

Clinical Review on Infantile Colic

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ABSTRACT : Infantile colic is one, which exhibits a symptom complex of paroxysmal abdominal pain presumably of intestinal origin associated with severe crying. It usually occurs in infants younger than 3 months of age. The important reason of this symptom is aerophagia. Infantile colic is defined according to Wessel's criteria, but symptoms are restricted to crying for more than three hours a day, for more than three days a week, for more than three weeks. *Ayurvedic* classics describes the features of *Udarashoola* (colic) as the child rejects the breast, cries, sleeps in supine position, has stiffness of abdomen, feeling of cold and perspiration on face.

Key words : Infantile colic, *Udarashoola*, Wessel's criteria.

INTRODUCTION

Infantile colic is one of the most common problems encountered by primary care physicians and childcare providers. Prevalence rates in prospective studies varied from 3% to 28% and in retrospective studies from 8% to 40%. The two best prospective studies yielded prevalence rates of 5% and 19%, respectively.¹ Ancient text described the features of *Udarashoola* (colic) as the child rejects the breast, cries, sleeps in supine position, has stiffness of abdomen, (feeling) of cold and perspiration of face.² Whereas other texts described, the significant factor responsible for the genesis of *Shoola* as *Vata (vayu)*,³ detailed etiopathogenesis about 8 types of *Shoola*,⁴ and the clue for the management of *Udarashoola*.⁵ Infantile colic can be defined as per Wessel's criteria i.e. crying for more than three hours a day, for more than three days a week, and for more than three weeks.⁶ Seasonal variations have not been implicated in the pervasiveness of infantile colic.⁷ Some physicians believe that excessive amount of intestinal gas causes abdominal distention and intestinal spasm, often leading to infantile colic.⁸ The cause of this diurnal rhythm is not known. The amount of crying is not related to an infant's sex; the mother's parity; or the parents' socioeconomic status, education but colicky crying differs from regular crying.

General Etiological factors of Infantile colic :

Etiological factors mentioned in the Ayurvedic literatures for *Udarashoola* are mostly described for aged individuals. However *Kashyapa samhita's* descriptions on *Udarashoola* features are mere identical with infantile colic. The causative factors &

pathophysiology of *Shoola* are described as follows. A voluntary retention of Flatus, Stool, Urine, over eating, indigestion, eating before the digestion of previous food, over exertion, foods which are incompatible in their combination, drinking water when hungry, use of germinated grains, dry food or cakes of dry meat as well as use of other such foods which aggravates the *Vata Dosha*, are the causative factor of *Shoola*.⁹ As infantile colic is concerned aerophagia, improper feeding posture of mother, evening time fast feeding from breast, and if mother takes incompatible foods etc. are the reason for *Vata* vitiation and causes colic.

General Pathophysiology of Infantile colic :

The *Vayu* present in the body gets aggravated because of these etiological factor & produces a violent cutting & spasmodic pain in the abdominal cavity (*Koshtha*). The patient complaints of pain as if he is being pierced with a spear (*Shanku*) inside and of a feeling of suffocation under the influence of that excruciating pain, which have determined the nomenclature of *Shoola*.¹⁰

General Features of Infantile colic :

In children, features of *Udarashoola* is mentioned as *Kosthavibandha* (constipation), *Chhardi* (vomiting), *Stanadamsha* (biting of the breast), *Antrakujana* (gurgling sound in the abdomen), *Adhmana* (flatulence), *Pristanamana* (bending back), and *Jathara unnamana* (elevation of the abdomen).¹¹

Whereas colic in children is explained as *Stana Vyudasyate* (rejects breast), *Ruti* (cries), *Uttana schava bajyate* (sleeps in supine position), *Udarasthabdhata* (stiffness of the abdomen), *Shaityam* (coldness), *Mukhasweda* (perspiration of the face).²

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Different study reports on Infantile colic :

(a) Review on Clinical Studies :

A population based follow up study of 2035 healthy infants without any disability born to Danish mothers. Information was collected by self administered questionnaires at 16 and 30 weeks of gestation, at delivery, and 8 months post partum. The cumulated incidence of infantile colic was 10.9%. Low birth weight babies (<2500g) had more than twice the risk (odds ratio = 27, 95% confidence interval 1.2 to 6.1) of infantile colic when controlled for gestational age, maternal height, and smoking. The study discloses that Low birth weight may be associated with infantile colic, and further research will be aimed to focus on fetal growth and infantile colic.¹² *Lacono et al* put 70 cows' milk formula-fed infants with severe colic on a soy-milk formula. In 50 infants, there was a remission of symptoms when cows' milk protein was eliminated from their diet. Two successive challenges caused the return of symptoms in all these 50 infants. Follow-ups, after an average period of 18 months, showed that 22 of 50 (44%) of the infants who had cows' milk protein-related colic and one of 20 (5%) of those with non-cows' milk protein-related colic, developed an overt form of limitary intolerance.¹² *Lucassen et al.* randomly selected 43 healthy infants with colic to receive whey hydrolysate formula or standard cow's milk formula. They found a decrease in the duration of crying in those infants fed with whey hydrolysate formula.¹³ *Jakobsson et al.* studied the effectiveness of two formulas with extensively hydrolysed casein in 22 infants with severe colic. One infant was considered as treatment failure and six infants as protocol failures. The remaining 15 infants showed a significant decrease in the length of time they cried as well as a decrease in the intensity of their Crying on both formulas. When the infants were challenged in a double-blind design. The 11 infants reacted with an increase in crying time to cows' milk protein or bovine whey protein.¹⁴ *Hill et al* studied the effect of diet change in 38 bottle-fed and 77 breast-fed colicky infants in a double-blind, randomized, placebocontrolled trial. Bottle-fed infants were assigned to either case in hydrolysate or cows' milk formula. All mothers of breast-fed infants were started on an artificial colour-free, preservative-free, additive-free diet and were randomized to receive either an active low allergen (milk-free) diet or a control diet.¹⁵

(b) Review on Observational Studies :

Many observations have been reported by doctors who study colic are as follows.

- ◆ Colic is more common among the first born.¹⁶
- ◆ Colic is more common among breast fed infants. Mothers of colic infants are older, with higher level of education.¹⁷
- ◆ Colic infants have an increased amount of hormone motilin in their blood, which is known to stimulate gastrointestinal tract (motilin can cause cramping).¹⁸
- ◆ Colic infants have an increased amount of serotonin by-products in the urine, suggesting an increased production of serotonin (serotonin can produce cramping).¹⁹
- ◆ Colic infants have abnormal contractility of the gallbladder.²⁰
- ◆ Colic infants have increased intestinal permeability.²¹
- ◆ Mothers of colic infants experience more stress and anxiety.²²
- ◆ Mothers of colic infants are more likely to consume broccoli, cauliflower, cabbage, onions, chocolate and cow's milk.²³

Management :

Techniques to reduce crying :

For reducing crying episode soothing the child with a racifier, playing repetitive sounds like soothing music, or placing a warm heating pad on the infant's abdomen helps. Most babies respond to rhythmic rocking or pats on the back. Some likes to be placed on their front. Some babies settle with a car ride. A quiet environment with minimal unnecessary handling and correction of faulty feeding techniques are helpful. The changing of milk formula is usually not necessary.²⁴

Recent studies of the gastrointestinal system provide strong, but indirect, corroborating evidence by suggesting physiologic mechanisms by which maternal smoking can be linked with the offspring's colic. This evidence can be outlined as follows: 1) smoking is linked with increased levels of plasma and intestinal motilin, and 2) higher than average levels of motilin are linked with elevated risk of infantile colic. Although these findings from disparate fields provide a cohesive hypothesis for the physiologic mechanism linking maternal smoking with infantile colic, the entire chain of events has not yet been

examined among a single cohort, nor has the link between maternal smoking and infantile colic been replicated in a study that simultaneously considers all sources of prenatal and perinatal exposure to tobacco smoke.²⁵

Medical Care :

- i) Ruling out common causes of crying is the first step in treating an infant with persistent crying.
- ii) Recommend that the parents not exhaust themselves and encourage them to consider leaving their baby with other caretakers for short respites.
- iii) Drug treatment generally has no place in the management of colic, unless the history and investigations reveal gastro esophageal reflux.
- iv) Constant follow-up and a sympathetic physician are the cornerstones of management.
- v) Although GI factors do not seem to cause colic in most patients, clinicians continue to treat infants with colic based on this hypothesis.
- vi) Wessel and colleagues suggested an association between family and infantile tension. Some families with infants with colic may have more problems in their family structure, family functioning, and affective state, compared with families with infants without colic.²⁶
- vii) A maternal low-allergens diets (i.e., low in dair, soy, egg, peanut, wheat, shell fish) may offer relief from excessive crying in some infants. *Lactobacillus reuteri* endogenous to the human Gastro Intestinal tract was found to relieve colic symptoms in breastfed infants within one week of treatment. Probiotics may have a role in treatment of infantile colic.²⁷
- viii) In a polyherbal formulation containing oils of *Carum carvi*, *Carum copticum* and *Zingiber officinale*, all of which are recommended for the management of infantile abdominal colic is found to be effective as per the study.²⁸
- ix) Some psychodynamic factors may possibly play a role from the prenatal to the postnatal period. Some studies demonstrated that behavioral management was effective in reducing excessive crying. Dealing with family problems and extending help to mothers is an integral part of this management.²⁶

CONCLUSION

Varieties of etiological factors are observed as the expected reason for infantile colic. It is more common among the first born. Incidence of infantile colic is mostly

seen in the infants up to 3 months of age. The parents should be aware about the importance of feeding a hungry baby, changing wet diapers, and comforting a baby who is cold and crying as a result of these factors. Soothing music accompanied with parental attention (including eye contact, talking, touching, rocking, walking, and playing) may be effective in some infants and is never harmful. Proper attention towards the infant with the traditional practice i.e. *Abhyanga* (massage) twice daily with herbal medicated oils viz. Ashwagandhabala lakshadi taila, Bala taila and burping after each feed helps a lot to reduce the incidence.

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हिन्दी सारांश

शैशवारस्था में उदरशूल का विश्लेषणात्मक अध्ययन

दुर्गाप्रसाद दाश एवं सी. एम. जैन

शिशुओं में उत्पन्न उदरशूल व्याधि में बारंबार उदरशूल, रोदन, उदराध्मान, स्तनपान में अरुचि, स्वेद प्रवृत्ति इत्यादि लक्षण पाये जाते हैं। वेसेल्स मापदंडानुसार यदि शिशु प्रतिदिन तीन घंटे, प्रतिसप्ताह तीन दिन और इस प्रकार यदि वह तीन सप्ताह तक रोता है, तो उसे इन्फन्टाइल कोलिक माना जाता है। प्रस्तुत अध्ययन में इस व्याधि का चिकित्सकीय विश्लेषण किया गया है।

गुजरात आयुर्वेद युनिवर्सिटी