

Traditional Medical Practices of Sri Lanka in Orthopaedic Treatment

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ABSTRACT : Sri Lanka, is an island located between 5°- 10° N latitude and 79°- 82°E longitude. There are a number of ancient Sri Lankan medical treatises which also include Orthopaedic Treatment in detail. Sri Lankan traditional physicians treat orthopaedic ailments very successfully. This survey was done to gather scattered knowledge in the island with the help of highly experienced traditional physicians who are involved in Orthopaedic treatment, olla leaves and text books. According to this survey several parts of the plants leaves stem barks, roots, flowers, entire plants are used to prepare medicine and these medicines are prepared in different ways such as 'Mellum', 'Beheth Roti', oil, cream, paste, sediments, thick liquids, 'Thel kiri' and 'Beheth Peni'. These various herbal medicines are used to reduce bruises, to speed up healing of fractured or cracked bones, to loosen stiffened joints and to correct the dislocations. Bandages prepared from bark of *Allophylus cobbe*, splints prepared from reeds of *Bambusa vulgaris* and bracts of *Cocos nucifera* are used for supporting and immobilising the traumatised parts and limbs. Traditional orthopaedic treatment in Sri Lanka is well developed and encompasses treatment of muscle sprains, dislocations and fractures, bruises and injuries incurred by people falling from trees.

Key words : Orthopaedic, Traditional Medicine, Sri Lanka.

INTRODUCTION

Sri Lanka is an island republic in the Indian Ocean, lying off the south eastern tip of the Indian subcontinent and located between 5°- 10°N latitude and 79°- 82°E longitude. Traditional medical practises all over the world may have developed along with human evolution as they have to search remedies to overcome daily accidents and diseases. As a result of this, traditional orthopaedic treatment and other treatment methods, though often differing from each other to suit the locality, have been developed and established everywhere in the world. Traditional orthopaedic treatment in Sri Lanka is also called as 'Gas Wedakama', 'Handi Wedakama' and 'Kedum-Bindum Wedakama' since it was mainly developed to treat people who have received injuries and fractures by falling from trees and heights.

The authentic Ayurvedic text by sage Sushruta describes that there are twelve types of fractures. However, the Sri Lankan traditional orthopaedic physicians describe a number of variations; though mostly based on the same identification but somewhat differing in some cases, depending on their hereditary schools of training.

The King Ravana who lived over three thousand years ago, wrote a treatise on herbal medicine called

Arka Prakasha, a book which reveals a very high in-depth knowledge and understanding of herbal and natural ingredients and their effects. Sri Lankan traditional physicians cure or successfully control many diseases, and also provide Orthopaedic Treatment, through herbal medicine. The Sri Lankan flora being very rich and diverse, has contributed to the indigenous population accumulating a vast heritage of traditional healing with medicinal plants.

Traditional physicians use various herbs as medicine to reduce bruises, to hasten the healing of fractured bones, to loosen the stiffened joints and to correct / reset dislocations. Medicines are prepared in different ways such as 'Mellum' (medicines are cooked heating on a heated pan), 'Beheth Roti' (medicines are ground together and spread to make a flat, round-shaped, dough-like paste and applied to the injured area.) 'Peni Paththu' (juice of herbs, mixed with treacle of coconut or *Caryota urens* and heated while stirring, till it turns to a thick liquid), 'Thel Kiri' (juice of herbs, mixed with coconut milk and kept in the sunlight till it turns to a thick juice) and Splints prepared from stem of *Bambusa vulgaris* and bracts of coconut are specific to orthopaedic treatment.

MATERIAL AND METHOD

Data was gathered from highly experienced physicians who are well known for treating orthopaedic disorders successfully, olla manuscripts, Ayurvedic text books, transcriptions of manuscripts and local knowledge

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on traditional medicine in Southern province, Western province, North-Central province and Sabaragamuva province of Sri Lanka. The formulae were sorted so as to show the medicines used in different conditions.

REVIEW AND APPLICATIONS

According to this survey, majority of the patients seek traditional treatment for bruises and fractures. There are some medicinal preparations that enhance the healing of ruptured, cracked and fractured bones and joints. Many traditional physicians re-set these fractures and dislocations very cleverly. Sometimes we meet patients with stiffened-up, dislocated joints, as they were not treated properly or as they have not sought medical advice at the time of dislocation. There are some treatments that are specifically beneficial in these situations and they help to loosen these stiffened bones/joints. The special items required in orthopaedic treatment and a list of medicinal preparations is given below. When preparing these medicines, where ever the quantities are not specified, equal weights of the ingredients should be taken.

Bandages :

Bandages to tie medicine over the injured areas and fractured bones are prepared from bark of *Allophylus cobbe* (Family: Sapindaceae). The stem bark, which itself has medicinal properties, is peeled from up, down towards the roots, then separated into thin strips, is used as bandages in orthopaedic treatment.

Splints :

Splints used in tying the injured bones in order to restrict the movement are prepared from reeds of *Bambusa vulgaris* (Family: Poaceae) and bracts of *Cocos nucifera* (Family: Arecaceae). Dried bamboos are cut according to required length and scraped to make it smooth to prevent hurting the patient. A bract of coconut, which is fallen from the tree but still not dried out is also used to prepare splints.

Mellum :

Mellum are prepared by lightly cooking ingredients in a heated pan or pot. They should be applied freshly after preparation and only when are lukewarm. Mellum mentioned from 1 to 21 contains common salt and fresh rhizome of *Curcuma domestica* (Family: Zingiberaceae) in addition to drugs mentioned in the formulae.

1. A Mellum prepared with leaves and barks of *Citrus reticulata* (Family: Rutaceae) is packed on acute contusions to reduce swelling.
2. A Mellum prepared with stem bark of *Vitex negundo* (Family: Verbenaceae) is applied over bruised area. This is especially effective for acute contusions and hairline fractures of bones.
3. A Mellum prepared with roots of *Drynaria quercifolia* (Family: Polypodiaceae) is kept over bruised area to reduce acute and chronic contusion¹.
4. A Mellum prepared with leaves and stem bark of *Adenanthera pavonia* (Family: Fabaceae) is packed around the injured area to reduce acute and chronic contusions.
5. A Mellum prepared with stem bark of *Terminalia arjuna* (Family: Combretaceae) is kept over injured area to reduce acute and chronic contusions.
6. A Mellum prepared with leaves of *A. indica* is placed over bruised area in chronic contusions but contraindicated in contusions with lacerations.
7. A Mellum prepared with leaves of *Phyllanthus amarus* (Family: Euphorbiaceae) applied for chronic contusions. It is specially indicated for contusions of farmers and people, who come in to contact with mud frequently and are with itching wounds.
8. A Mellum prepared with matured inflorescence of *Areca catechu* (Family: Arecaceae) is kept over bruises to reduce oedema in chronic contusions.
9. A Mellum prepared with roots of a *D. quercifolia* plant that is growing on a tree of *Madhuca longifolia* (Family: Sapotaceae) is packed on chronic contusions to reduce swelling and hardness.
10. A Mellum prepared with leaves of *Pongamia pinnata* (Family: Fabaceae) is placed over bruised area to reduce oedema in contusion with lacerations.
11. A Mellum prepared with Stem bark of *Lannea coromandelica* (Family: Anacardiaceae) is placed over bruised area to reduce massive oedema.
12. A Mellum prepared with Stem bark of *Ficus religiosa* (Family: Moraceae) is placed over bruised area to reduce swelling.
13. A Mellum prepared with Stem bark of *Cassia fistula* (Family: Fabaceae) is kept over bruised area to reduce oedema. It is also beneficial in hairline fractures and muscle sprains.

14. A Mellum prepared with entire plant of *Desmodium heterocarpon* (Family: Fabaceae) is used to reduce contusions, especially in small children.
 15. A Mellum prepared with leaves and barks of *Croton laccifer* (Family: Euphorbiaceae) is placed on bruises to reduce swelling.
 16. A Mellum prepared with entire plant of *Erythrina variegata* (Family: Fabaceae) is kept over bruised area to reduce oedema and fasten the healing of hairline fractures.
 17. A Mellum prepared with leaves, roots, stems, flowers and seeds *Ricinus communis* (Family: Euphorbiaceae) is kept on the bruised area and bandaged. This helps to reduce oedema; especially chronic oedema. Its also speeds up the recovery of hairline and incomplete fractures of bones.
 18. A Mellum prepared with stem bark of a barren *Mangifera indica* (Family: Anacardiaceae) tree is applied on contused area and is considered to be very good for chronic contusion, muscle pain, hairline and incomplete fractures of bones.
 19. A Mellum prepared with stem bark of a barren *Garcinia exathochymus* (Family: Clusiaceae) is applied over contusion to reduce oedema. This also fastens the joining of the fractured bones.
 20. A Mellum prepared with leaves of *Pothos scandens* (Family: Araceae) and *A. cobbe* is packed on trauma area to reduce swelling speedily. This is beneficial for contusions in shoulder region, crack and ruptures of clavicle bone.
 21. A Mellum prepared with stem bark of *Vitex pinnata* (Family: Verbenaceae) is packed on trauma to increase healing of hairline, incomplete and complete fractures.
 22. A Mellum prepared with bark of *Justica adhatoda* (Family: Acanthaceae), leaves and stem bark of *Crataeva nurvala* (Family: Cappariaceae) is packed over bruises to reduce swelling.
 23. A Mellum prepared with leaves of *Bauhinia racemosa* (Family: Fabaceae) and scraped coconut is placed over injured area to decrease swelling in bruises and cure hairline fractures.
 24. A Mellum prepared with stem barks of *F. religiosa*, *Ficus benghalensis* (Family: Moraceae), *Ficus racemosa* (Family: Moraceae), *Ficus heterophylla* (Family: Moraceae) and *Syzygium cumini* (Family: Myrtaceae) and cow's ghee is packed on trauma to speed up the healing of fractured bones.
 25. Stem bark of *Artocarpus incisus* (Family: Moraceae) are cut into small pieces cooked with coconut milk and ground well. This is used to reduce acute bruises, especially in thigh muscles.
 26. Leaves of *A. pavonia*, tender leaves of *Azadirachta indica* (Family: Meliaceae), entire plant of *Eleusine indica* (Family: Poaceae) and *Drymoglossum heterophyllum* (Family: Polypodiaceae), handful of scraped coconut and fresh rhizome of *C. domestica* are pounded and cooked with coconut milk. This is packed over injured area to reduce acute and chronic contusions.
 27. Entire plant of *Boerhavia diffusa* (Family: Nyctaginaceae) is pounded, water is added juice is extracted by squeezing. Flour of *Eleusine coracana* (Family: Poaceae) is mixed with aforesaid juice and heated while stirring, till it turns to a thick paste. This paste is applied over contused area. This preparation is especially beneficial for contusions on the face, cheeks, around eyes and chest.
 28. Entire creeper of *Cardiospermum halicacabum* (Family: Sapindaceae) is cut into small pieces juices is extracted by squeezing. Flour of powdered seeds of *E. coracana* is added to aforesaid juice. The mixture is heated while stirring till it turns to thick paste. This is good for bruises around the eyes, chest and face.
- Beheth Roti :**
- Beheth Roti: a dough-like mixture is prepared with ground medicine and applied on injured area.
1. Crown of coconut branch is cut into small pieces, pounded and juice is extracted by squeezing. Tender leaves of *V. pinnata* are ground with aforesaid juice till it turns to fine paste, and dough is prepared with ground medicine and kept over the injured area. This helps healing of hairline fractures, incompletely and completely fractured bones.
 2. Juice is extracted from stem bark of *Litsea glutinosa* (Family: Lauraceae) and mixed with flour of powdered seeds of *E. coracana* is heated and a dough is prepared. This dough is packed on injured area to reduce the swelling of the bruise,

promote healing of hairline fractures and incomplete fractures of bones; especially on ribs.

3. Leaves of *Abrus precatorius* (Family: Fabaceae), tender leaves of *Musa paradisiacal* (Family: Musaceae), juice secreted when inflorescence of *M. paradisiacal* cut and mixed together with coconut milk. This mixture is applied over injured area. This helps to speedup the healing of hairline fractures, incomplete and complete fractures.
4. Jaggery of *Caryota urens* (Family: Arecaceae) are mixed with flour of *E. coracana*, heated on an earthen pot while stirring. Dough is prepared with this and placed over injured area. This is effective in contusions and dislocation at Lumbar Sacral vertebrae. This dough is placed on Lumbar Sacral vertebrae. A splint prepared using a thin greenstick frame is applied over cloth padding and bandaged.
5. Entire plant of *Cissus quadrangularis* (Family: Vitaceae) is cut into small pieces, cooked with cows milk and ground well to prepare a dough. This is placed on injured / traumatised area to loosen the hardened joints.
6. Scrape the stem of *Grewia paniculata* (Family: Tiliaceae) and skin the stem bark. Then boil the stem bark with coconut milk, grind well as to make a dough and pack on injured area to loosen the stiffened joints.
7. Seeds of *Vigna mungo* (Family: Fabaceae) boiled well with coconut milk and ground to make a dough, placed on injured area will loosen the hardened joints.

Oil :

1. Kernel of seeds of *Callophyllum inophyllum* (Family: Clusiaceae) are cut into very thin slices and withered. A bolus is prepared by wrapping these slices with a piece of cloth and then, steamed well. Then oil is extracted by squeezing the steamed slices of kernel. This oil is applied to loosen the hardened joints occurring after fracture.

Cream :

1. Juice is extracted from stem bark of *F. racemosa*. This juice is heated on earthen pot till it turns to a cream. This is applied on bruises to reduce swelling.
2. Leaves of *Isachne globosa* (Family: Poaceae) and scraped coconut are pounded together. A little water is added to it and juice is extracted by

squeezing. This juice is heated in an earthen pot till it turns to a thick cream. This is applied to reduce swelling after an injury.

3. Creepers of *Tinospora cordifolia* (Family: Menispermaceae) are pounded and juice is extracted by squeezing. This is heated on an earthen pot till it become creamy. This cream reduces contusions; especially in small children.

Paste :

1. Pith of *M. paradisiacal* and fresh rhizome of *C. domestica* are boiled together with ghee, ground into a fine paste and packed over acute contusions to reduce swelling.
2. Dill seeds and cloves of garlic are ground together with white and the yolk of a hen's egg till it becomes a fine paste and applied on contusions to reduce swelling.
3. Dill seeds, cloves of garlic are boiled with water and ground to a fine paste. This is applied on bruises; especially on face and chest.
4. Leaves of *Murraya koenigii* (Family: Rutaceae) are ground with lime juice to make a paste. This helps to cure muscles sprain, bruises and cracks in bones; especially in children
5. A paste prepared by mixing 180ml of coconut arrack with 30g of powdered *C. domestica* is applied on injured area to reduce bruises. This is a very useful and effective home remedy.
6. A paste prepared by grinding *Chimney soot, kernel of seeds* of *R. communis*, flour of *Eleusine coracana* (Family: Poaceae) with ghee or juice of fruits of *Citrus aurantium* (Family: Rutaceae) is applied on acute contusions.
7. Stem bark of *Bridelia retusa* (Family: Euphorbiceae) and *M. longifolia* are pounded and juice is extracted. Flour of *E. coracana* is added to this juice and cooked while stirring. This paste is applied to reduce muscle sprains and to heal contusions.
8. Stem bark of *F. benghalensis*, entire plant of *E. indica*, tender leaves of *M. longifolia*, root of *Amaranthus viridis* (Family: Amaranthaceae) are pounded till it becomes a paste and is applied on a banana leaf. Cow's ghee is applied on injured and then the banana leave with medicine are placed on injured area to reduce hardened chronic contusion.

9. Stem bark of *Caordia dichotoma* (Family: Boraginaceae), common salt and fresh rhizome of *C. domestica* are mixed together and pounded. The mixture is wrapped with a piece of banana leaf and cooked by keeping in a hearth under heated charcoal. Then, this is ground well in to a fine paste and is applied on injured area to speedup the healing of hairline fractures of bones, incomplete and complete fractures.

Sediment :

1. Skin of the upper layers of stem bark of *C. fistula* is taken, pounded and juice is extracted. This juice is kept overnight to settle and sediment is collected. Sediment is heated and applied on sprains and contusions to speed up recovery.

Thick Liquids :

1. The white and yellow portions of hen's egg are taken and mixed with coconut milk. This is applied on bruises to reduce pain, especially on neck and chest.
2. Coconut arrack, white and yellow portions of hen's egg and sesame oil is mixed together and applied on contusions; especially on chest.
3. Stem of *V. pinnata*, seeds and bark of *Ziziphus lucida* (Family: Rhamnaceae), barks of *Caesalpinia bonduc* (Family: Fabaceae), *M. indica* and *B. retusea* are cut into small pieces and juice is extracted by squeezing. Juice is heated in an earthen pot to until it becomes a thick liquid and is applied over the injured area. It helps to speed up the healing of fractured and cracked bones; especially effective on scapula and hip.

Beheth Peni :

Beheth Peni is prepared by mixing the juice of herbs, treacle of *C. urens* or coconut and the mixture heated while stirring, till it turns to a thick liquid.

1. Stem bark of *M. indica*, *Artocarpus heterophyllus* (Family: Moraceae) and *B. retusa* are pounded, boiling water is added, and juice is extracted by squeezing. 15 gm each of kernel of seeds of *R. communis*, Chimney shoot, Powder of horns of Deer and mud collected from Mud-wasp's nest are ground together, added to this and mixed well, then heated while stirring. Add 60 ml each of treacle of coconut and *C. urens* to this and boil till turns in to a thick syrup. Allow it to cool and add Bee's honey. This is used to

promote the healing of cracked and fractured bones.

Thel Kiri :

The Thel Kiri is prepared by mixing juices of herbs, other ingredients and coconut milk and then kept in the sunlight till it turns to a thick liquid.

1. The 250 gm each of *Limonia acidissima* (Family: Rutaceae), leaves of *G. exathochymus* and *D. heterocarpon* are pounded together and mixed with scraped flesh of four coconuts. 500 ml of boiling water is added to this-mixture and juice is extracted by squeezing and put into a used earthen pot. Five gm each of powders of Asafoetida, seeds of *Carum bulbocastamum* (Family: Umbelliferae) and *Cuminum cyminum* (Family: Umbelliferae) are added to the said juice. The whole mixture is kept in the sun for about three to four days. A crust will form over the residue at the bottom of the pot. When this crust is broken, a milky liquid will come out. This milk is collected using a beetle leave. This is beneficial in muscle sprains and also when pain persists after the healing of a facture.

DISCUSSION

Sri Lankan traditional physicians use specific items like bandages prepared from bark of *Allophylus cobbe* and splints prepared from Bamboo and bracts of coconut which are quite specific to them. They have a wide variety of medicines to reduce bruises, sprains, to loosen the hardened and stiffened joints, to hasten the recovery of cracked bones, incomplete and complete fractures and to reduce the pain that may persist after fractures are cured. They use different methods of preparing of medicine and use different techniques to set the dislocations.

Unfortunately, but understandably, many highly renowned traditional physicians belonging to very ancient and respected traditional-medical families are reluctant to disclose their most effective medicines which are closely guarded family secrets.

CONCLUSION

It is concluded that the standard and the proficiency of Sri Lankan traditional orthopaedic physicians is very high and comprehensive. They make use of a wide variety of drugs made from herbs and other natural ingredients in carrying out comprehensive methods of orthopaedic treatment that covers immediate trauma management, successful healing as

well as speedy post-healing recovery treatment methods where normally, a patient may otherwise will have to undergo a long, difficult and expensive physiotherapy rehabilitation programme in order to regain the mobility of injured / stiffened joints or limbs.

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We are grateful to the Sri Lankan Traditional Orthopaedic Medical Practitioners hailing from various provinces for their generous and dedicated contribution

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हिन्दी सारांश

श्रीलंका में अस्थिगत व्याधियों की पारंपरिक चिकित्सा

इ.आर.एच.एस.एस. एडिरिवीरा एवं डी. डी. ग्रेरु

श्रीलंका में पारंपरिक चिकित्सक अस्थिगत व्याधियों की सफल चिकित्सा करते हैं। प्रस्तुत सर्वेक्षण में श्रीलंका द्वीप में की जानेवाली चिकित्सा की सूचना संग्रहित की गयी है। वनस्पतियों के विभिन्न भाग जैसे काण्ड, मूल, पुष्प, पंचांग आदि औषधि निर्माण में उपयोग में लाये जाते हैं। इनका प्रयोग भ्रम, संधिस्तब्धता एवं संधि विस्खलन की चिकित्सा में किया जाता है। प्रस्तुत अध्ययन में श्रीलंका में विकसित इस चिकित्सा प्रणाली का विस्तृत वर्णन किया गया है।

