LOSS OF FUNCTION:

Symptom	N	Mean B.T	Mean A.T	Mean Diff.	Mean %	S.D	S.E	t Value	p Value	Result
Loss of function	10	1.4	0.5	0.9	64.29	0.56	0.17	5.01	<0.001	HS

#### (Table-V) ASSESSMENT OF TENDERNESS:

Symptom	N	Mean B.T	Mean A.T	Mean Diff.	Mean %	S.D	S.E	t Value	p Value	Result
Tenderness	10	2.0	0.8	1.20	60.00	0.42	0.13	9.0	<0.001	HS

**DISCUSSION:** The most common signs and symptoms observed in fractured patients were pain, swelling and tenderness. To assess these signs and symptoms they are graded as per their characters. The aim of this clinical study was to assess the effect of *Asthishrankhala* on fracture healing, pain & swelling tenderness. After 6 weeks treatment % relief in pain is 84.62 (p< 0.001). Hence these observations indicate that *Asthishrankhala* has analgesic activity. There was drastic reduction of swelling after administration of drug. After 6 weeks treatment % reduction in swelling is 64.29 (p< 0.001). These results indicate the efficacy of drug in reduction of swelling. There was also reduction in tenderness after administration of drug. After 6 weeks treatment % reduction in tenderness is 60 (p< 0.001) respectively. These results indicate the efficacy of drug in reduction of tenderness. Effect on these signs and symptoms of inflammation indicate about anti-inflammatory nature of *Asthishrankhala*. Callus formation, a part of initial fracture healing is influenced by various factors. Age is one of the important factor that influence callus formation. In younger patients callus formation and fracture healing is early as compare to the adults and elderly. This might be due to the increased vascularity as well as ability of cells of periosteum to differentiate more in younger individuals. In this study although most of the patient were older age group yet callus formation was good in these older age patient due to *Asthishrankhala*. Callus formation is also

dependent on part of bone involved. Callus formation is more in diaphyseal fractures than in metaphysical fractures. As this study was specified to fracture of lower end of radius where callus formation should be poor but due to *Asthishrankhala* callus formation was also good in this part of bone. In this study grading of callus formation was not done because it was very difficult to grade callus formation radio logically.

**Action of Drugs:** In the present study the action of trial drug *Asthishrankhala* could be explained on the basis of their *Rasa*, *Guna*, *Veerya* and *Vipaka* & pharmacological action. *Asthishrankhala* have *Sandhaniya*, *Raktaprasadaka* nature<sup>8</sup>. It also have *Ushna Veerya* nature<sup>9</sup> which may responsible for the reduction of the swelling around fracture area as well as helps to penetrate it in to local tissue for action. *Asthishrankhala* has *kaphavata-shamaka* nature<sup>10</sup> may reduce the local oedema. Due to *Madhura Rasa* property of *Asthishrankhala*<sup>11</sup> local *Vata Dosha Shamana* takes placed so that pain is reduced. Chemically *Asthishrankhala* has calcium oxalate, carotene and ascorbic acid which are responsible for early callus formation.<sup>12</sup>

**Pharmacological action:** *Asthishrankhala* contains some anabolic and phytogenic steroids like Ketosteroids, silosterol, alpha amayrin, alpha ampyrone and tetracyclic triterpenoids<sup>13</sup>. These anabolic and steroid component showed a marked influence on fracture-healing. Ketosteroid acts as antagonists to the glucocorticoid receptor



and promotes good bone health. It mobilizes fibroblast and chondroblasts to an injured tissue and enhances regeneration. The anabolic steroid component of *Asthishrankhala* showed a marked influence in the rate of fracture healing by influencing early regeneration of all connective tissues of mesenchyme origin, namely the fibroblasts, the chondroblasts and osteoblasts involved in the healing and quicker mineralization of the callus<sup>14</sup>. The probable mechanism of action in fracture healing is believed in part to be due to the stimulation of the metabolism and increased uptake of the calcium, sulphur, and strontium by the osteoblasts. *Asthishrankhala* exerts influence both on the organic and mineral phase of fracture healing.

**CONCLUSION:** From the present study entitled "*Role of Asthishrankhala in the management of Asthi- Bhagna w.s.r. to Colle's Fracture*" following conclusions could be drawn;

1. Colle's fracture is not described exactly in Ayurveda text and it can be correlated with *Kandbhangna*.
2. Females showed their predominance for the disease under trial.

#### Pictures



Figure no. 1 before treatment



Figure no.2 after treatment

3. The incidence of colle's Fractures was found to be more in age group of 51 to 70 years.
4. Patients with *Vata* dominating *Prakrati* are more likely to suffer.
5. No side effects have been reported by the patients during the course of treatment.
6. The sample size was very small to generalize the result.
7. The study was conducted for a shorter duration i.e. for six weeks, which is not sufficient to assess the long term efficacy of the therapy.
8. Pain and swelling are the two important and troublesome symptoms of fracture which need an immediate clinical attention.
9. The drug has a beneficial effect in reducing symptoms and enhancing bone healing. To say authoritatively *Ashtishrankhala* had any added advantages, further studies should be carried out separately with the help of bio-chemical analysis.

Therefore, it can be concluded that *Ashtishrankhala* is effective in the management of colle's fracture as it is safe, cost effective and free from any side effects.

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