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REVIEW ON ASTHIBHAGNA

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ABSTRACT
Ayurveda is the most ancient practiced medical science. As described in *Ayurveda*,a human body(*sharir*) is combination of two main factors which are '*Panchamahabhuta*' and '*aatma*'. As *Sharir* is made up of these two factors, the supportive framework on which body stands is *Asthi* (Bone tissue). The branch of surgery which deals with the deformities of bones is known as Orthopaedic. Treatment of this deformities and trauma management in *Ayurveda* is called as *Bhagna Chikitsa*. *Aacharya Sushruta* known as famous Indian Surgeon in ancient period. *Ayurveda* contains definition of *Bhagna* it's classification, types, general and special features.

KEYWORDS: *Asthi*, *Bhagna*, *bhagna* types, classification, General features, *Bhagna chikitsa*.

INTRODUCTION

Asthi is a hard substance which remains even after most of the body parts has been decayed. It remains as last identity of person even after demise. Knowledge of *Asthi* described from Vedas down to Samhitas. Starting from Pre Vedic period, Vedic period and Samhita kalin period all have description of *Asthi*. *Sushrut Samhita* is Shalya Pradhan Grantha which describes all about '*Asthi*' and '*Bhagna*'.

The word *Bhagna* is derived from the word *Bhanj-dhatu* and *katupratyay* means to break and *Bhanj* means motion,which again means to break.The word *Bhagna* (fracture)means breaking (discontinuity) of a bone.Orthopaedic is a branch of surgery which deals with deformities in bones.

Orthopaedic surgery has its aim as "maintenance of normal mechanical function of the deformed bones ". Trauma management has been in practice since Vedic periods. *Ashwini Kumaras* used to perform surgeries like limb replacement, fixation of severed head etc. *Aacharya Sushruta* also performed the surgeries and known as 'Famous Indian Surgeon'.The part of treatment in *Ayurveda* is called as '*Bhagnachikitsa*'. *Aacharya Sushruta* and others have described aetiopathogenesis, symptoms, classification and management of various traumatic musculo skeletal conditions in elaborated form.

BHAGNA Causes and Classifications

Causes
Patana (fall)
Peedana (compression)
Prahara (Blow)
Aakshepana (Throwing)
Dashana (bite) -Vyal,Mruga etc.
Aghata (Trauma)

PRAKARA (CLASSIFICATIONS of *BHAGNA*)

Classification of bhagna given by different seers resemble each other. *Sushruta*, *Vagbhatta*, *Madhavkara* given different classification about *Bhagna*.

SUSHRUTA

Aacharya Sushruta classified *Bhagna* in 2 types.
1. *Kandbhagna* (Fracture): Breaking of a bone.
2. *Sandhimukta* (Dislocation)

VAGBHATA'S Classification

Vagbhata classified the same with different names that are
1. *Sandhibhagna*
2. *Asandhibhagna*

CHARAKA

Aacharya Charaka had not given any classification of *bhagna*.However *Bhagna* can be classified as Agantuja Roga as trauma is one of the reason of fracture.

MADHUKOSHVYAKHYAKAR classification

1. *Savrana Bhagna* (Compound fracture)
   Fracture with destruction of overlying skin.
2. *Avrana Bhagna* (Closed Fracture):
   Fracture with no visible wound on skin.

Aacharya Madhavkara has also used some other terminologies like Vichurnita instead of Churnita.

Majjagata in place of Majjanugata. He has described Chinna is of two types
1. Ekmanuvidaritam
2. Bahunuvidaritam.

- Other types of fracture:

On the basis of Etiology
a.Traumatic: A fracture sustained due to trauma.
eg. Fracture due to falling down.

b. Pathological: A fracture through a bone that has been made weak by any disease. No force required to cause fracture.

eg. Fracture due to TB or malignancy.

On basis of Pattern
1.Transverse fracture : Fracture line perpendicular to long axis of bone.
2.Oblique fracture : Fracture line is oblique to long axis of bone.
3.Spiral fracture : Fracture line is spirally more than in one plane.
4.Segmental fracture : There are two fractures in one bone.
5.Comminuted fracture : There are multiple fragments in one bone.

On basis of displacement
1.Displaced
2.Undisplaced.

***Sushruta* classified *Sandhimukta* type with 6 Subtypes:**
1.*Utpishta* - Fracture Dislocation
2.*Vishlishta* - Subluxion or incomplete fracture
3.*Vivartita* - Dislocation with lateral displacement
4.*Avakshipta* - Dislocation with downward displacement
5.*Atikshipta* - Dislocation with over riding
6.*Tiryakshipta* - Dislocation with oblique displacement.

Kandbhagna classification as per *Sushruta* and *Vagbhata Sushruta* and *Vagbhata* have explained types of *Kandabhagna*. Some terminologies are same but some have different names given by *Vagbhata*.

SUSHRUTA	VAGBHATA
1. Karkataka	Karkataka
2. Ashwakarna	Vakra
3. Churnit	Sphutit
4. Pichhit	Vellit
5. Asthichallit	Asthichallika
6. Kandabhagna	Ashwakarna
7. Majjanugat	Pichhit
8. Atipatit	Darit
9. Vakra	Churnit
10. Chinna	Atipatit
11. Patit	Sheshit
12. Sphutit	Majjanugat

- **General features of *Kandabhagna***

Shvayathubahulyam (marked swelling): Fracture will be associated with moderate to severe swelling.

***Sparshasahishnutvam* (tenderness):** tenderness is such a sign present in all types of fracture.

***Avpidyamane shabda* (crepitus):** crepitus sound is adefinite indication of fracture,can confirm diagnosis clinically.

***Vividhvedanapradurbhava* (different types of pain):** The fracture bone produces variety of pain. This depends on nature and site of fracture.

***SarvasuAvasthasu Na Sharmalabha (*Inability to get comfort in any position):** Fracture gives to pain and discomfort to the patient till its immobilization.The discomfort is such that patient become restless in any posture of fractured part.

- **PROGNOSIS**

Acharya Sushruta has described prognosis of fractures in *Sukhasadhya*, *Kashtasadhya*, and *Asadhya* after considering the following points: Age, status of patient, Status of Asthi and Type of fracture.

***Sukhsadhya* -** According to *Acharya* Sushruta the patient having fracture in childhood, Alpa Doshayukta *Bhagna* with good nutritional status having good prognosis of Healing fracture.

***Kashtasadhya* -** *Acharya Sushruta* has described that *Churnita Bhagna*(comminuted),*Chinna Bhagna* (Incomplete), *Atipatita Bhagna* (complete) and *Majjanugat Bhagna* (Impacted) are *Kashtasadhya*.

***Asadhya* -** Complete fracture and dislocation of pelvic bone with displacement Comminuted fracture of iliac and frontal bone Dislocation of cranial bones Fracture of sternum and vertebral columns and cranium are Asadhya.

BHAGNA CHIKITSA
The ancient Ayurvedic texts have description *Asthibhagna Chikitsa* thoroughly.
This includes:
1. Principles of *Bhagna Chikitsa.*
2. General treatment of *Bhagna.*
3. Specific management of different types of fractures.
4. Medicinal preparations for different kinds of fractures.
5. *Pathya-Apathya*
6. Clinical criterion of fracture healing.

1. Four Principles of Treatment
1. *Anchan* - To apply traction
2. *Pidana* - Manipulation of local pressure
3. *Sankshep* - Stabilization and opposition of fractured part of bone
4. *Bandhan* - Immobilisation

Sushruta have described above principle which is step by step treatment for fractures. According to him,Surgeon should apply traction (Anchan),then elevate depressed fragment or vice versa (*Peedana*). The far displaced fragment of bone brought in close contact with each other by manipulating separately(*Sankshepana*). These principles help for stabilizing fractured fragment and lastly Immobilisation (*Bandhana*). An adequate immobilisation of fractured bone is one of the most essential method in management. Sushruta recommended tree barks for this purpose - *Ashwattha, Vansha, Kakubha, Madhuka, Palasha, Udumbara.*

These barks selected because

1. These barks fit into limb due to their inner concave surface.
2. Rigid and firm outer surface.
3. Inner soft surface.

2. General Treatment of *BHAGNA*

Sushruta had given general line of treatment as follows:

1. *Parisheka*: It means continuous sprinkling of medicines in the liquid form. Oil, ghee, etc. over affected part for some time.Different kinds of Parisheka dravyas are described on the basis of Prakruti of patients. These are.

a. *Nyagrodhadi Kashaya*: This decocation used in patients of *Paitika Prakruti* and summer.

b. *Pancha mula Siddha dugdha:* This Parisheka is uses for pain in fracture in *Vata Pradhan Prakruti*. This preparation is *Pitta Shamak* also.

c. Chakra taila: This is used mainly for Vata and Kapha Prakruti patients in severe fracture and pain. This preparations is Ushna Viryatmak and reduces pain at fractured site.

d. *Lepa*: The local application on affected area with medicinal paste or ointment is called as Lepa. It Contains *Manjistha, Yashtimadhu, Raktachandana, Shalpishti and Shatdhautghrita.* It reduces pain and swelling on the fractured part.

3. Specific Management of different types of *Bhagna's*

In case of fracture associated with wound or compound bones, local mixture of *Nyagrodhadi Gana Kashaya* dravyas in paste form. *Madhu* and *Ghee* should be applied. Rest management should be done as per general management.

***Ansasandhi* Dislocation (Shoulder joint):** In case of Shoulder joint Axilla region should be raised with iron or wooden box then surgeon should bandaged a *Swastik Bandha* (Figure of eight bandages).

Clavicle fracture: The elevated part of clavicle is depressed and depressed part of bone is elevated with the help of *Mudgara* and clavicle is placed in appropriate position and bandaged. *Swedana* should be done during this procedure.

***Kurparasandhi Bhagna* (Elbow joint dislocation)**: Elbow dislocated part should be massaged with thumb and pressed to set it in its normal position alternative with flexion and extension. Any type of *Sneha* should be sprinkled on it. This same treatment is done for Knee joint, Wrist joint and Ankle joint.

Phalanx fracture or dislocation: Fractured or dislocated part should be first set in natural position and then bandaged with piece of Linen cloth and *Ghee* should be sprinkled on it.

Rib fracture: Surgeon should sprinkle Ghee on fractured part of rib. Flashy cords of that side should be massaged and then bandaged with *Kavalika* made up of thin linen cloth.

***Shirobhagna* (Frontal Bone fracture):** If frontal bone fracture is not associated with any oozing out of brain matter, it should be bandaged with *Madhu* and *Ghruta*. The patient is advised to take Ghruta for next 7 days.

Fracture of Tibia, Fibula and Femure: Affected part should massaged with *Ghee* and traction applied carefully along with direction of bones. After which it should be splinted with Barks of tree with help of Linen. It is same for Fractured arm. *Acharya Sushruta* has described a process of *Kapata Shayana* for such fractures. It is important for immobilisation.

Hip joint dislocation: Reduction, traction, Rotational movement should be done for dislocation. Splint and bandage should applied to make it in appropriate position.

Metacarpal and metatarsal Fracture: Physiotherapy makes movement of fracture. Fractured palm is supported with another palm and bandaged.Aama Taila Parisheka should be done on it.

Fracture of cervical spine: Traction should be applied on upward direction. Appropriate splint tied around neck with help of linen. Patient advised for complete bed rest in supine position for next 7 days.

Mandible dislocation: Region fomented thoroughly then mandible is duly reduced in appropriate position. *Panchangi Bandha* should be applied. *Madhura* and *Vataghna* dravya Siddha Nasya should be given to the patient.

Nasal Fracture: If nose depressed it should be elevated with the help of thin capillary rod (shalaka) while it should be straightened in case of lateral displacement. Then two hollow tubes should be inserted in each nostril and then bandaged and sprinkled with Ghrita.

Teared Ear Cartilage: In this case Ghrita should be applied locally and set ear in natural position and bandaged. Measures and remedies for Sadyo Vrana should adopted.

Mal-union fracture should be refractured, reduced properly and then treated in appropriate manner.

Upper body part fractures should be treated with Shirobasti, Karnapurana,Ghritapana and Nasya. Fractures of extremities treated with Anuvasana Basti.

Warning against infection: Surgeon should aware of any type of pyogenic infection and should take care of it. As pyogenic infection can cause due to suppuration of local muscles, vessels, and ligaments lead to poor prognosis of fracture.

- **Rehabilitation**

The importance of physiotherapy in a limb injury was also appreciated by Sushruta. He has prescribed the exercises starting in lighter manner, which may be gradually increased at any rate, and exercises should not be prescribed all at once in the beginning.

4. Medicinal Preparation for *Bhagna*

The *Asthisandhaniya Dravyas* not only hasten bony union but also make it strong. *Asthisandhaniya Yoga's* described in ancient texts are *Gandha Taila, Chakrataila, Gandhaprasarini Taila, Laksha Guggula, Ashwagandha Chaturbhadra choorna, Praval Panchamruta, Sudha Bhasma , Bhagnasandharana Taila.*

In addition to it *Aacharya Sushruta* had advised to take Godugdha and Goghrita. Madhuragana dravyas and Laksha should taken daily during morning hours.

5. *Pathya -Apathyam*

A fractured patient should be away from use of Lavana, Katu Rasa, Kshar and Amla food and avoid to exercise for long time or any kind of exertion. Patient should take complete rest.

A Diet should contain Shali Shashti rice, meat soup, pulses, milk and Ghee. Light food should be taken and also nutritive and constructive food and drink should be included in diet.

A fracture or dislocation occurred in childhood gets stability within one month. In two months for fracture in middle age. In case of old age fracture gets stable in three months.

6. Clinical signs of ideally united bone

1. No swelling or hardness on palpation.
2. Absence of shortening and deformity.
3. Painless and easy movements.

CONCLUSION

Asthibhagna and *Bhagna chikitsa* are described in Ayurveda. This shows Ayurvedic literature has a great view towards *Bhagna*, it's types, treatment including all the general principles and *pathya Apathya. Aacharya Sushruta* has mentioned every small and small points which help Surgeon for better treatment of patient for relief from pain and to students for better understanding of fracture.

The all measures mentioned in Sushrut Samhita can be explored as the potential treatment in fracture management. Such immense knowledge given by *Aacharya* 's is not only helpful and important but also applicable in present era also with same efficacy.

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