



MANAGEMENT OF ASTHI-BHAGNA WITH ABHA GUGGUL AND GANDHA TAILA – A COMPARATIVE STUDY

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ABSTRACT

Background: Asthibhagna (fracture) means physically handicapped in general assumptions but it is more than that. Fracture not only restricts the physical movements but also cuts the social, economical, psychological movements of the patient. If proper management of Asthibhagna in suitable period is not done then it may leads to the permanent disability. **Aim:** In the treatment of fracture the anatomical union is not only the ultimate aim but also attention must be paid to avoid or minimize the forthcoming complications. It is an effort to evaluate the merits and demerits of oral preparation, its effectiveness, and the percentage of time period saved for union of bones. **Experimental:** 60 patients of *Asthi-bhagna* were diagnosed on the basis of sign & symptoms -pain, swelling, tenderness, crepitus, deformity and loss of function. *Abha Guggul* 2 tablet of 500mg and *Gandha taila* 10 drops twice a day after food with luke warm milk were administered orally. The patients were assigned in three groups consisting of 20 patients each excluding dropouts. In each group closed manipulative reduction followed by Immobilization with Plaster of Paris (POP) was done. The medicine was given to the patient for particular duration depending upon the site of fracture and till evidence of union is achieved. **Results:** The overall result in **Group A** i.e. *Abha Guggul*, 25% patients were got complete cure, 35% patients were showed marked relief and 40% patients were showed moderate response. In **Group B** i.e. *Gandha Taila*, 55% patients were got complete cure, 40% patients were showed marked relief and 5% patient was showed moderate response. In **Group C** i.e. placebo, 15% patients were got complete cure, 25% were showed marked relief, 55% patients were showed moderate response and 5% patient was got mild improvement after completion of treatment. Mean percentage of time period save in Group A is 26.04%, in group B is 30.6% and Group C is 1.875. **Conclusion:** The medicines acts as an absorbent of discharges and haematoma, reduces swelling, pain and tenderness clears the blockage of channels, depresses the wound and promotes the healing processes and ultimately unites the fracture bones. The present study reveals that *Abha Guggulu* and *Gandha Taila* were found helpful in bone healing without prescribing calcium preparations and multi-vitamins.

KEYWORDS: *Abha Guggul, Asthi-bhagna, fracture, Gandha Taila.*

INTRODUCTION

In developing world the lifestyle of the people is fast with full of stress and strain resulting in many fatal diseases. The most common diseases are manmade; the major part is of accidental injuries. This situation has given the impetus for research in constructive and rehabilitating measures. The critical study of this aspect reveals that the principles innumerate is ideal, effective and identical with the modern surgical science.

Bhagna' was one of the commonest surgical problem during ancient days, as the battles were very common.

Fall from horseback, Camels back, run over by Chariots, bites and nail injury or attacks of wild beasts were very common to manifest fracture in ancient days. Even today fractures are very common ailments due to hectic day to day activity, road traffic accidents, fall from the height etc.

Two separate chapters have been dedicated for the diagnosis and treatment of bone and joint injuries in Sushruta Samhita. The aetiology, types, clinical features etc. have been dealt in Nidana Sthana and treatment principles of such injuries have been well described in Chikitsa Sthana. Management of fracture like reduction,

immobilization, and rehabilitation with use of local, parental and oral medicaments has also been advocated for various complicated and uncomplicated cases. Till today, fractures have been the cause of a great challenge to the orthopaedic surgeons in terms of principles of treatment and techniques.

Fracture is a structural break in the normal continuity of a bone. Clinical features of fracture are pain, swelling, deformity, ecchymosis, loss of function, tenderness, abnormal movements, etc. Principal of management of fracture includes pain management, reduction, immobilization and rehabilitation. Sushruta has been described the same principal like Anchhana (Traction), Peedana (Counter traction) Sankshepana (Correction of deformity) and Bandhana (Immobilisation) for Bhagna.

Apart from this many herbo-organic drugs are prescribed for early healing of fracture. For fracture management, reduction and immobilization are universally required and are to be done according to prescribed standard parameters. In the treatment of fracture the anatomical union is not only the ultimate aim but also attention must be paid to avoid or minimize the forthcoming complications. For this purpose, indigenous drugs are under continuous scrutiny by the scientists for their better effect in treating fractures. As per review, the interest and curiosity of maximum research scholars have been confined to the oral use of various indigenous drugs and local applications for fracture healing agents.

The importance of the subject and its necessity to explore the exact mode of action has given an impetus to carry out a full-fledged scientific study. The proposed study is performed with some herbal drugs and their effects were evaluated with the help of clinical study and laboratory investigations. Hence, the present study entitled '**Management of Asthi-Bhagna with Abha Guggul and Gandha Taila – A comparative study**' is carried out to find the efficacy of Abha Guggul and Gandha Taila on patients of Asthi-Bhagna.

Aims & Objectives - The objectives of the study are to explore the complete Ayurvedic literature with special reference to Asthi and Kanda Bhagna along with fractures. To study Ayurvedic and Modern management of fractures; and to prove the efficacy of Ayurvedic line of treatment in fracture management.

Source of Data - The patients attending the OPD & IPD of Gopabandhu Ayurved Mahavidyalaya and Hospital, Puri, Odisha and from other referral hospital were selected for research study.

Inclusion Criteria

- Patients with classical features of Asthi-Bhagna i.e. Vedana (Pain), Svayathu (Swelling), Sparsha Asahyata (Tenderness), Avapidyamane shabda (Crepitus), Vivartanam (Deformity) and Karmahani

(Loss of function) explained in texts were subjected for this study.

- Patients with age group of 18-50 years.
- Simple fractures (Avrana Bhagna) free from complications.
- Stable fractures i.e. fractures in which alignment of the bony ends can be maintained without internal fixation.

Exclusion Criteria

- Open or compound fractures
- Patients with uncontrolled metabolic and other systemic disorders like diabetes mellitus, hypertension, tuberculosis, malignancy, senile osteoporosis, hyperparathyroidism, Paget's disease, bony cyst.
- Pathological fractures, stress or fatigue fracture and complicated fractures.
- Fracture required Open Reduction Internal Fixation (ORIF).

Diagnostic Criteria

An elaborate patient case format incorporating the points of history (age, amount and nature of violence, pain, loss of function, deformity or swelling) and physical examination was prepared. It mainly emphasized on signs and symptoms of Asthi-Bhagna (Fracture).

Local Examinations

Inspection – Abnormal swelling, deformity, attitude, shortening of limb, over lying skin.

Palpation – Tenderness, bony irregularity, abnormal movements, crepitus, pain elicited by manipulation from a distance, absence of transmitted movements.

Measurement – Longitudinal, circumference of the limb

Movements – Both active and passive movements were tested.

Investigations –

Laboratory Investigations – Hb%, TLC, DLC, Blood sugar, LFT, Serum calcium, Urine (Routine & microscopic) examinations were done to rule out other pathological conditions.

Radiological Investigations – X-ray of the affected part. The X-ray of affected part was taken before application of POP and completion of treatment to assess the union of fracture.

Research Design

It is an observational clinical study. Total 60 patients were registered and selected for the study after getting voluntary consent. The patients were assigned in three groups consisting of 20 patients each excluding dropouts with pre, mid and post test study design.

Intervention

Group A – Abha Guggul

Dose – 2 tablets of 500mg orally twice a day after food with luke warm milk

Group B – Gandha Taila

Dose – 10 drops orally twice a day after food with luke warm milk

Group C – Placebo treatment was given.

In each group closed manipulative reduction followed by Immobilization with Plaster of Paris (POP) was done.

The medicine was given to the patient for particular duration depending upon the site of fracture (for example – in Colle's fracture upto 4 weeks, radius-ulna fracture up to 6-8 weeks tibia-fibula shaft fracture upto 8-12 weeks) and till evidence of union is achieved.

Selection of Drug

1. Abha Guggul (*Chakradutta (Bhagna), Bharat Bhaishajya Ratnakar Vol.1 Page No.402*) - Abha Guggul has antiinflammatory, analgesic, ante-osteroporotic, anti-arthritis, bone healing and bioenhancer properties. It reduces inflammation, pain and swelling of the affected area.

2. Gandha taila (*Sushrut Bhagna Chikitsa Adhyaya 3/60-61*) - Gandha taila is used in treatment of arthritis, fractured bones and weak bones.

Criteria for Assessment

- The assessment was made before, during and after the treatment on scoring of cardinal signs and symptoms. Pain is a subjective criterion and observed weekly in all patients, while tenderness, swelling, loss of function, deformity and crepitus were assessed after completion of treatment. POP cast was applied on the fractured part, so weekly assessment of these signs and symptoms were not possible except pain.
- Scoring pattern was developed according to severity of symptoms.
- Results are analyzed statistically as per the assessment chart.

The grading of Vedana (Pain), Svayathu (Swelling), Sparsha Asahyata (Tenderness), Avapidyamane shabda (Crepitus), Vivartanam (Deformity) and Karmahani (Loss of function) with a full score of 3 for Severe, 2 for moderate, 1 for mild and a score of 0 for normal/No symptom.

Signs and Symptoms

Vedana (Pain) – This subjective symptom was graded according to the severity of the pain which affect working capacity of individuals.

0- No Pain

1- Mild Pain but no difficulty in working

2- Moderate pain severe difficulty in working

3- Severe pain and working not possible

Svayathu (Swelling) – Swelling was measured by measuring tape on affected part and compared with the normal parts.

0- No swelling

1- Mild swelling, girth increased upto to 2 cm as compared to normal side

2- Moderate swelling, girth increased 2-6 cm

3- Severe swelling, girth increased more than 6 cm

Sparsha Asahyata (Tenderness) – Tenderness was assessed by touching and applying pressure in minimal intensity and observing facial expressions of the patients.

0- No tenderness

1- Mild tenderness – tenderness elicited on greater pressure

2- Moderate tenderness – Winces and withdraws the affected part

3- Severe tenderness – Does not allow touching the affected part

Avapidyamane shabda (Crepitus)

0- No crepitus

1- Palpable crepitus

2- Audible crepitus

3- Severe crepitus

Vivartanam (Deformity) – Deformity was diagnosed by comparing the affected side with normal side.

0- No deformity

1- Deformity seen but bones are not displaced

2- Bones are displaced but shape of the bone & joint are normal

3- Total loss of joint shape & bone's position

Karmahani (Loss of function) – Patients were asked for movement of affected part and was observed their proper functions or for movements.

0- Normal function

1- Mild pain during movement

2- Moderate pain during movement

3- Severe pain and total loss of function

Overall Assessment of total effect

The total effect of therapy was assessed as;

Result Percentage

Complete Cured	-	100%
Marked Relief	-	>75% to <100%
Moderate Response	-	>50 to 75%
Mild Improvement	-	>25% to 50%
Unchanged	-	Up to 25%

OBSERVATIONS

45% patients belong to the age group between 41-50 years followed by 36.67% in 31-40 years and 18.33% in 18-30 years. 61.67% patients were male and 38.33% were female. Maximum number of patients i.e. 76.67% was married. 50% patients belong to the Hindu followed by 43.33% patients were of Muslim. 35% were housewives; maximum 40% patients were primary educated, 40% were of poor class. 51.67% patients were taking mixed type of diet. 45% patients each were doing moderate and strenuous work. 56.67% patients were obese, trauma occurred in 75% patients and 25% patients

had Asthi-Bhagna because of fall. 70% had Asthi-Bhagna of upper limb whereas 30% patients had Asthi-Bhagna of lower limb. 51.67% were observed having fracture of Colle’s fracture, 28.33% patients were noted with fracture of radius/ulna shaft. 1.67% patients each were reported with wrist, carpal, metacarpal, clavicle fracture and ankle, tarsal and metatarsal fracture respectively. 10% patients were noted with tibia & fibula fracture and 6.66% cases had fracture of humerus. On Inspection obvious deformity was present in 61.67% patients, swelling was present in 100% cases, Shortening of limb was present in 21.67% and abnormal skin was present in 10% patients. On palpation tenderness,

abnormal mobility and pain elected by manipulation were present in 100% patients, whereas crepitus was present in 65% patients, local rise of temperature was present in 80% patients and local bony irregularity was present in 90% patients.

Presenting complaints and Signs in 60 patients of Asthi-Bhagna - This study reveals that Vedana (Pain), Svayathu (Swelling), Sparsha Asahyata and Karmahani (Loss of function) were found in all 100% patients. Avapidyamane was found in 65% patients and Vivartanam (Deformity) was found in 61.66% patients as signs and symptoms of Asthi-Bhagna.

Relief percentage in sign & symptoms of Asthi-Bhagna

Symptoms	Group A			Group B			Group C		
	Score		Relief %	Score		Relief %	Score		Relief %
	BT	AT		BT	AT		BT	AT	
Pain	50	11	78.00	46	04	91.30	48	13	72.91
Swelling	46	08	82.60	47	02	95.74	45	11	75.55
Tenderness	45	10	77.77	45	04	91.11	46	14	69.56
Crepitus	34	07	79.41	26	02	92.30	23	07	69.56
Deformity	37	08	78.37	19	02	89.47	24	08	66.66
Loss of function	46	09	80.43	42	04	90.47	40	14	65.00

Effects of Therapy on Sign & Symptoms

Group A

Sign & Symptom	Mean		Mean Diff.	SD	SE	‘t’	P
	BT	AT					
Vedana (Pain)	2.50	0.55	1.95	0.60	0.14	11	<0.001
Svayathu (Swelling)	2.30	0.40	1.90	0.45	0.1	12.35	<0.001
Sparsha Asahyata (Tenderness)	2.25	0.50	1.75	0.44	0.1	11.53	<0.001
Avapidyamane shabda (Crepitus)	2.27	0.47	1.80	0.56	0.14	7.33	<0.001
Vivartanam (Deformity)	2.47	0.53	1.93	0.46	0.12	8.27	<0.001
Karmahani (Loss of function)	2.30	0.45	1.85	0.37	0.08	10.8	<0.001

Group B

Sign & Symptom	Mean		Mean Diff.	SD	SE	‘t’	P
	BT	AT					
Vedana (Pain)	2.30	0.20	2.10	0.45	0.10	13.35	<0.001
Svayathu (Swelling)	2.35	0.10	2.25	0.44	0.10	17.41	<0.001
Sparsha Asahyata (Tenderness)	2.25	0.20	2.05	0.39	0.09	15.16	<0.001
Avapidyamane shabda (Crepitus)	2.36	0.18	2.18	0.75	0.23	9.2	<0.001
Vivartanam (Deformity)	2.11	0.22	1.89	0.33	0.11	10.25	<0.001
Karmahani (Loss of function)	2.10	0.20	1.90	0.55	0.12	10.27	<0.001

Group C

Sign & Symptom	Mean		Mean Diff.	SD	SE	‘t’	P
	BT	AT					
Vedana (Pain)	2.40	0.65	1.75	0.44	0.19	11.16	<0.001
Svayathu (Swelling)	2.25	0.55	1.70	0.66	0.15	11.24	<0.001
Sparsha Asahyata (Tenderness)	2.30	0.70	1.60	0.68	0.15	10.76	<0.001
Avapidyamane shabda (Crepitus)	1.77	0.54	1.23	0.73	0.20	4.98	<0.001
Vivartanam (Deformity)	1.85	0.62	1.23	0.44	0.12	5.19	<0.001
Karmahani (Loss of function)	2.00	0.70	1.30	0.47	0.11	5.94	<0.001

The treatment provided statistical significant (P<0.001) result after completion of the treatment.

Time Period Saved on Fracture Union - The observations in three groups reveal that the normal time period required for fracture union and actual time period in weeks. It demonstrates the percentage of time period

saved in individual patient. Mean Percentage of time period saved in Group A -26.04%, Group B - 30.62% & Group C - 1.87%.

Comparative assessment of Overall Effects of Medicines

Assessment	Score	Group A		Group B		Group C	
		No.	%	No.	%	No.	%
Complete Cured	100%	05	25	11	55	03	15
Marked Relief	>75% to <100%	07	35	08	40	05	25
Moderate Response	>50 to 75%	08	40	01	05	11	55
Mild Improvement	>25% to 50%	Nil	-	Nil	-	01	05
Unchanged	Up to 25%	Nil	-	Nil	-	Nil	-

In Group A 25% patients were got complete cured, 35% patients were showed marked relief and 40% patients were showed moderate response after completion of treatment. In Group B, 55% patients were got complete cured, 40% patients were showed marked relief and 5% patient was got moderate response. In Group C, 15% patients were got complete cured, 25% were showed marked relief, 55% patients were showed moderate response and 5% patient was got mild improvement after completion of treatment.

DISCUSSION

Asthibhagna (fracture) means physically handicapped in general assumptions but it is more than that. Fracture not only restricts the physical movements but also cuts the social, economical, psychological movements of the patient. If proper management of Asthibhagna in suitable period is not done then it may leads to the permanent disability. Minimise the immobilisation period and early recovery with proper healing is the aim of fracture management.

Abha Guggul has been mentioned by Chakradutta in the treatment of Asthi-Bhagna. It contains Abha, Trikatu, Triphala and guggul. It is presented in the form of tablet for oral administration. It speeds up the fracture healing. It is likely to facilitate the repair of a bone fracture by hastening the proliferative physiological process in the body. It improves blood circulation and increases nutrients supply to the bone, which enables quick healing of the fracture and increases the rate of regeneration of the bone. It also improves appetite, absorption of nutrients from the food and bioavailability of the minerals are beneficial in bone healing.

Gandha taila (*Sushrut Bhagna Chikitsa Adhyaya 3/60-61*) - Gandha taila is used in treatment of arthritis, fractured bones and weak bones. The oil is taken internally. It improves bone mass and strength. It speeds up recovery from bone fractures and restores stability of the bones. It is useful in the treatment of arthritis, osteoporosis, Fracture, dislocation and ligament injuries. It helps to improve strength of bones, joints and ligaments. It balances Vata and Pitta.

The ingredients of Abha guggul and Gandha Taila have Kashaya, Madhura, Katu & Tikta Rasa. According to Charaka Kashaya Rasa is Sandhankara and Madhur Rasa is Saptadhatu vardhanam. So, on the basis of Rasa it may reduce fracture healing time and showed Asthi-sandhaniya effect. It acts as an absorbent of discharges and haematoma, reduces swelling, pain and tenderness clears the blockage of channels, depresses the wound and promotes the healing processes and ultimately unites the fracture bones.

The Laghu, Ruksha, Tikshna, Snighdha and Guru guna of drugs accelerates the action of lekhana and ropana, acts as a shothahara; stopped the haemorrhage and absorbed the haematoma and promotes the healing of fracture bones. Sheeta virya of drugs acts as a Raktapittashamaka and relieves the pain and tenderness. In all the medicines have anti-inflammatory, analgesic, anti-osteoporotic, anti-arthritis, bone healing and bio-enhancer properties. It reduces inflammation, pain and swelling of the affected area.

CONCLUSION

The surgical problem Asthi-Bhagna and fracture are similar in their etiology, sign and symptoms. Peak incidence of the disease is found in middle age and old age. Trauma and fall are the most occurring causes for the manifestation of Asthi-Bhagna. The medicines chosen for the study helps in healing of Asthi and amelioration of sign and symptoms of Asthi-Bhagna. The medicines acts as an absorbent of discharges and haematoma, reduces swelling, pain and tenderness clears the blockage of channels, depresses the wound and promotes the healing processes and ultimately unites the fracture bones. The Plaster of Paris (POP) has no role in bone healing; it works as only immobilizing fractured part.

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