



Umbilical Cord Care by Topical Application of Kushta Tail

Sethi B*, Wadhwa P and Upreti D

Department of Kaumarbhritya, Patnjali Ayurvedic Hospital Haridwar, Uttarakhand, India

*Corresponding author: Bharat Sethi, Department of Kaumarbhritya, Patnjali Ayurvedic College, Phase 1, UAU Haridwar, Uttarakhand, India, Tel: 9719742121; Email: diksha.hrd18@gmail.com

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Abstract

Newborn health & survival depends on the care given to the newborn, although care is a very essential element in reducing child mortality, it often receives less than the optimum attention. The World Health Organization (WHO) estimates that ~ 4 million children die during the neonatal period each year, with most deaths occurring in developing countries. About 25% of global neonatal death / year occur in India alone & amongst them bacterial infections count for about 36%, of which umbilical cord infections are an important precursor. Application of topical antimicrobials having ample of side effects like local irritation, allergic & contact dermatitis and local tissue destruction. Topical medications being one amongst the routes of drug administration have also been appreciated in our ayurvedic classics also. The importance and necessity of *nabhinalparicharaya* are very clearly understood by Acharyas and are vividly stated in the samhitas.

The present study was undertaken to evaluate the role of our classical method to cut the cord at 4 *angul* (7.5cm) and medication *kustha taila* local application in protecting umbilical sepsis in healthy new born. This study provide nil discharges, no swelling & redness and minimal microbial growth percentage from the sample of umbilical stump culture, till the day 15 of new born.

Keywords: New Born; Umbilical Sepsis; Cord Cut & Care; Ayurveda; *Kustha Taila*

Introduction

The World Health Organization (WHO) estimates that ~ 4 million children die during the neonatal period each year, with most deaths occurring in developing countries [1,2]. Infections are the single most important cause of neonatal mortality. About 25% of global neonatal death / year occur in India alone & amongst them bacterial infections count for about 36% [3], of which umbilical cord infections are an important precursor. Data available also reveals that omphalitis is a major culprit contributing to neonatal sepsis which results from improper care of umbilical cord in various developing & under developed countries [4].

There is evidence that cord infections are common in developing countries. One hospital study found that, in

47% of infants hospitalized with sepsis, cord infection was the source of the illness, and that 21% of infants admitted for other reasons had omphalitis [5]. A prospective study in urban slums found an incidence for umbilical sepsis of 30/1000 [6]. In one study, 72% of the cord infections in babies born in hospital were due to gram-negative organisms (mostly *Klebsiella* and *Escherichia coli*), whereas gram-positive infections were slightly more common in babies born at home. *Staphylococcus aureus* was the single most commonly isolated bacterium both at home and in the hospital [5]. The greatest period of risk for umbilical stump contamination with bacteria including *Clostridium tetani*, is the first three days of life. Risk decreases with time as the umbilical wound heals and the stump separates [7]. The risk of cord infection increases with unhygienic cutting of the cord and the application of unclean substances to the stump.

Infection may remain localized or may spread inwardly. Infection delays or prevents obliteration of umbilical vessels, and organisms may have direct access to the newborn's bloodstream. Infection may also spread by direct extension into the peritoneal cavity, causing peritonitis [8]. Omphalitis is thus a serious infection that needs aggressive treatment. According to available studies, chlorhexidine, tincture of iodine, povidone iodine, silver sulfadiazine and triple dye appear to be of most value in controlling umbilical colonization in hospital nurseries [9,10]. But few of them are having ample of side effects like local irritation, allergic

& contact dermatitis and local tissue destruction [11]. WHO has advised methods of aseptic cord care & dry cord care has been recommended as the standard cord care regimen [11].

Various measures of umbilical cord care have been described in Ayurveda classics under *navajata shishu paricharya* by *bruhatrayi*. These regimens include length of cord to be kept, cutting of cord, topical application to be applied in the form of medicated oil, measures for prevention of cord soiling etc.

Parameter	Charaka [12]	Sushruta [13]	Vagbhata [14]
Distance of cord clamp	Eight Angul	Eight Angul	Four Angul
Instruments	Half edged made up Of gold, silver etc	-	-
Cord care	Tied around the neck	Tied around the neck	Tied around the neck
Drugs for cord care	Lodhra, Yesthimadhu, Priyangu, Deodar, Haridra siddha Taila or churna. (in nabhipaka)	-	Kustha Taila

Table 1: The procedure of Nabhinalpancharaya is described by various acharyas but slightly different by each other.

In present study, "Kustha Taila" was selected. This formulatio has been mentioned in 'Ashtanga hridaya'. नभचि कुष्ठतैलेन सेचयेद [15]. *Kustha Taila* contains *kusth* (*Saussurea lappa*) kwath & kalk and murchit til tail. the essential oils of *kustha* roots have strong antiseptic & disinfectant properties specially against streptococcus & staphylococcus. It has marked carminative properties.

Materials and Methods

Aim & Objective

To assess the efficacy of topical application of *kushta taila* in routine cord care.

- **Study Design:** An open label study
- **Selection of Subjects:** Total 14 subjects were recruited, delivered at Ayurveda Hospital.
- **Inclusion Criteria:** All clinically stable live born neonates of either sex.
- **Exclusion Criteria:** Any umbilical cord malformations (e.g., Exomphalos) Conditions necessitating umbilical cord catheterization. Any kind of life-threatening congenital anomalies. All neonates requiring Intensive treatment of any kind.

SOP of Procedure

Informed consent was taken prior to enrollment from parents. Cord was clamped at 4Aangul (around 7.5cm) with silk thread & cut with cord cutting scissor made of steel.

Intervention: *Kustha tail* was applied to the cut end &

surface of cord using a sterile gauze after cutting the cord & thereafter thrice daily, till the cord separates. Culture was taken on day 3rd of life. Newborns were examined & assessed at birth, 3 day, at discharge, day 15 & day 45 of life for both systemic & local signs. Neonates were discharged on day 7th of life.

Assessment Criteria

Systemic Assessment: Systemic features assessed on each follow up in newborns were temperature, feeding pattern, bowel habits, urination, activity & skin colour.

Local Assessment: Newborns were assessed in view of local signs & symptoms of omphalitis, Time of cord fall, Discharge, Redness, Swelling, Granulation, Smell. The grade (0,1,2&3) assigned to each symptom.

Laboratory Investigations: Swab culture was taken from umbilical stump in every subject on third day of life by using a sterile swab stick.

Observations & Result

In present study total 14 subjects (n=14) 09male, 04 Female were recruited and all of them successfully completed the protocol. The mean weight of newborn was 2922.14gm, the mode of delivery was NVD-06, LSCS-08. In the present study, mean days of separation of cord has been significantly less in subjects delivered through NVD, when compared to those delivered through C- section.

- the symptom Discharge was found in only 5 neonates, mean was 1 on birth which reduced to 0.2 to 0 respectively with significant results.

- Redness only 5 neonates had symptom which clinically reduced on 3rd day only,
- none of the newborns were found with swelling as a symptom.
- Smell only 9 had symptom, significant reduction was there on day 3 from 0.89 to 0.11 & total disappearance on discharge itself.
- Colonization - Amongst cultures taken from umbilical stump on 3rd day of life, colonies were present in 64.28% of samples. Colonization was seen with a variety of organisms The percentage of microbe was S. Aureus 28.57%, streptococcus 14.28%, Bacilli, Clostridium, Neisseria, was 0 % mixed microbes 21.43% , no growth 35.71%.

Discussion

The drug kushtha tail is considered to be effective in pacifying and alleviation of *Kapha* and *Vatadosha*, and also cure disease arising out of vitiated blood (Rakta) [16]. The essential oils of *kushtha* roots has strong antiseptic & disinfectant properties specially against *streptococcus* & *staphylococcus*, which are the most common microbes found in the study from the stump [17]. Thus based on above said parameters, the selection of classical drug, *Kushtha taila* as a cord care intervention can be rightly justified.

Conclusion

Kushtha taila application helps in early cord fall, also it leads to accelerated reduction of signs of local inflammation along with reduction in percentage of colonization patterns when compared to dry care group. *Kushtha taila* can be adopted as a preventive measure in routine cord care practice.

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