



**CLINICAL SIGNIFICANCE AND ANCIENT PERSPECTIVES OF PLASTIC  
RECONSTRUCTIVE AND COSMETIC SURGERY W.S.R TO SANDHAN KARMA**

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**Abstract**

Plastic surgery is a specialized branch of surgery which focuses on restoring the shape and function of lost or damaged tissues and skin. As a result, the dermal repair performed by a plastic surgeon can include both reconstructive and cosmetic procedures. The field of plastic surgery offers a unique opportunity to incorporate surgical techniques into the treatment of patients based on their unique needs through the manipulation of bone, cartilage and soft tissue through the processes of remodeling, reshaping and re-arranging. These methods in Ayurveda come under the heading of *Sandhan Karma* which is a surgical method that was first documented by *Acharya Sushruta* and this technique has similarities to plastic surgery. *Sushruta's* contributions included his description of the *Shashti Upakrama*. *Sandhana* or *Sandhan Karma* means putting together separated/damaged parts of the body. Since *Sushruta's* philosophies regarding reconstructive surgery have existed for thousands of years, they have evolved to keep pace with contemporary plastic and reconstructive surgical procedures for lip, ear, and nose reconstruction (*Oshtha Sandhan, Karna Sandhan* and *Nasa Sandhan*). The objective of this article is to discuss the terminology, theories, and methods associated with *Sandhan Upakrama* as presented in Ayurvedic literature as compared to current day plastic and reconstructive surgical methods.

**Key-Words: Ayurveda, Plastic Surgery, Reconstructive, Sandhan Karma, Shalya Tantra**

## Introduction

Plastic, reconstructive, and cosmetic surgery have their origins in ancient India, where a specialized field of medicine known as *Sandhan Karma* was begun more than 2600 years ago by *Acharya Sushruta* around 600 BCE. *Sushruta* documented and described this area of medicine in an ancient text called the *Sushruta Samhita*. It is specifically a form of *Shalya Tantra* that primarily addresses the restoration of missing body parts due to either trauma or amputation. *Sushruta's* procedures use pedicle skin flaps taken from the body near, and to have enough blood supply for complete healing once attached at the site of injury [1-3].

The word *Sandhan* means to join or unite tissues or organs that are no longer connected or have been separated from each other. *Sandhan* is not just a simple form of suturing (*Seevana*) but is instead a more advanced method of reconstruction to address not only the structural integrity of the damaged body part but also to address its aesthetic appearance. *Sandhan Karma* is considered one of 60 different techniques (*Shashti Upakrama*) described by *Sushruta* to help treat different types of wounds [2-4].

*Sushruta* also provided many different methods and techniques to perform surgeries on patients that closely resemble the types of surgeries performed today. One example of this is *Nasasandhana*, a surgery performed to restore a nose that has been lost through trauma or amputation.

## Significance of *Sandhana Karma*

*Sandhana Karma* is a very important component of surgical approaches for healing and repairing injured or damaged tissues. It allows tissues that have been traumatized to restore their ability to heal through the body's natural abilities of healing. In particular, one of the primary benefits of *Sandhana Karma* is that it has been shown to reduce the chances of developing scars. This allows for both good functional recovery and good cosmetic recovery after the injury or surgery. Additionally, *Sandhana Karma* helps in the recovery process by minimizing the complications associated with wounds and also complements other Ayurvedic therapeutic approaches to provide a complete healing approach to an area of injury or surgery [4-6].

*Sandhana Karma* is an especially useful method of managing minor injuries like small cuts and lacerations that require sutures as well as providing an effective method

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of reconstructive surgery when repairing the ear after it has been torn off. Moreover, *Sandhana Karma* also facilitates the closure of wounds, which is important in preventing infections and assisting the body to heal as quickly as possible. *Sushruta* emphasized post-operative care's critical role in surgical success by stating that wound healing was essential to the proper outcome of surgery [5-7].

*Sandhana Karma* can be applied to many reconstructive surgery cases due to congenital defects or trauma. For example, *Sandhana Karma* is indicated for treating complications caused by *Karna Vedhana Samskara* and *Karna Paali Sandhana*. Additionally, *Sandhana Karma* includes reconstructive surgery for ear injury (*Karna Sandhana*), nasal injury (*Nasa Sandhana*), and lip injury (*Oshtha Sandhana*).

### ***Sandhana Karma***

*Sushruta* described many ways in which to reconstruct the missing or destroyed parts of the body, but he put special emphasis on repairing parts like the nose, ears and lips that were commonly found during wars of that time. Men and women use some of these reconstruction techniques that are found in modern day plastic surgery [6-8].

### ***Nasa Sandhana (Rhinoplasty)***

The rhinoplasty or nasal reconstruction can be divided into three major stages as depicted in **Figure 1**. Flap assessment, flap collection and flap placement are main stages of *Nasa Sandhana*. The flap had to be selected from the cheek and therefore a measurement was taken of the defect using a leaf, the leaf would be used as a template to select the flap. A skin flap would be harvested from the cheek and left with a pedicle to ensure that there would be appropriate blood flow. The nasal stump would be prepared using *Lekhana Karma* after which the flap would be sutured into place. Tubes made from *Eranda* plant would then be placed into the nostrils to keep the airways open [7-9].



**Figure 1: Various procedural stages of rhinoplasty or nasal reconstruction**

Post-operative Care (*Paschat Karma*) is also very important. In this regard medicated powders and *Tila Taila Seka* were applied for fasten the healing process. Internally, the patient would follow *Snehapana* and *Virechana* methods. After the new area had healed, the pedicle of the flap would be cut off. The technique of using a pedicle flap for the reconstruction of body parts, as described by *Sushruta*, has been used through to this day for achieving improved vascularity, improving the chances that the graft will survive as well as improving the aesthetic appearance of the reconstructed area; all of which are principles that are prevalent in current reconstructive surgical techniques.

### ***Karna Sandhana***

*Sushruta* identified fifteen forms of ear deformity called *Karna Bhandha*, for each of which corresponding reconstructive surgical techniques were developed. These reconstructive procedures can be categorized into three phases as *Poorva Karma*, *Pradhana Karma* and *Paschat Karma*. *Poorva Karma* involves assessment of the ear deformity and measurement of the flap to be taken from the cheek area. *Pradhana Karma* is main surgical phase in which recipient site is identified. First the recipient site is created and then the flap is placed and sutured. *Paschat Karma* involves application of *Ama Taila* followed by placing *Pichu* at the flap donor site; after an appropriate healing time, then the patient receives strengthening therapies such as *Swedana*, *Udwartana* and *Abhyanga* using various medical substances [4-6].

### ***Oshta Sandhana (Lip reconstruction)***

With respect to the process of *Oshta Sandhana* (lip reconstruction), the process is similar to nasal reconstruction in that no nasal tubes are used. The first steps for *Oshta sandhana* include examination of the lip defect followed by *Swedana* and *Lekhana*. The *Pradhana Karma* conducted by suturing (*Seevana Karma*) of the raw edges of the lip defect with application of *Shatadhauta Ghrita*. In *Paschat Karma* general wound care (*Vranavat Chikitsa*) is performed for improves healing process [5-7].

### ***Defective healing care (Vaikrutapaha Chikitsa)***

With respect to the management of defects arising from a defective healing process (*Vaikrutapaha Chikitsa*), *Sushruta* described remedies for different complications

(Table 1), such as loss of normal skin color or pigment and abnormal hair growth, as well as scars from misstated wounds [8-10].

**Table 1: Management of defective healing process (*Vaikrutapaha Chikitsa*)**

Procedure ( <i>Karma</i> )	Description	Method/Drugs Used	Purpose/Outcome
<i>Pandu Karma</i>	Process to restore normal skin color in hyperpigmented areas	Paste of <i>Haritaki</i> (fruit), <i>Kasisa</i> and <i>Madhuka</i> applied locally	Lightens the skin and normalize pigmentation
<i>Krishna Karma</i>	Procedure to restore pigmentation in hypopigmented areas	Application of medicated powders prepared from burnt substances	Darkens the skin to achieve complexion
<i>Roma Sanjanana</i>	Stimulation of hair follicles to promote hair growth	Use of herbal and mineral-based formulations	Re-growth of hair and restoration of normal hair pattern

## Conclusion

In the history of surgical medicine, *Shalya Tantra* is one of the main branches of Ayurvedic medicine and it contains the root philosophy of surgical development. In *Shalya Tantra*, *Sandhana Karma* is the equivalent of modern day reconstructive/cosmetic surgeries. This method of healing is used primarily to repair damage done to an individual's physical body so that physical appearance can again be restored and functional integrity can be re-established. The use of *Sandhana Karma* to repair damage caused from trauma or from punitive amputation was evident through the use of procedures such as; *Karna Sandhana*, *Nasasandhana* and *Oshtha Sandhana*. *Sandhana Karma* is still clinically relevant today, especially when it comes to the Ayurvedic treatment of cuts, wounds, and reconstructive issues. Its natural method of healing still produces beneficial therapeutic results. However, problems like bleeding disorders and infections are considered contraindications, careful patient selection is still crucial while performing these surgical interventions.

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