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Nursing experience of pediatric massage in managing feeding intolerance in a child with fetal growth restriction of spleen-kidney deficiency type

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Abstract

This article summarizes the nursing experience of using pediatric massage therapy to treat feeding intolerance in an infant with fetal growth restriction of the spleen and kidney deficiency type. Through syndrome differentiation and treatment, pediatric massage techniques were applied to meridians and acupoints to achieve the effects of strengthening the spleen, tonifying the kidney, harmonizing the stomach, and directing rebellious Qi downward. This approach aimed to alleviate vomiting, abdominal distension, and defecation difficulties, increase feeding volume, shorten the time to reach full enteral nutrition, and promote physical recovery.

Full Text

Preamble

Nursing Experience in Managing Feeding Intolerance in a Preterm Infant with Spleen-Kidney Deficiency Syndrome through Pediatric Tuina

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Abstract: This paper summarizes the nursing experience of treating feeding intolerance in a premature infant with Spleen-Kidney Deficiency syndrome using pediatric Tuina therapy. Based on the principles of pattern differentiation and treatment, pediatric Tuina techniques were applied to specific meridians and acupoints to strengthen the spleen, tonify the kidney, harmonize the stomach, and redirect rebellious Qi. This approach effectively alleviated vomiting,

abdominal distension, and defecation difficulties, leading to increased feeding volume, a shorter duration to achieve full enteral nutrition, and promoted overall recovery.

Keywords: Pediatric Tuina; Premature Infant; Feeding Intolerance; Abdominal Distension; Vomiting; Nursing

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Preterm infants, referred to as "fetal weakness" (*tai qie*) in Traditional Chinese Medicine (TCM), are neonates born at less than 37 weeks of gestation [**?**]. Due to the physiological immaturity of various systems, particularly the gastrointestinal tract—where motor development often lags behind digestive and absorptive functions—preterm infants are highly susceptible to feeding intolerance. This condition is characterized by digestive disturbances following enteral feeding, manifesting as vomiting, abdominal distension, and gastric retention [**?**]. International literature reports the incidence of feeding intolerance among preterm infants in the NICU to be between 16% and 29% [**?**], while domestic studies in China report higher rates of 33.80% to 53.45%, reaching as high as 63.2% in very-low-birth-weight infants. The occurrence of feeding intolerance prolongs the time required to reach full enteral nutrition and extends hospital stays. Furthermore, it increases the risk of malnutrition and infection, negatively impacts survival rates, and imposes significant psychological and financial burdens on families [**?**].

Managing feeding intolerance has become a major challenge in neonatal care. Current Western medical interventions include pharmacological treatments and adjustments to feeding methods or formulas. TCM posits that feeding intolerance is primarily related to the Spleen, Stomach, and Large and Small Intestines, with the Spleen playing the most critical role. Preterm infants possess delicate viscera and insufficient congenital endowment. Their postnatal "Spleen and Stomach weakness" leads to a failure of transport and transformation, resulting in poor appetite, distension, and vomiting [**?**]. TCM treatment for this condition focuses on external therapies. Pediatric Tuina, based on the physiological characteristic that the "Spleen is often insufficient" in children and the pathological mechanism of "Spleen deficiency and loss of transport," offers a safe, convenient, and effective method with minimal side effects. In our clinical practice, we have found pediatric Tuina to be highly effective in managing feeding intolerance in preterm infants. A typical case is presented below.

1. Case Presentation

1.1 General Information

The patient, a female infant, was born via cesarean section on August 29, 2024, at 31 weeks and 6 days of gestation. The amniotic fluid was clear at birth, and no resuscitation was required. Her Apgar scores were 10-10-10, and her birth weight was 1.4 kg. Due to tachypnea after birth, she was admitted to

the Neonatal Intensive Care Unit (NICU) at 16:35 on the same day with a preliminary diagnosis of "very low birth weight, prematurity, and suspected neonatal pneumonia."

1.2 Physical Examination

Upon admission, the infant' s vital signs were: temperature 36.5°C, heart rate 158 bpm, respiratory rate 66 breaths/min, blood pressure 68/44 mmHg, and SpO_2 86% (on room air). Specialized examination revealed a conscious infant with fair reactivity and a typical premature appearance (thin skin, abundant vernix and lanugo). No nasal flaring was observed, though mild inspiratory retractions were present. The anterior fontanelle was flat (2 cm × 2 cm), and pupillary light reflexes were sensitive. Lung auscultation revealed symmetrical breath sounds with audible moist rales. Heart sounds were strong and rhythmic without murmurs. The abdomen was slightly distended, the liver and spleen were not palpable, and bowel sounds were normal. Neonatal primitive reflexes were incomplete, and the extremities were slightly cool with a capillary refill time (CRT) of 2 seconds.

TCM Four Diagnostic Methods: 1. **Inspection:** Conscious but with low spirit; pale complexion, thin skin, and sparse muscle mass; presence of inspiratory retractions; pale red tongue with thin white coating; pale purple finger vein visible at the "Wind Gate." 2. **Listening/Smelling:** Low-pitched cry; no unusual odors. 3. **Inquiry:** No sweating; tachypnea since birth; cool extremities; feeding and defecation had not yet commenced. 4. **Palpation:** Slightly distended abdomen; incomplete neurological reflexes.

1.3 Diagnosis and Treatment

TCM Diagnosis: Fetal weakness (Spleen-Kidney Deficiency syndrome). **Western Medical Diagnosis:** Very low birth weight (1250–1499g); Neonatal Respiratory Distress Syndrome; Prematurity (28–32 weeks); Feeding intolerance; Atrial septal defect (ostium secundum type, 2.0mm).

Clinical Course: For respiratory support, the infant received mechanical ventilation and a single dose of pulmonary surfactant, eventually transitioning to nasal cannula oxygen. She was successfully weaned from oxygen by hospital day 11. For nutrition, PICC-based parenteral nutrition was initiated and continued until day 36. Enteral feeding began with early micro-tube feeding; however, due to recurrent vomiting, distension, and gastric retention, feeding was frequently suspended and restarted. By day 19, oral feeding was attempted (approx. 5ml, mixed feeding), but vomiting and distension persisted, hindering volume increases. On day 26, her abdominal circumference reached 38 cm with visible intestinal outlines and an inability to defecate spontaneously (requiring Glycerine Enemas). Following TCM differentiation, pediatric Tuina was implemented once daily for 7 days to warm the middle Jiao, strengthen the Spleen, promote Qi circulation, and tonify the Kidney. By day 36, parenteral nutrition was dis-

continued. The infant achieved spontaneous intake of 30ml every 2–3 hours without vomiting or distension, showed steady weight gain, and defecated 1–4 times daily.

2. Nursing Assessment and Intervention

2.1 Clinical Assessments

1. **Respiratory Distress:** Using the Downes score (0–10 scale), the infant scored 2, indicating mild distress.
2. **Pain Assessment:** Using the Neonatal Infant Pain Scale (NIPS, 0–7 scale), the infant scored 3.
3. **Sucking Ability:** Assessment showed interrupted sucking, uncoordinated swallowing, and milk leakage. Sucking duration was up to 20 minutes with 5–10 sucks per burst, scoring 3 points.
4. **Pressure Ulcer Risk:** Using the modified Glamorgan scale, the infant scored 17 (moderate risk) due to severe anemia ($Hb < 9$ g/dl) and low serum albumin (< 35 g/l).

2.2 Nursing Diagnoses and Goals

1. **Abdominal Distension:** Related to Spleen-Stomach weakness and failure of the middle Jiao to transport and transform. *Goal:* Maintain abdominal circumference within normal range and achieve spontaneous daily defecation.
2. **Vomiting:** Related to Spleen-Stomach Qi deficiency and rebellious Qi. *Goal:* Eliminate vomiting, improve sucking tolerance, and ensure steady weight gain.
3. **Potential Complications:** Asphyxia, nutritional imbalance, and nosocomial infection. *Goal:* No occurrence of these complications during hospitalization.

2.3 Nursing Plan

The plan included: Routine premature care to maintain vital signs; Pediatric Tuina to alleviate feeding intolerance symptoms and promote "catch-up" growth; Health education for parents regarding Tuina techniques (Spleen Meridian, *Banmen*, abdominal massage, etc.) and growth monitoring.

2.4 Implementation of Pediatric Tuina

2.4.1 Differentiation and Strategy: The infant presented with "Yin" and "Deficiency" patterns (insufficient congenital endowment, pale complexion, cool extremities) and "Cold" patterns (preference for warmth, abdominal distension relieved by pressure). The primary mechanism was the failure of the middle Jiao to transport and transform. The treatment principle was to warm the middle Jiao, strengthen the Spleen, and tonify the Kidney and Qi.

2.4.2 Tuina Protocol: - Initial Phase (Days 1–7): Tonifying Spleen Meridian (100 times), Tonifying Stomach Meridian (100 times), Clearing Large Intestine (100 times), Pushing down the *Seven Bone* (1 min), and Kneading *Tianshu* (1 min) to harmonize the stomach and resolve stagnation. Tonifying Lung Meridian (100 times) and kneading *Feishu* and *Pishu* (50 times each) were added to support the Lungs and Spleen [**?**, **?**]. - **Adjustment (Day 3):** As the infant tolerated the procedure well, kneading the spine, *Shenshu*, and *Zusanli* (1 min each) were added to tonify the "Root of Life" and nourish Qi and Blood [**?**, **?**].

2.4.3 Precautions: Tuina was performed one hour after feeding to avoid reflux. Techniques were gentle yet firm, performed at a frequency of 50–100 times per minute. The infant was kept warm under an infrared radiant warmer during the procedure.

2.5 Routine and Safety Nursing

Routine care involved maintaining a neutral thermal environment in the incubator and positioning the head of the bed at a 20° angle to prevent aspiration [**?**]. Non-nutritive sucking was used to improve sucking endurance [**?**]. Maternal nutrition was guided to ensure high-quality breast milk, which is the preferred choice for increasing feeding tolerance [**?**]. Safety measures included continuous ECG monitoring, strict hand hygiene, and Kangaroo Mother Care (KMC) to promote neurological development [**?**].

3. Discussion

The patient' s clinical presentation—thin physique, weak sucking, and cool extremities—aligns with the TCM patterns of Spleen and Kidney deficiency. In preterm infants, feeding intolerance is inextricably linked to the physiological "insufficiency of the Spleen." As the Spleen and Stomach are the "foundations of postnatal existence," tonifying the Spleen Meridian is essential for the transformation of water and grain into essence, which fuels growth and development [**?**].

Abdominal massage (*Mo Fu*) is a core Tuina technique that stimulates the gastrointestinal tract, accelerates local blood circulation, and reflexively excites the vagus nerve to promote the secretion of gastrointestinal hormones. By following the clockwise direction of the colon, it facilitates the passage of meconium and reduces distension [**?**]. Furthermore, kneading the *Zhongwan* point—the "Front-Mu" point of the Stomach—regulates gastric function and promotes gastrointestinal maturation [**?**].

In conclusion, the application of pediatric Tuina in preterm infants with feeding intolerance effectively improves symptoms of distension, vomiting, and poor appetite. It promotes growth, shortens hospital stays, and is suitable for clinical promotion. While this single case study shows promising results, further large-scale clinical trials are warranted.

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