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, Asthi 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. 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. It 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 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 Collar cast. 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 Asthibhagna 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. There are various fractures healing promoter drug described in Ayurveda books and Asthishrankhala is one of them. 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 internally, 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:

B) Objective Criteria:

OBSERVATIONS AND RESULTS:
It includes results on various parameters in all 10 patients registered for current clinical trial to evaluate the efficacy of Asthishrankhala in the management of colle’s fracture.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Symptom</th>
<th>Relief in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Swelling</td>
<td>84.62</td>
</tr>
<tr>
<td>2</td>
<td>Tenderness</td>
<td>64.29</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>60.00</td>
</tr>
<tr>
<td>4</td>
<td>Loss of function</td>
<td>64.29</td>
</tr>
</tbody>
</table>

(Table-II) ASSESSMENT OF PAIN:

<table>
<thead>
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<th>Symptom</th>
<th>N</th>
<th>Mean B.T</th>
<th>Mean A.T</th>
<th>Mean Diff.</th>
<th>Mean %</th>
<th>S.D</th>
<th>S.E</th>
<th>T Value</th>
<th>P Value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>10</td>
<td>1.3</td>
<td>0.2</td>
<td>1.1</td>
<td>64.62</td>
<td>0.56</td>
<td>0.17</td>
<td>5.12</td>
<td>&lt;0.001</td>
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</table>

(Table-III) ASSESSMENT OF SWELLING:

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<tr>
<th>Symptom</th>
<th>N</th>
<th>Mean B.T</th>
<th>Mean A.T</th>
<th>Mean Diff.</th>
<th>Mean %</th>
<th>S.D</th>
<th>S.E</th>
<th>T Value</th>
<th>P Value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swelling</td>
<td>10</td>
<td>1.4</td>
<td>0.5</td>
<td>0.9</td>
<td>64.29</td>
<td>0.56</td>
<td>0.17</td>
<td>5.01</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
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</table>

(Table IV) ASSESSMENT OF LOSS OF FUNCTION:

<table>
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<tr>
<th>Symptom</th>
<th>N</th>
<th>Mean B.T</th>
<th>Mean A.T</th>
<th>Mean Diff.</th>
<th>Mean %</th>
<th>S.D</th>
<th>S.E</th>
<th>t Value</th>
<th>p Value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of function</td>
<td>10</td>
<td>1.4</td>
<td>0.5</td>
<td>0.9</td>
<td>64.29</td>
<td>0.56</td>
<td>0.17</td>
<td>5.01</td>
<td>&lt;0.001</td>
<td>HS</td>
</tr>
</tbody>
</table>

(Table-V) ASSESSMENT OF TENDERNESS:
**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 metaphysial 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 Sandhiniya, Raktaprasadaka nature. It also have Ushna Veerya nature 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 may reduce the local oe-dema. Due to Madhura Rasa property of Asthishrankhala 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.

**Pharmacological action:** Asthishrankhala contains some anabolic and phyto-genic steroids like Ketosteroids, silosterol, alpha amayrin, alpha ampyrone and tetracyclic treterpenoids. These anabolic and steroidal 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 steroidal 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\textsuperscript{14}. 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.r.t. 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 Kandbhanga.
2. Females showed their predominance for the disease under trail.
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 *Asthishrankhala* 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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