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Review Article

Kshara Karma in Cervical Pathologies: An Ayurvedic Perspective on Tissue Healing and Regeneration

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Abstract

Introduction: Cervical erosion and chronic cervicitis are common gynecological conditions characterized by persistent discharge and epithelial disruption. Conventional treatments such as cryotherapy and electrocautery rely on tissue ablation followed by healing. In ayurveda, *Kshara Karma* described in the *Samhitas* is indicated for removal of unhealthy tissue and promotion of healing. The present study explores its potential role as a bio-stimulatory regenerative therapy. **Methods:** A hypothesis-driven narrative review was conducted by correlating classical *ayurvedic* concepts (*Vrana Shodhana* and *Ropana*) with contemporary literature on wound healing and regenerative medicine indexed in Pubmed, Scopus or various indexed journals. The mechanism was compared with treatments that use minor, controlled injury to promote healing. **Results:** *Kshara Karma* produces controlled chemical injury leading to localized sterile inflammation, which initiates tissue repair. Modern evidence suggests that such injury stimulates cytokine release, angiogenesis, and fibroblast proliferation, facilitating epithelial regeneration. These mechanisms are comparable to bio-stimulatory interventions like microneedling and platelet-rich plasma therapy, which utilize controlled injury to enhance endogenous healing responses. **Discussion:** *Kshara Karma* may be reinterpreted as an indigenous bio-stimulatory technique that promotes regenerative healing rather than mere tissue destruction. This integrative perspective aligns with current regenerative medicine approaches and highlights its potential as a cost-effective, minimally invasive alternative in cervical pathologies. However, further clinical and molecular studies are required to validate these effects.

Keywords: *Kshara Karma,* Cervical Pathologies, Cervical Erosion

INTRODUCTION

Cervical pathologies, particularly cervical ectopy (commonly termed cervical erosion) and chronic cervicitis, represent some of the most prevalent conditions encountered in gynecological outpatient practice. The global prevalence of these conditions is estimated to range between 17% 50% depending on the population studied and diagnostic methods employed.[1] According to epidemiological surveys conducted in rural India, the prevalence of cervical pathologies is almost 36% among symptomatic women.[2] These disorders are frequently associated with clinical manifestations such as excessive vaginal discharge, lower abdominal discomfort, post-coital bleeding, and recurrent genital tract infections. Although the majority of cases are benign in nature, the persistence of cervical lesions may predispose affected individuals to secondary complications and exert a significant negative impact to overall quality of life.

Modern management of cervical erosion primarily includes ablative techniques such as cryotherapy, electrocautery, and laser ablation. These modalities aim to destroy the unhealthy columnar epithelium and allow the squamous epithelium to regenerate.[3]

From an ayurvedic perspective, conditions like cervical erosions are viewed through a holistic lens, where vitiation of the *kapha* and *pitta dosha* and the involvement of *Rasa, Rakta* and *Mamsa Dhatus* are key factors in understanding the pathogenesis. In ayurveda, this condition aligns with *Garbhashaya Griva Vrana* or *Karnini Yonivyapada*.[4] in comparison to conventional gynecological approaches, ayurveda prescribes a range of parasurgical interventions for the management of comparable cervical conditions. Among these, *Kshara Karma*, is a prominent procedure thoroughly described in the *Sushruta Samhita has been* advised for the excision of unhealthy or hypertrophic tissue (*Dushta Mamsa*) and the promotion of healing. Traditionally, *Kshara Karma* has been conceptualized as a form of chemical cauterization. It is having properties of *Chedana* (excision), *Bhedana* (penetration), and *Lekhana* (scrapping), which therefore gives a diverse therapeutic mechanism.

Recent advances in treating cervical pathologies have redirected therapeutic strategies from destructive interventions towards the intentional stimulation of the body's endogenous healing pathways. Techniques such as platelet-rich plasma (PRP), utilizes controlled micro-injury to trigger inflammation, followed by stimulation of angiogenesis and ultimately promoting tissue regeneration. In accordance with emerging tradition, it is important to consider *Kshara Karma* as a promising bio-stimulatory intervention but not merely as a cauterizing procedure. By inducing regulated tissue injury and *Kshara Karma* facilitates wound repair. Therefore, it may be compatible with contemporary regenerative concepts, delivering a traditional modality that supports cervical healing through mechanisms equivalent to modern therapies.

Thus, the present review article aims to reinterpret *Kshara Karma* through an integrative view, aligning classical ayurvedic concepts with modern scientific understanding of wound healing and regeneration.

MATERIALS AND METHODS

Study design

The present study was conceptualized as narrative, hypothesis driven review aimed at exploring the potential regenerative role of *Kshara Karma* in cervical pathologies.

Sources of data

The indications, properties and mode of action of *Kshara Karma*, were analysed through classical literatures primarily from *Sushruta Samhita* and other relevant classical ayurvedic texts. Fundamental concepts such as *Vrana Shodhana* and *Vrana Ropana* were considered as the theoretical basis for analysis. Indexed databases such as Pubmed, Scopus and google scholar were searched to gather information on mechanisms of wound healing, inflammation-mediated repair, angiogenesis, and regenerative therapies based on controlled micro-injury. A conceptual framework was developed to explore the possible bio-stimulatory role of *Kshara Karma* in cervical tissue repair.

RESULTS

Ayurvedic perspective of *Kshara Karma*

Kshara Karma is considered as a parasurgical intervention with varied therapeutic actions, including removal of unhealthy tissues, wound cleansing, and facilitation of healing. Its inherent properties-*Lekhana* (scraping), *Chedana* (excision), and *Bhedana* (penetration)-enable selective destruction of diseased tissue while simultaneously supporting regeneration of healthy structures.

Kshara is characterized by *Katu* (pungent) and *lavana* (salty) tastes[5] and exists in both natural and artificial forms. Natural *Kshara* is rich in minerals such as calcium, potassium, and sodium. On the other hand, artificial *Kshara* contains ash of specific herbal plants. Both types possess alkaline properties with high hydroxide content, which enables them to penetrate deep tissue and destruction of abnormal growths. Classical Ayurevdic literatures describe *Kshara* in conditions like piles, wound masses, and tumors, emphasizing its *Vrana Shodhana* and *Ropana* properties. According to *Acharya Charaka* and *Sushruta, Kshara Karma* helps in elimination of unhealthy tissues and vitiated *doshas*. *Paneeya Kshara* considered to be particularly effective against newly formed tissue, making it valuable for managing unwanted growths. Properties of *Kshara* are given in Table 1.

Table 1: Properties of *Kshara* [5]

Rasa	*Katu*
Virya	*Ushna*
Varna	*Shukla*
Guna	*Saumya, Teekshna, Agneya*
Doshaghna	*Tridoshaghna*
Karma	*Dahana, Pachana, Darana, Vilayana, Shodhana, Ropana, Shoshana*

Sushruta mentioned different plants for making Kshara as: *mushkka, kutaj, palash, ashwakarna, paribhadrak, bhibitaka, aragvadha, tilwaka, arka, snuhi, apamarga, patla, naktamal, vrusha, kadali, chitraka, putika, asphota, ashwamarak, saptachanda, agnimantha, gunja, koshataki*.[6]

MECHANISM OF ACTION

The application of *Kshara* over the affected cervical tissue results in a controlled and localized chemical injury, which appears to initiate a sequence of biological responses similar to the natural wound healing process. Initially, *Kshara* facilitates selective destruction and removal of unhealthy or abnormal epithelial tissue, corresponding to the Ayurvedic concept of *Lekhana* and *Chedana*. This process is comparable to debridement in modern medicine, where removal of devitalized tissue promotes a healthy wound environment.[7]

Following this, a phase of localized sterile inflammation is triggered. From an Ayurvedic perspective, this aligns with *Vrana Shodhana*, where the body eliminates pathological factors and prepares the tissue for healing. Modern studies have established that this inflammatory phase plays a crucial role in initiating repair through activation of immune cells and release of signaling molecules.[8]

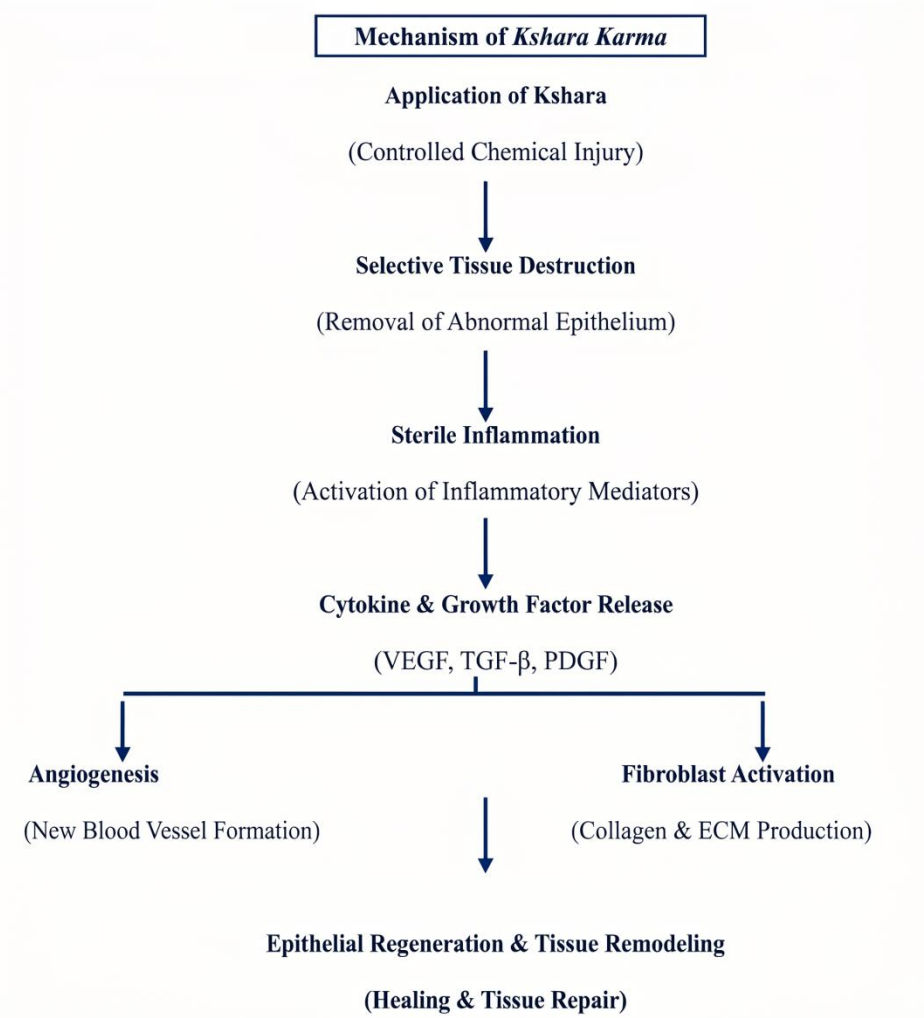
Subsequently, there is enhanced release of cytokines and growth factors, including vascular endothelial growth factor (VEGF) and transforming growth factor beta (TGF- β), which contribute to angiogenesis and fibroblast activation. Ayurveda describes this phase as *Vrana Ropana,* where tissue healing and regeneration are promoted. Experimental and clinical studies on *Kshara Karma* have also reported effective wound cleansing and improved healing outcomes, supporting its role in tissue repair.[9]

The proliferative phase involves fibroblast proliferation, collagen synthesis, and extracellular matrix formulation, ultimately leading to epithelial regeneration and

remodeling of cervical tissue. This sequence reflects the restoration of normal tissue architecture.

When viewed in light of regenerative medicine, *Kshara Karma* demonstrates similarities with therapies based on controlled micro-injury, such as microneedling and platelet-rich plasma (PRP). These therapies stimulate intrinsic healing mechanisms by inducing mild injury and promoting growth factor release.[9] In a similar manner, *Kshara Karma* appears to act as a bio-stimulatory intervention, initiating endogenous repair pathways without the use of external biological agents.

Thus, *Kshara Karma* may be understood not merely as a cauterization technique but as a therapeutic modality that integrates tissue removal with stimulation of regenerative healing processes.



Flow Chart 1: Mechanism of *Kshara Karma*

DISCUSSION

Cervical erosion is a frequently encountered condition in gynecological practice and requires timely management, as long standing cases may predispose to recurrent infections and further complications. Contemporary treatment approaches such as cryotherapy, electrocautery, and laser therapy etc act by controlled destruction of abnormal cervical tissue, followed by healing through re-epithelization. Despite of their effectiveness, these procedures may come with discomfort, post procedural discharge, and the need for specialized facilities.

Kshara karma promotes proper wound healing by selective chemical cauterization along with effective debridement of unhealthy tissue. *Kshara* eliminates slough and necrotic tissue, which provides a favourable environment for tissue repair. This reflects the fundamental principle of wound management.

After Kshara is applied, the cervix heals gradually as new tissue forms, much like the natural healing process seen in modern medicine. Recovery usually takes a few weeks to a few months. Besides removing tissue, *Kshara Karma* may also trigger controlled inflammation and tissue remodeling, showing that its effects go beyond just cauterization.

This mechanism becomes even more clearer when compared with newer regenerative therapies such as platelet-rich plasma (PRP). While in PRP therapy healing is promoted by delivery of concentrated growth factors derived from the patient's own blood to enhance tissue repair without tissue loss. On the other hand, *Kshara Karma* works in a different manner, it induces a

controlled local injury which activates intrinsic healing mechanisms. This highlights that *Kshara Karma* may function as a bio-stimulatory intervention, combining removal of unhealthy tissue with stimulation of regeneration. Beyond its biological action, *Kshara Karma* is highly practical offering a cost effective option and its ease of application. Since, the procedure is done on OPD basis without requiring advance equipments, it incredibly represents a convenient option in resource limited or remote areas. When performed properly, clinical observations demonstrated marked reduction in vaginal discharge, pain, and discomfort, with few adverse effects.

Despite its strong therapeutic benefits, this procedure often faces certain limitations. There is lack of standardized protocols regarding the how long to apply the treatment, how often to repeat it, and the precise application technique that may vary depending on the severity of the lesion. To bridge these gaps, well designed clinical trials and deep scientific studies are needed to better understand its mechanism and to compare its outcomes with modern therapeutic modalities.

CONCLUSION

Ultimately, *Kshara Karma* appears to be a safe, effective, and budget friendly option for the management of cervical erosion and related gynecological conditions. It not only helps in the removal of unhealthy tissue but also supports the natural healing process, possibly through stimulation of intrinsic repair mechanisms.

From a wider perspective, *Kshara Karma* may be considered as a bio-stimulatory therapy, that shares the principles of modern regenerative interventions. Compared to newer modalities like PRP, it offers a far simpler and more accessible approach to achieve similar tissue healing outcomes.

However, well-designed clinical studies and mechanistic evaluations are necessary to validate its regenerative potential and to establish standardized treatment protocols. Integrating traditional ayurvedic knowledge with modern scientific evidence may enhance its acceptance and application in contemporary gynecological practice.

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