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Review Article

A CONCEPT OF SKELETAL INJURIES AS PER AYURVEDA PROSPECTIVE

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ABSTRACT

Concept of *Bhagna* (Skeletal Trauma) in Ayurveda includes *sandhimukta* (Subluxation/Dislocations & Associated soft tissue injuries) and *Kandbhagna* (Fractures) . Concerning the Etiopathogenesis violence is attributed as the chief cause of *Bhagna* and in addition intake of poison and burns along with violence has also been mentioned as other factors leading to skeletal injuries . *Asthimajjanugata Vidharadhi* , *Adhyasthi* , *Asthisunyata Asthikshaya* & *Majja kshaya* respectively may be considered similar to the category of pathological fractures. Concerning the symptomatology terms like *Kshavathubahulyam* (swelling) *Spandan,vivartan,sparash Asahishunatvam* (pain to touch & movements) *Avpedyamane shabad* (crepitation) *Srastangta* (deformity) *Vividhvednapradurbhav* (pain of different kinds) *Sravasavavasthanashramlabh* (discomfort in all positions) *Prasaran-akunchan-vivartan-akshepan ashakti* (restricted movements) *Ugar-*

rujatvam (severe pain)*Spars-asahisnutvam* (tenderness) are very elaborately described. While talking of management principle, techniques concerning reduction, immobilization along with various formulations for local as well as internal usage has been described along with the stress given on fundamentals of rehabilitation. There is a potential sphere in Ayurveda concerning the research in various aspects regarding the betterment in the field of trauma management.

Key Words: *Bhagna, sandhimukta, Kandbhagna*, reduction, immobilization, rehabilitation.

ABSTRACT :

Concept of *Bhagna* (Skeletal Trauma) in Ayurveda includes *sandhimukta* (Subluxation/Dislocations & Associated soft tissue injuries) and *Kandbhagna* (Fractures). Concerning the Etiopathogenesis violence is attributed as the chief cause of *Bhagna* and in addition intake of poison and burns along with violence has also been mentioned as other factors leading to skeletal injuries. *Asthimajjanugata Vidharadhi, Adhyasthi, Asthisunyata Asthikshaya & Majja kshaya* respectively may be considered similar to the category of pathological fractures. Concerning the symptomatology terms like *Kshavathubahulyam* (swelling) *Spandan, vivartan, sparash Asahishunatvam* (pain to touch & movements) *Avpedyamane shabad* (crepitation) *Srastangta* (deformity) *Vividhvednapradurbhav* (pain of different kinds) *Sravasavavasthanashramlabh* (discomfort in all positions) *Prasaran-akunchan-vivartan-akshepan ashakti* (restricted movements) *Ugar-rujatvam* (severe pain)*Spars-asahisnutvam* (tenderness) are very elaborately described. While talking of management principle, techniques concerning reduction, immobilization along with various formulations for local as well as internal usage has been described along with the stress given on fundamentals of rehabilitation. There is a potential sphere in Ayurveda concerning the research in various aspects regarding the betterment in the field of trauma management.

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Concept of Bhagna includes : Two types

1. Sandhimukta :(Subluxation / Dislocations & Associated soft tissue injuries concerning the joints)
2. Bhagna /Kandbhagna (Various types Fractures)

Bhagna could be understood as a structural break in the continuity of bone. This structural break may also occur through cartilage, epiphysis and epiphyseal plate.

Etiopathogenesis:

- ❖ Violence (Acharya Susuruta and Vaghbhatt)
- ❖ intake of poison and burns along with violence (Bangasena Samhita)
- ❖ Occupation related injuries and various disease (Tatwa Pradipeeka Byakhya)

Asthimajjanugatavidharadhi , Adhyasthi , Asthisunyata, Asthikshaya & Majja kshaya respectively relates to pathological fractures.

Bhagna (Classificationⁱ)

12 Sub-types :

- ❖ Karkatak (fracture with significant fracture hematoma)
- ❖ Aswakarana(Oblique fracture)
- ❖ Churinita (Comminuted fracture)
- ❖ Pichit (Crushed/compression fracture)
- ❖ Asthichalita (Avulsion fracture)
- ❖ Kandbhagna (Transverse Pattern fracture of long bones)
- ❖ Majjaanugata (Impacted fracture)
- ❖ Atipatita (Complete Fracture with grossly displaced fragments)
- ❖ Vakra (Green stick fractures)
- ❖ Chinna (Partially splitted or fissured fracture)
- ❖ Patita (Fissured with multiple cracks)
- ❖ Sphutita (Multiple cracks at various sites)

Madhav nidana,Yogratanakar,Bangsenal all have described it as of two sub types as:

- ❖ Ekamanu vidirna
- ❖ Bahu vidirna.

Sushruta has described Patita instead of Bahu vidirna.

Classification given acc. to type of bone is as under:

- ❖ Tarunasthi – Nabhyante (tearing of cartilage)
- ❖ Nalakasthi – Bhajyant(fracture of long bones)
- ❖ Kapalasthi – Vibhidyante (Cracking)
- ❖ Ruchakasthi/Valyasthi (Fissuring)

Sign Symptoms of Asthi Bhagna:

- ❖ Kshavathubahulyam (Swelling)
- ❖ Spandan, vivartan, sparash Asahishunatvam (Painful movements , Localised Tenderness)
- ❖ Avpedyamane shabad (crepitation)
- ❖ Srastangta (Various deformities)
- ❖ Vividhvednapradurbhav (Various kinds of pain)
- ❖ Sravasavavasthan ashramlabh (Discomfort in all positions)

Dislocation/sandi-mokshⁱⁱ:

As sandi-moksh with six sub types viz:

- ❖ Utpishta (soft tissue injury)
- ❖ Vishlishta (fracture dislocation with soft tissue injury)
- ❖ Vivartita (Lateral displacement)
- ❖ Avikshipta (inferior displacement)
- ❖ Atikshipta (complete displacement)
- ❖ Triyak-kshipt (oblique displacement)

Sign/Symptoms of Sandhimoksha:

- ❖ Prasaran-akunchan-vivartan-akshepan ashakti (Restricted movements)
- ❖ Ugar-rujatvam (Severe pain)
- ❖ Spars-asahisnutvam (Tenderness)

Injuries concerning the Joints:

These are described in context to sandhi-moksh as:

Utpishta (Condition of Fractur-Dislocation)

Vishlishta (Gross Dislocation)

Vivartit (Dislocation with medial or lateral shift)

Avikshipt (Dislocation with superior or inferior shift)

Tiryakshipt (Oblique Translation)

Atikshipt (Dislocation associated with other related injuries)

Trauma management

Management principles described are very elaborate these includes :

Principles like Triple “R”.

Local applicants as Lepa & Prishechan.

Drugs are also described for internal usage.

Triple “R” Principle

- ❖ Reduction (Manipulative corrections concerning Morbid Anatomy)
- ❖ Retention (immobilization)
- ❖ Rehabilitation (Post Immobilisation Physiotherapy so as to regain the maximal Range of movements)

Reduction:

Correction of morbidity by manipulation i.e. by

- ❖ Pulling (Anchana)
- ❖ Pressing (Pedana)
- ❖ Approximating (Sanksepan) etc.

Specific measures are also described for different types of skeletal injuries.

Immobilization: (bandhan)

- ❖ Immobilizing using bark of madhuka udumbara, asvath, plasa, kakubha, vansa, sarja or vatta as splinting materialsⁱⁱⁱ.
- ❖ Principle of Sadharan bandh is to be followed while bandaging^{iv}.

Duration of immobilization^v

- ❖ Childhood – 1 month
- ❖ Middle age – 2 months
- ❖ Elderly – 3 months

Schedule for change of splint in compound fracture^{vi}

Winter (Hemantha) - Once in seven days

Moderate (Sarada) - Once in five days

Summer (Grishma) - Once in three day

Principles of Immobilization^{vii}

- ❖ In case of fracture of spine, pelvis, femur or tibia Kapata sayana is indicated^{viii}.

- ❖ Patient is made to lie on wooden plank with the fractured part immobilized by fixing 5 nails on wooden plank.

In case of injuries of pelvis or femur:

1 at sole

1 on each side of knee

1 on each side of thigh

- ❖ In case of injuries of tibia

1 at sole

2 on each side of ankle

2 on each side of knee

Features of properly healed Bhagna^{ix} :

- ❖ Na-vidham (without any discomfort)
- ❖ Na-heen angam (no shortening)
- ❖ Na-ulavanam (deformed elevation)
- ❖ Sukh cheshta prachaar (regained movements)

Principles regarding Rehabilitation:

Description of gradual active physiotherapy in term of ^x :

- ❖ Mritka-pinda dharana
- ❖ Lavana dharana
- ❖ Pashana-dharana

is indicated to regain the normal functioning in injuries of carples, metacarples & phalynxes as a prototype.

Other Prospects of Ayurvedic Management:

- ❖ Lepa of manjishtha, mulethi, lal-chandan with shatdhot ghrith and shali to subside active inflammation as local management .
- ❖ Parishechan with nyagrodhadi kshaya, brihat-panchmool sadhit milk or Chakra tail for local pain management.

Preperations Mentioned for internal uses^{xi} :

- ❖ Kakolyadi gana sadhit grishti ksheer with laksha churan for internal usage.
- ❖ In fractures associated with wounds madhu & ghrith containing kshiri vrikshadi kshayas are indicated.

- ❖ Gandha tail for drinking, nasya, vasti & abhayanga.
- ❖ Shali dhanya, mansras, milk, ghrith supplemented diet.

Prospects of Ayurvedic Management :

Polyherbal & herbomineral formulations described in ayurveda are rich source of fracture healing promoting elements and calcium.

These are:

- ❖ Cissus quadrangularis
- ❖ Commiphora wightii
- ❖ Vanda roxburghii
- ❖ Terminalia arjuna
- ❖ Wthania somnifera
- ❖ Sida cordifolia
- ❖ Asperagus recemosus
- ❖ Asphaltum (Mineral Pitch) Shilajit
- ❖ Godanti bhasma
- ❖ Kukkutandatvak bhasma
- ❖ Mukta shukti /Parval pishti

Sufficient Scientific validation is there supporting the usage of these formulations in promoting the fracture healing as.....

- ✓ A significant increase in BMD of the bones.
- ✓ Increased osteoblastic activity.
- ✓ Desirable re mineralization of the bones especially the osteoporotic bones.
- ✓ Significant increase in serum calcium and serum phosphorus.
- ✓ Significant decrease in serum alkaline phosphatase levels.

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