



BANDHAN DRAVYAS IN AYURVEDA : A CLASSIC REVIEW WITH MODERN CORRELATION

Surgery

Singh Raghav Swati

PG Scholar , Shalyatantra Department, Government Ayurved College, Nagpur

Kedar Nita

Professor & HOD , Shalyatantra Department, Government Ayurved College, Nagpur

ABSTRACT

The bandaging is an integral part of wound healing which is referred as bandhan in Ayurveda. It is an important treatment by which the clean wound heals, gives stability and compactness to bony joints. Acharya Sushruta has describe various aspects of bandhan and bandhan dravyas, which are the materials useful for bandaging. Bandhan should be done according to kala(time) and condition of disease and ritu (season). This review depicts the ayurvedic review on Bandhan dravyas along with their modern correlation.

KEYWORDS

Bandhan, Bandhan Dravya, Sushruta, Bandaging

INTRODUCTION

The procedure which is carried out to cover wound is called bandhana. When wound is bandaged the process of shodhan of wound carried out i.e. wound remains clean, soft and without any complications, starts to heal properly. Due to application of bandha (bandage) , shodhan, ropan of wound, steadiness in bones and compactness of joints is maintained.

Parameters : Bandages and splints are applied for :

- Keeping the dressing in situ;
- Immobilizing the part while managing fractures and dislocations
- Keeping in position the fractured (displaced and dislocations) bones
- Protecting the wound from dust , flies, insects

Use of dressing materials for bandaging should be done according to kala(time), condition of stage of disease and ritu(season). Hence , information of various types of bandaging procedures according to the affected part of the body of patient and having knowledge about procedure is very important.

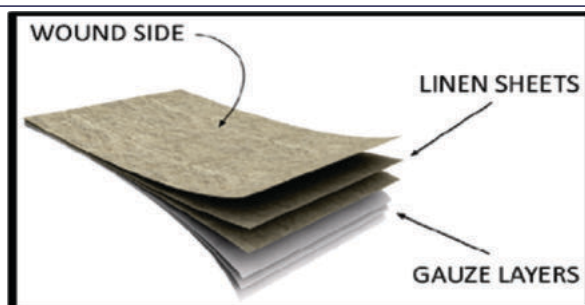
Bandhan Dravya⁽¹⁾

SR.NO	DRAVYA	MATERIAL OF BANDAGING
1)	KSHAUM	FLAX
2)	KARPAS	COTTON
3)	AAVIK	SHEEP WOOL
4)	DUKUL	FABRIC (CLOTH)
5)	KAUSHEYA	SILK
6)	CHINPATA	CHINESE SILK (FABRIC)
7)	CHARMANTA	LEATHER OF ANIMALS LIKE DEER
8)	ANTRA – VALKA	INNER BARK OF TREES LIKE BHURJAPATRA, GULAR
9)	ALAABUSAKLA	SKIN OF BOTTLE GOURD
10)	LATA	CREEPERS
11)	VADLA	SPLIT BAMBOO
12)	RAJU	ROPES
13)	TULFAL	COTTON FIBRE OF SIMBAAL FRUIT
14)	SANTANIKA	PAD OF COTTON FIBRE
15)	LOHA	METALS LIKE GOLD ETC

1) Kshaum (flax)

Kshaum is cloth made up of flax.

- An application of a modified flax-dressing (linen) bandage yield :
- A more rapid rate of healing.
 - Reduce the wound exudes & wound size.
 - It diminished the pain accompanying chronic venous ulceration.(2)
 - The antioxidant properties have a great significance for wound healing, as they inhibit enzymatic and non-enzymatic peroxidation.



2) Karpas (cotton)

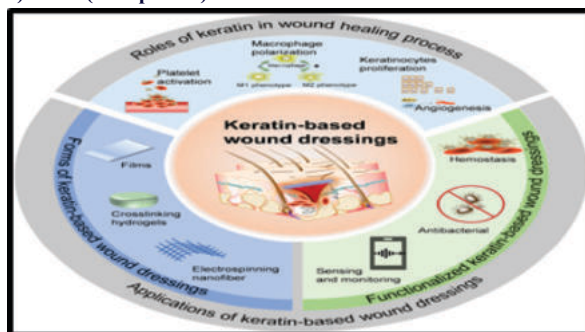
Karpas is cotton which is used as dressing material in ancient times.

Cotton dressings attract protein-building macrophages which is necessary for skin to heal, it is used for :

- Forming pads over dressed wounds, thus protecting them from undue pressure.
- Applying directly to the skin in burns & scalds, where it served to protect the area from the effects of movement and pressure.
- Use in wicks to keep the edges of wounds open and allow discharges to escape from them, thus acting as modern drainage tube.⁽³⁾



3) Aavik (Sheep Wool)



Aavik is sheep wool which is used for dressing purpose

- The wool fiber has keratins and keratin-associated proteins (KAPs).
- Sheep burned wool is traditionally used in burn wound healing.
- Wool protein biomacromolecules are processed and reconstituted to create an advanced matrix structure, which retains unique physical, biological and bioactive characteristic, does accelerate wound-healing processes and tissue growth.⁽⁴⁾

4) Dukul (Fabric Cloth)

Dukul is cloth made up of fabric material

- Wound dressing fabrics are intended to promote wound healing and prevent infection.
- The most widely used fibers in development of non woven fabrics for wound care include polypropylene, polyester, viscose, and bicomponent fiber, making them suitable for a wide range of wound dressing products.

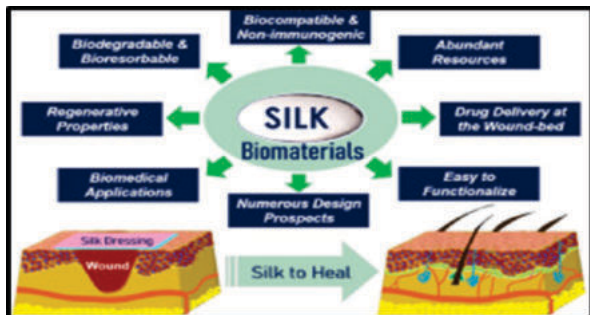


5) Kausheya (Silk)

Kausheya is dressing material made up of silk.

There is multiple inherent properties of silk that aid in the critical events of the healing process such as

- Cell migration
- Cell proliferation
- Angiogenesis
- Re-epithelialization⁽⁵⁾



6) Chinpatta (Chinese Silk / Fabricated Silk)

Chinpatta is fabricated silk or Chinese silk used for dressing purposes. Silk has many advantages for wound dressing materials such as

- Biocompatibility
- Minimal inflammatory reaction
- Capability to promote wound healing
- Strength, toughness, light weight, and easy chemical modification.
- Medical research of silk includes its uses as membrane, scaffold, and wound dressing materials.⁽⁶⁾



7) Charmanta (Leather Of Animals Like Deer)

Charmanta is leather of animals like deer used as dressing material

- India has banned import of exotic skins and certain furs used for leather or fur clothing and accessories (PETA).
- Artificially made high quality elasticated white leather first aid finger stall designed to keep finger wounds dry, clean and protected.



8) Antra – Valka (Inner Bark Of Trees Like Bhurjapatra, Gular)

Antra valka is inner bark of trees like bhurjapatra, gular used for dressing purposes

BHURJAPATRA

English Name: Himalayan Birch

Latin Name: Betula utilis

- The papery layer of Birch bark is considered to be highly astringent agent.
- Its external use is recommended as styptic (to stop bleeding) and to stop any purulent discharge.
- It is used for cleaning the wounds and quicker healing⁽⁷⁾
- The bark is burnt to ashes and its paste is applied on the deep cuts and wounds of animals.⁽⁸⁾



Gular Tree

English Name : Cluster Fig

Latin Name : Ficus Racemosa

- The gular tree contains anti-inflammatory properties, and the bark extract is utilized externally to treat various types of inflammation.
- Extract will significantly reduce pain and inflammation. They also help in alleviating burning sensations.⁽⁹⁾
- Ethanol extract of stem bark showed wound healing in excised and incised wound model in rats.⁽¹⁰⁾



9) Alaabusakla - Skin Of Bottle Gourd

Alaabusakla is the skin of bottle gourd

- Protect the skin from the damage caused by ultraviolet radiation.
- It also help to prevent signs of skin ageing, skin sagging.
- It also help to strengthen the skin barrier by enhancing the production of skin barrier lipids.⁽¹¹⁾



10) Lata – Creepers

Lata are creepers used as dressing material in ancient times.

VRIDDHADARU

English name - Elephant Creeper

Latin name - *Argyrea nervosa*

- The leaves has antibacterial, antifungal properties and applied on fungal infections and wounds.
- It works as emollient, astringent, and healer.⁽¹²⁾
- It treats wounds and diseases like skin infections and allergies.

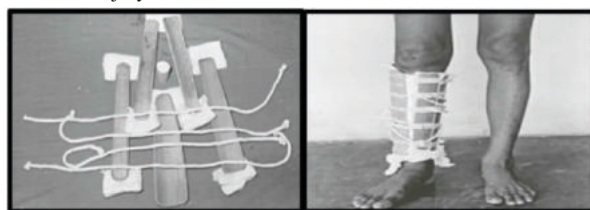
Take few leaves ,warm them and tie at affected area with help of cloth.⁽¹³⁾



11) Vadla (Split Bamboo)

Vadla means split bamboo which is used for dressing in ancient period.

- Amerasinghe and Veerasingham used bamboo splints, in the bracing of tibial fractures in Sri Lanka .
- They reported 88% of their patients to be weight bearing and freely mobile by 10 weeks, with a 95% union rate.
- The Liston wooden board splint for fractures of the femoral shaft is currently in use in one institution in Scotland for the management of this injury in children.⁽¹⁴⁾



April 25, 2016 - by Harold Goerzen At San José de Chamango in Ecuador's earthquake zone, an 85-year-old woman, her fractured arm wrapped up with a temporary splint made of sticks of bamboo. Its is an emergency treatment given to patient.⁽¹⁵⁾

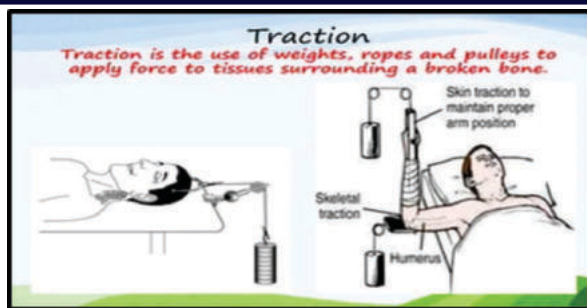


12) Rajju (Ropes)

Rajju means ropes which are used in dressing.

With the help of ropes traction is process which uses weights, pulleys, and ropes

- To apply gentle force
- Bring the bones back into alignment.⁽¹⁶⁾



Poly Mem Wic Silver Rope

- Poly Mem Wic Silver Rope is a new strong, supple, dressing .
- Poly Mem combine to make the nonadherent dressings not only extremely comfortable, but also anti-inflammatory, thus addressing both persistent and procedural wound pain.
- Use for deep wounds with narrow openings, such as tunnels, fistulas, and cysts, any acute or chronic wound, even in the presence of infection⁽¹⁷⁾



13) Tulfal (Cotton Fibre Of Simbal Fruit / Semal Musli)

Tulfal is cotton fibre of sambal fruit/semal musli) which is used for wound dressing

LATIN NAME : *Bombax malabaricum*

ENGLISH NAME : Malabar silk-cotton tree

- It accelerates the healing of wounds on the skin
- Neutralizes inflammation and itching
- It stops bleeding, helps in treating wound.⁽¹⁸⁾



14) Santanika (Pad Of Cotton Fibre)

Santanika are pad of cotton fibre used for dressing purpose

Cotton pads are used for medical purposes

- to stop bleeding
- prevent bleeding
- from minor punctures such as injections or venipuncture and wound dressing.⁽¹⁹⁾



15) Loha (Metals Like Gold Etc)

Loha are metals like gold which is used for dressing

GOLD DUST

- Gold Dust Wound Filler used as dry granules on highly exudating wound.
- When used as a wound dressing, Gold Dust protects the wound

- tissue and the surrounding wound area from maceration and degradation.⁽²⁰⁾
- Healing in turn reduces the amount of fluid produced, which reduces the amount of contamination.⁽²¹⁾

Metal Based Biomaterial

- Metal elements played an irreplaceable role in regulating and accelerating wound repair.
- Now days their is advances impacts of metal-based biomaterials for wound repair.
- Biomaterials have proven to be an attractive strategy that can be applied to wound repair and have excellent potential to induce skin regeneration.⁽²²⁾

DISCUSSION

- *Shusruta* has mentioned 15 types of *bandhan dravyas* which can be correlated with modern *dravyas*.
- After reviewing literature regarding *bandhan dravyas* it showed that *bandhan dravyas* used in ancient science are still in used with their timely modification.
- So now a days it is very easy to carry sterile dressing .
- Due to recent advancement and modification in dressing material wound healing became somehow easy in this era.

CONCLUSION

The traditional Indian medicine was well evolved and widely employed with desired results. The concepts, theories and techniques practiced several thousand years ago hold true even in today's practice. The presented combination of *Bandhan dravyas* along with modern advancement and modification and correlation ,wound healing become somehow easy in modern era.

REFERENCES

- 1) Dhanwantri, Sushrut Samhita , Edited & translated by Ambikadatta Shastri; Chaukhamba Publication Vishwa Bharati Varanasi; Reprint 2017; Sutrasthana, Chapter 18 ;Pg no 18
- 2) Skórkowska-Telichowska K, Zuk M, Kulma A, Bugajska-Prusak A, Ratajczak K, Gasiorowski K, Kostyn K, Szopa J. New dressing materials derived from transgenic flax products to treat long-standing venous ulcers—a pilot study. Wound Repair Regen. 2010 Mar-Apr;18(2):168-79. doi: 10.1111/j.1524-475x.2010.00578.x. PMID: 20419874.
- 3) ELLIOTT JR. The development of cotton wool as a wound dressing. Med Hist. 1957 Oct;1(4):362-6. doi: 10.1017/s002572730002161x. PMID: 13476927; PMCID: PMC1034321.
- 4) <https://www.sciencelearn.org.nz/resources/2463-wool-in-wound-dressings>.
- 5) <https://www.sciencedirect.com/science/article/abs/pii/S1742706119308001#preview-section-cited-by>
- 6) Lee WY, Um IC, Kim MK, Kwon KJ, Kim SG, Park YW. Effectiveness of Woven Silk Dressing Materials on Full-skin Thickness Burn Wounds in Rat Model. Maxillofac Plast Reconstr Surg. 2014 Nov;36(6):280-4. doi: 10.14402/jkampr.2014.36.6.280. Epub 2014 Nov 12. PMID: 27489847; PMCID: PMC4283539.
- 7) <https://www.dabur.com/ayurveda/ayurvedic-medicinal-plants/bhojpatra-plant>
- 8) https://www.researchgate.net/publication/329715768_Himalayan_Birch_-_Betula_utilis_Bhojpater_Burza
- 9) <https://trustherb.com/health-benefits-of-gular-tree/>
- 10) https://www.researchgate.net/publication/259655547_Pharmacological_Potentials_of_Ficus_racemosa_-_A_Review
- 11) <https://pharameasy.in/blog/ayurveda-uses-benefits-side-effects-of-bottle-gourd>
- 12) <https://theindianmed.com/anpakar-elephant-creeper-for-treating-wounds-cuts>
- 13) <https://www.healthline.com/nutrition/plantain-weed#benefitshttps://theindianmed.com/anpakar-elephant-creeper-for-treating-wounds-cuts>
- 14) <https://musculoskeletalkey.com/the-history-of-fracture-treatment>
- 15) <https://reachbeyond.org/content/news/read/emergency-medical-response-teams-bring-hope-in-ecuadors-quake-zone>
- 16) <https://www.healthline.com/health/traction>
- 17) Benskin LL. PolyMem® Wic® Silver® Rope: A Multifunctional Dressing for Decreasing Pain, Swelling, and Inflammation. Adv Wound Care (New Rochelle). 2012 Feb;1(1):44-47. doi: 10.1089/wound.2011.0285. PMID: 24527278; PMCID: PMC3623584.
- 18) <https://mahabazar.club/en/hlopkovoe-derevo-bombax-malabaricum>
- 19) https://en.wikipedia.org/wiki/Cotton_pad
- 20) <https://www.healthproductsforyou.com/p-southwest-gold-dust-wound-filler.html>
- 21) <https://www.healthproductsforyou.com/p-southwest-gold-dust-wound-filler.html>
- 22) <https://www.sciencedirect.com/science/article/pii>