

Ayurvedic Interventions in Enhanced Recovery After Caesarean Section (ERACS): Bridging Classical *Sutika Paricharya* with Modern Protocols

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Abstract:

Background: Caesarean section (CS) is one of the most frequently performed major surgeries worldwide. While life-saving and necessary in many obstetric scenarios, it is inherently associated with surgical trauma, delayed lactogenesis, postoperative pain, and prolonged recovery times. To mitigate these adverse effects and optimize postoperative outcomes, the modern medical community has widely adopted Enhanced Recovery After Surgery (ERAS) protocols, specifically tailored as Enhanced Recovery After Caesarean Section (ERACS). Parallel to this, classical Ayurveda details a highly systematized postpartum regimen known as *Sutika Paricharya*. This ancient protocol is meticulously designed to restore maternal physiological equilibrium, replenish depleted tissues (*Dhatu Kshaya*), and support psychological well-being following the physical stress of childbirth.

Objective: This article explores the synergistic potential of integrating classical Ayurvedic interventions with modern ERACS protocols to create a holistic, highly effective postoperative care pathway for CS patients.

Methods & Integration: The paper evaluates the core pillars of ERACS—such as early oral intake, multimodal opioid-sparing analgesia, early mobilization, and rapid catheter removal—through an Ayurvedic lens. It maps these modern milestones to classical Ayurvedic principles. For instance, the ERACS goal of early gut stimulation is harmonized with Ayurvedic therapies for *Agni Deepana* (restoring digestive fire) using medicated gruels and specific herbal infusions like *Panchakola*. Similarly, modern multimodal analgesia is supplemented with *Vata*-pacifying and anti-inflammatory botanicals like *Dashamoola*, reducing the reliance on synthetic painkillers. The article further outlines adapted protocols for *Vrana Ropana* (surgical wound healing) avoiding immediate abdominal massage but utilizing targeted peri-wound therapies, and highlights the use of specialized galactagogues to support *Stanya Janana* (lactation).

Conclusion: Bridging the acute surgical management principles of ERACS with the restorative, deeply nourishing regimens of *Sutika Paricharya* provides a comprehensive model for integrative obstetrics. This dual approach not only meets the immediate clinical goals of reducing hospital stay and preventing

postoperative complications but also addresses long-term maternal vitality, accelerating tissue repair, managing pain naturally, and promoting successful breastfeeding.

Keywords: Enhanced Recovery After Caesarean Section (ERACS); *Sutika Paricharya*; Ayurvedic Postpartum Care; Integrative Obstetrics; Multimodal Analgesia; *Vrana Ropana* (Wound Healing); Caesarean Section Recovery; *Stanya Janana* (Lactation Support).

1. Introduction

The global rise in Caesarean section rates has prompted a need for optimized postoperative maternal care. Enhanced Recovery After Caesarean Section (ERACS) is an evidence-based, multidisciplinary approach aimed at reducing surgical stress, improving pain management, and accelerating functional recovery [1]. In classical Ayurveda, a woman who has recently delivered is termed a *Sutika*. The rigorous physical transition of childbirth, fluid loss, and surgical trauma (in the case of CS) result in a state of profound *Vata* aggravation, depletion of bodily tissues (*Dhatu Kshaya*), and weakened digestive fire (*Mandagni*) [2]. To counter this, Ayurvedic texts prescribe *Sutika Paricharya*—a specialized dietetic, behavioral, and medicinal regimen lasting typically for 45 days (*Adhyardha Masa*) or until the restoration of the menstrual cycle [3]. Bridging ERACS with *Sutika Paricharya* offers a holistic framework that addresses both immediate surgical recovery and long-term maternal vitality.

2. Core Principles of Modern ERACS

The modern ERACS protocol is divided into pre-, intra-, and postoperative phases. The postoperative goals include:

- **Early oral intake:** Resuming feeding early to stimulate bowel function and prevent ileus [1].
- **Multimodal analgesia:** Minimizing opioid use to reduce nausea, constipation, and sedation by relying on NSAIDs and paracetamol [4].
- **Early mobilization:** Encouraging ambulation within 8–12 hours to reduce the risk of venous thromboembolism (VTE) [4].
- **Early catheter removal:** Reducing the risk of urinary tract infections [1].

3. The Ayurvedic Perspective: Pathophysiology of a Post-CS *Sutika*

From an Ayurvedic viewpoint, a Caesarean section is an *Ashtavidha Shashtra Karma* (surgical procedure) involving *Chhedana* (excision) and *Bhedana* (incision) [5]. This surgical trauma significantly aggravates *Apana Vata* (the sub-dosha of Vata governing the pelvic region) and impairs *Agni* (digestion and metabolism). According to Acharya Kashyapa, managing a *Sutika* requires extreme care, treating her as delicately as a pot filled to the brim with oil [6].

Because the CS involves an abdominal wound (*Sadyo Vrana*), the classical *Sutika Paricharya*—which typically involves heavy abdominal massage and fomentation immediately after vaginal delivery—must be meticulously modified to support *Vrana Ropana* (wound healing) without compromising the surgical site [7].

4. Bridging ERACS and Sutika Paricharya: An Integrated Protocol

4.1. Restoring Gut Function (Agni Deepana) vs. Early Oral Intake

ERACS Protocol: Advocates for chewing gum and early introduction of clear fluids and solids to stimulate peristalsis and prevent postoperative ileus [1]. **Ayurvedic Intervention:** Ayurveda strictly warns against heavy foods post-delivery due to *Mandagni*. Instead of standard hospital meals, Ayurveda recommends *Yavagu* (medicated gruels) and *Manda* (rice water).

- **Intervention:** Administering *Panchakola Phanta* (an infusion of Piper longum, its root, Piper chaba, Plumbago zeylanica, and Zingiber officinale) effectively stimulates gastric emptying, acts as a carminative, and prevents gas accumulation [8]. This perfectly complements the ERACS goal of early gut stimulation without overwhelming the digestive tract.

4.2. Multimodal Analgesia and Inflammation Control

ERACS Protocol: Utilizes scheduled paracetamol and NSAIDs, limiting opioids [4]. **Ayurvedic Intervention:** Surgical tissue trauma triggers severe *Vata* and *Pitta* vitiation at the site.

- **Intervention:** *Dashamoola* (a combination of ten roots) is highly revered for its *Vatahara* (anti-Vata), analgesic, and anti-inflammatory properties [9]. Administering *Dashamoola Kwatha* (decoction) internally can reduce the reliance on synthetic analgesics. Additionally, *Guggulu* (*Commiphora mukul*) based preparations, such as *Triphala Guggulu*, can be used for their combined analgesic and antimicrobial properties [10].

4.3. Wound Healing (Vrana Ropana)

ERACS Protocol: Standard surgical wound care and monitoring for surgical site infections (SSIs). **Ayurvedic Intervention:** A CS incision is a *Sadyo Vrana* (traumatic wound).

- **Intervention:** Internal administration of *Haridra* (Turmeric/Curcumin) and *Guduchi* (*Tinospora cordifolia*) provides systemic antibacterial and immunomodulatory support [11]. Once the primary dressing is removed, the peri-wound area (avoiding the direct incision line initially) can be treated with *Jatyadi Taila*, a classical wound-healing oil known to promote angiogenesis and reduce scarring [12].

4.4. Early Mobilization and Vata Shamana (Pacification)

ERACS Protocol: Early ambulation prevents DVT and promotes recovery [4]. **Ayurvedic Intervention:** Ambulation is necessary but can further aggravate *Vata* if the body is un-nourished.

- **Intervention:** *Abhyanga* (massage). While abdominal massage is strictly contraindicated post-CS until the wound fully heals, *Shakha Abhyanga* (massage of the upper and lower extremities) using warm *Bala Taila* or *Ksheerabala Taila* improves peripheral circulation, prevents VTE, reduces muscle stiffness, and deeply pacifies *Vata* [13].

4.5. Lactation Support (Stanya Janana)

ERACS Protocol: Encourages early skin-to-skin contact and breastfeeding [1]. **Ayurvedic Intervention:** Surgical stress and delayed oral intake often delay lactogenesis in CS mothers.

- **Intervention:** Incorporating *Shatavari* (*Asparagus racemosus*) and *Jeeraka* (Cumin) into the maternal diet acts as potent galactagogues. *Jeerakarishtha*, an Ayurvedic fermented preparation, not only stimulates milk production but also assists in uterine involution (*Garbhashaya Shuddhi*) [14].

4.6. Psychological Well-being and Sleep

ERACS Protocol: Postpartum depression and anxiety screening. **Ayurvedic Intervention:** The sudden drop in pregnancy hormones combined with *Vata* vitiation leads to postpartum blues. Medhya Rasayanas (nootropic herbs) like *Brahmi* (*Bacopa monnieri*) and *Ashwagandha* (*Withania somnifera*) can be integrated to reduce cortisol levels, improve sleep architecture, and prevent postpartum depression [15].

Discussion

The integration of Enhanced Recovery After Caesarean Section (ERACS) and classical *Sutika Paricharya* represents a paradigm shift from purely standardized surgical recovery to individualized, holistic maternal care. While ERACS protocols excel in minimizing surgical stress and accelerating the return to baseline physiological functions [1], they often overlook the profound energetic and tissue-level depletion that follows operative childbirth. Ayurveda, through its detailed post-partum regimens, addresses this gap by focusing on *Agnideepana* (metabolic restoration), *Vata* pacification, and *Dhatu* (tissue) nourishment [2, 7].

Bridging these two distinct medical philosophies yields a comprehensive care model that addresses both acute postoperative needs and long-term maternal health.

Harmonizing Early Oral Intake with Metabolic Restoration

One of the primary tenets of ERACS is the early reintroduction of oral fluids and solids to stimulate bowel function and prevent postoperative ileus [1, 4]. However, modern hospital diets can sometimes overwhelm a post-surgical digestive system. From an Ayurvedic perspective, surgical trauma and blood loss cause an immediate weakening of *Agni* (digestive fire). Introducing heavy foods too early can lead to the formation of *Ama* (metabolic toxins) and further aggravate *Vata* dosha [3].

By substituting standard clear fluids with medicated formulations like *Yavagu* (rice gruel) and *Panchakola Phanta*, clinicians can meet the ERACS goal of early enteral feeding while respecting the compromised state of maternal *Agni*. Research demonstrates that *Panchakola* effectively acts as a carminative and prokinetic, reducing flatulence and stimulating gastric emptying without causing mucosal irritation [8]. This ensures a smoother transition to regular diets, minimizing postoperative nausea and vomiting (PONV).

Enhancing Multimodal Analgesia through Vata Shamana

Pain management in ERACS heavily relies on a multimodal approach using NSAIDs and paracetamol to minimize opioid consumption, thereby reducing side effects like sedation, constipation, and respiratory depression [4]. In Ayurveda, postoperative pain is primarily viewed as a manifestation of extreme *Vata* vitiation due to surgical incision (*Chhedana* and *Bhedana*) and sudden emptiness in the pelvic cavity [5]. The systemic use of *Dashamoola Kwatha* offers a potent botanical adjunct to modern analgesics. The roots in *Dashamoola* contain active principles that inhibit pro-inflammatory cytokines, providing significant analgesic and anti-inflammatory effects [9]. When integrated with ERACS, these *Vatahara* (Vata-pacifying) herbal interventions can potentially lower the required dosage of synthetic NSAIDs, thereby protecting the maternal gastrointestinal lining and renal function during the vulnerable postpartum period.

Optimizing Tissue Repair and Venous Thromboembolism (VTE) Prophylaxis

Early ambulation is a non-negotiable component of ERACS to prevent VTE and pulmonary embolism [1]. However, ambulation shortly after abdominal surgery can be physically taxing and painful. Classical *Sutika Paricharya* utilizes *Abhyanga* (oil massage) to restore muscle tone, improve peripheral circulation, and soothe the nervous system [7].

While direct abdominal massage is strictly contraindicated immediately following a Caesarean section due to the *Sadyo Vrana* (surgical wound), modified *Shakha Abhyanga* (massage of the limbs) using warm medicated oils like *Bala Taila* serves a dual purpose. It deeply pacifies *Vata* while mechanically promoting venous return, directly supporting the VTE prophylaxis goals of ERACS [13]. Furthermore, the internal administration of immunomodulatory herbs like *Haridra* (*Curcuma longa*) and the topical application of *Jatyadi Taila* around the wound periphery (once the primary dressing is removed) can accelerate

angiogenesis, reduce the risk of surgical site infections (SSIs), and minimize hypertrophic scarring [11, 12].

Overcoming Delayed Lactogenesis and Psychological Stress

Mothers undergoing CS frequently experience delayed onset of lactation due to surgical stress, delayed initiation of breastfeeding, and postoperative pain. While ERACS protocols encourage early skin-to-skin contact, they lack pharmacological interventions for lactogenesis [4]. Ayurvedic galactagogues (*Stanya Janana* herbs), such as *Shatavari* and *Jeeraka*, have documented efficacy in increasing prolactin levels and improving milk volume and quality [14].

Furthermore, the psychological toll of a major surgery combined with postpartum hormonal shifts increases the risk of postpartum depression (PPD). The integration of *Medhya Rasayanas* (adaptogenic and nootropic herbs) like *Ashwagandha* helps modulate the hypothalamic-pituitary-adrenal (HPA) axis, reducing serum cortisol levels and improving sleep architecture [15]. This systemic neuroprotection is a crucial element of recovery that modern surgical protocols often leave to psychiatric referral rather than preventive physiological support.

Challenges and Future Directions

While the theoretical and clinical rationale for merging ERACS and *Sutika Paricharya* is robust, practical implementation faces several hurdles. The primary challenge lies in the standardization of Ayurvedic formulations within modern obstetric wards and ensuring they do not interact adversely with synthetic anesthetics or analgesics.

Future research must focus on rigorous, randomized controlled trials (RCTs) evaluating the pharmacokinetic interactions between standard ERACS medications and classical Ayurvedic herbs. Additionally, there is a vital need for cross-disciplinary training, allowing obstetricians, anesthesiologists, and Ayurvedic practitioners to collaborate effectively. Standardizing an "Integrative ERACS" protocol will ultimately require institutional support, stringent quality control of herbal medicines, and a shared clinical vocabulary.

5. Conclusion

The integration of classical *Sutika Paricharya* with modern ERACS protocols presents a highly synergistic approach to post-Caesarean care. While ERACS focuses on rapid functional recovery and reducing hospital stays, Ayurvedic interventions provide nuanced care tailored to restoring digestive fire, pacifying *Vata*, accelerating wound healing, and promoting lactation. By bridging the acute surgical management of modern medicine with the holistic, restorative regimens of Ayurveda, healthcare providers can offer mothers a safer, more comfortable, and deeply nourishing recovery journey.

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