



Review Article

AYURVEDIC METHOD OF *ULVA* (VERNIX CASEOSA) *VISHODHANAM* (MALAXATION AND CLEANING) –A CRITICAL APPRAISAL

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ABSTRACT

“*Kaumarbhritya*” is one among the specialty of Ashtanga Ayurveda which deals with comprehensive care of mother and child. It takes care of different phases of women’s reproductive life and the child’s life right from conception to 16 years of age. *Navajatashishuparicharya* is the series of steps taken for wellbeing of a newborn which includes *Prana pratyagamana* (neonatal resuscitation), *Ulvaparimarjana* (cleaning of the vernix caseosa), *Mukhavishodhana* (cleaning of oral cavity), *Pichudhrana* (Application of tampon on head), *Garbhodakavamana* (clearing of neonate’s stomach), *Nabhinalachedana* (cutting of umbilical cord), *Jata karma* (birth rites), *Lehana karma* (licking of ghee, herbs, honey etc) *Abhyanga* (massage with oil), *Snana* (neonatal bath) and *Raksha karma* (protection of baby). Among above, *Ulvaparimarjana* is the initial step after the life is stabilized. There is a chance that new-borns lose body temperature because they are born naked and wet and are likely to develop hypothermia and its consequences particularly in winter. Taking care of a newborn is challenging especially in the first hour of life. Warm delivery room, immediate drying, appropriate clothing etc are helpful in preventing hypothermia. But malaxation and cleaning of vernix caseosa with *Saindhava sarpi* mixture (SS mixture) effectively helps in maintaining the thermos neutral environment of the baby. Uniqueness of this procedure, methodological and practical application, classical benefits with support of available evidences are essential to be reviewed in contemporary times to appraise their utility in current times and to revive the ancient practices.

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INTRODUCTION

As per *Ayurveda* ‘*Ulvavishodhanam* or *Ulvaparimarjana*’ is one of the important steps in *Navajatashishuparicharya* where *ulva* means vernix; *Vishodhanam* means malaxation (The act of softening by mixing with a thinner substance)and cleaning. In routine obstetric practice at most of the private and institutional hospitals; to remove the blood stains, amniotic fluid and meconium stains of a newborn skin, labour room nursing staff wipe the vernix completely with normal saline or with sterile water swabs. But World Health Organization (WHO) recommends leaving vernix intact on the skin surface after birth¹ due to its benefits such as barrier to water loss, temperature regulation, and innate immunity². There is a chance that new-borns lose body temperature because they are born naked and wet and are likely to develop hypothermia and its consequences particularly in winter. In such scenario, intact vernix is needed to establish a satisfactory adaptation from fetal to neonatal physiology. Here is a way of adapting a low cost, newborn friendly bio-intervention of *Ayurvedic* method of cleaning of vernix caseosa so as to preserve the skin integrity of the neonate, promote & protect

optimal skin function and minimize transepidermal water loss.

***Ulva parimarjana* (malaxation and cleaning of the vernix caseosa)**

The word ‘*Ulva*’ is a sanskrit word meaning covering, envelope, especially the membranes surrounding the foetus.³ The term ‘vernix caseosa’ first appeared in 1846 in the Dunglison dictionary of medical sciences.⁴ Vernix meaning varnish; caseosa meaning cheesy- It is a white creamy naturally occurring biofilm covering the skin of the fetus. This protective substance is secreted by baby’s sebaceous glands i.e., sloughed off skin cells. Vernix serves to conserve heat and protect the delicate new-born skin from environmental stress. It is also thought to have an antibacterial effect. Despite its water content (82%), vernix is nonpolar. These features point towards the “waterproofing” function of vernix, thereby preventing heat loss soon after birth⁵.

Acharya Sushruta opines that ‘*Ulva*’ of a baby should be cleaned immediately after birth by the mixture of *Saindhavalavana* (rock salt) and *Sarpi* (Cow’s ghee)⁶.

// *Jatamatramvishodhyoulbadbaalamsaindavasarpisha /
/Prasutikleshitamchaanubalatailenasechayet // (A.H.
Uttara tantra 1:1)*

Vagbhata holds similar view and describes that cleaning of *Ulva* from baby's mouth and body should be performed immediately after birth using rock salt and ghee mixture and further to massage the baby with *Bala* oil which provide relief from birth stress⁷.

Malaxation with the mixture of *Saindavalavana* (rock salt) and *Sarpi* (cow's ghee) i.e., *Saindavasarp* mixture (SSM) on baby's body for removal of vernix gives sufficient tactile stimulus to resuscitate a baby in primary asphyxia. Ghee also serves as an insulating agent and prevents hypothermia. Clearing the oral cavity of any vernix residues prevents its aspiration into the respiratory passage when baby gasps for breath⁸.

Materials required for SS mixture:

1. Cow's ghee/Clarified butter – 20ml
2. Rock salt – 3gms fine powder
3. Bowl -1
4. Gauge piece
5. White colored soft, smooth, clean & prewarmed towels – 2 (medium size)



Fig no 1: SS mixture

Preparation of the Ayurvedic pediatrician/technician

- Hands should be clean, dry, warm and soft.
- Nails should be cut off
- Wear the hand gloves

Preparation of the room

- The room and cushion based baby tray should be clean, dry, sterile with room temperature maintained.
- Room should not be too dark or too lighted.
- Fans should be switched off.
- Comfortably warm and free from draught.

Procedure

- It is an inexpensive method and should be performed on a dry, clean and warm place.
- The new born should be received in a warm cushion based tray or else the baby will lose heat through conduction method.
- New-born is placed in supine or on one side position with head slightly low position.

- In the bowl take prewarmed liquefied cow's ghee (20ml) and *Saindavalavana* i.e., rock salt (3gms); mix well. It becomes a fine emollient.
- With the help of sterile gauze piece apply this emollient uniformly on the new-born skin from neck to down. Apply carefully in the folding's of skin, axilla and groin regions. It is extremely safe to use and can be applied near the eyes and genital parts.
- Malaxate gently with SS mixture back and forth motion to remove the blood stains, amniotic fluid, meconium stains and this also helps in softening the adhesive property of vernix caseosa. It allows loosening the grip and getting the residue cleaned off with maintaining the moisture.
- Care to be taken in and around umbilical stump.
- This procedure should not be taken more than 2 minutes.
- During the procedure observe color, respiratory rate, heart rate and muscle tone. Wipe the mouth followed by nose with gauze piece.

After *Ulva Parimarjana* perform *Abhyanga* of whole body⁹ (with warm *Bala Taila* in winter season and *Lakshadi keratailam* in summer season) and *Shiro Pichu* (cotton or gauze dipped in Ghee kept on anterior fontanel) before baby is shifted to mother for skin to skin contact to further prevent hypothermia and to promote breast feeding.

Indication

After effective drying of the new-born who breathe spontaneously, *Ulva Vishodhanam* should be performed with a skilled person.

Benefits

Benefits of malaxation and cleaning with SS mixture are discussed below with respect to how this mixture restores removal of vernix. *Ayurveda* considers ghee as *Mangalya* (auspicious), *Pavitra* (holy) and *Sugandha* (pleasing odour)¹⁰. Rock salt contains 85% of NaCl and 15% of trace minerals (84 elements).

1. Antioxidant property

- Vernix is said to have antioxidant properties due to the presence of vitamin-E and melanin in it.¹¹⁻¹⁴
- Clarified butter contains triglycerides, diglycerides, monoglycerides, phospholipids, contains beta carotene 600 IU and Vitamin E which are known anti-oxidants.¹⁵
- Newborns have reduced antioxidant defense processes including decreased levels of vitamin E, β -carotene, melatonin, ceruloplasmin and transferrin which results in high oxidative stress¹⁶, the antioxidant properties of this SS mixture may help in coping with the pro-oxidant environment.

2. Moisturizing properties

- Vernix acts as an agent to moisturize the stratum corneum because of its high-water content. It contains filament aggregating protein, which when broken down forms water-binding molecules

referred to as Natural Moisturizing Factor (NMF), which operates to maintain suppleness and plasticity of stratum corneum.¹⁷

- Ghee prepared by traditional *Ayurvedic* methods contains higher amount of DHA; Omega-3 long-chain polyunsaturated fatty acids.¹⁸ Thus SS mixture because of its *Snigdha* (greasy), *guru* (heavy), *Picchila* (slimy) and *Sukshma* (penetrating) *Guna* acts as epidermal barrier and natural moisturizer for stratum corneum and prevents dryness and chaffing of skin.

3. Skin cleansing properties

- Vernix had shown better efficacy when compared to standard commercial skin cleansers in experiments performed using human skin soiled with carbon particles.¹⁹
- The SS mixture besides its cleansing property it can provide physiologically relevant lipids to the skin surface with additional miniaturization and maintain skin surface integrity. With *Sukshma*, *Drava* & *Kaphavilayana* property it penetrates quickly into stratum corneum and cleanses effectively.

4. Anti-infective property

- Vernix, like the epidermis, contains antimicrobial peptides and has a direct role in defense against bacteria.²⁰⁻²²
- SS mixture acts as anti- microbial. Cow's ghee has *Rakshoghna* property.¹⁰

5. Wound healing properties

- Vernix has shown to increase skin metabolism *in-vitro* by increasing glucose consumption and lactate production.²³ The regulation of transepidermal water gradient is known to be important in the epidermal barrier formation and regeneration following wounding.²⁴⁻²⁵
- Ghee has been reported to exert significant wound healing activity.²⁶ SS mixture has the properties like waterproofing, barrier function, hydration, anti-infective, and antioxidant properties. Because of its *Ropanaguna* (healing property) and *Vranahara* property; effective in wound healing, skin tears and birth trauma.

6. Reduces stress and enhance immunological functions:

- Cow's ghee is *Kaphakara* (increases *Kapha*) and *Ojovardaka* (increases *Ojas*) which helps to decrease *Vatadosha*; thus reduces stress and enhances immunological functions.

7. Prevents hypothermia and insensible water loss

- A new born's body surface is about three times greater than an adult's, compared to the weight of his/her body. This high surface area to body ratio results in loss of heat via skin surface. Infants have incompetent stratum corneum and high transepidermal water loss; they loss heat through method of evaporation, conduction, convection and radiation.

- Vernix acts as protective bio film and thermoregulation. This SS mixture being an insulator, prevents transepidermal water loss and prevents hypothermia.

8. Provides stimulation and increases peripheral circulation:

A baby's strongest sense at birth is sense of touch. When the skin is gently aroused through malaxation many tactile receptors are stimulated. These impulses stimulate tactile receptors that encode touch information before sending it to the central nervous system and the brain stem. Through the brain stem, tactile information is widely distributed throughout the brain. It is normal to have poor peripheral circulation in the 1st hour of life of newborn. Gentle malaxation with SS mixture all over the body will increases the rate of blood flow to the periphery.

9. Aid in examination of newborn

During malaxation and cleaning the vernix from the body surface of the newborn; examine the baby closely for APGAR score, assessment of gestational age, any birth complications or congenital anomalies.

CONCLUSION

Vernix is a white, creamy naturally occurring biofilm protective covering of the skin of newborn which serves to possess multiple overlapping maturational functions; to establish a satisfactory adaptation from fetal to neonatal physiology. Traditional method of wiping of skin of a newborn (*Ulva vishodhanam*) with *Saindava sarpi* mixture (SS mixture) was considered as an effective method for restoration of functions of vernix caseosa. As the years passed the practice and the procedure has lost its originality. SS mixture has anti healing property, skin cleansing property, moisturising property, antioxidant property & wound healing property.

Preparation of *Saindhavasarp* (SS) mixture is elaborated with respect to its practical utility so as to build confidence among the Ayurveda fraternity, to revive its usage in current times. Classical and contemporary evidences documented by Ayurveda masters and also reported by various scholars provide collateral evidence in support of individual constituents of SS mixture substantiates science and art behind advocacy of *Ulva vishodhanam*.

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