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## ***Ysandhan Karma- A Conceptual Approach in Susruta Samhita and its Relation with Reconstructive Surgery***

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### **ABSTRACT**

Ayurveda is a vast arena of knowledge which stands as the truth until date. *Susruta Samhita*, the oldest documentation of surgery on human mentions innumerable concepts in management of surgical as well as medical diseases. The Sanskrit language has its own beauty to express multiple things by one word. So the terminologies in the texts should be read with respective consideration. *Sandhan* is a term which is found in various aspects in *Susruta Samhita*, which is often commonly thought as reconstructive surgery only. The article is a literary research on the concept of *Sandhan* here. The utility of the study is to review the literature on the term “*Sandhan*” and also to understand the keen concepts of *Sandhan Karma* with respect to reconstructive surgery. Modern reconstructive surgery has its basis in *Susruta Samhita* and this is owed by the surgeons today to the ancient Indian Sages.

### **KEYWORDS**

*Sandhan Karma, Reconstructive, Susruta Samhita, Surgery*



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## INTRODUCTION

The prestigious treatise of Indian Surgery “*Susruta Samhita*”, contains accounts of various basic principles of modern day surgery in a dispersed manner. It mentions *Shasti Upakramas* for treatment among which all types of methods and managements can be included. The writer of the treatise *Acharya Susruta* emphasizes on management of the disease first and prevention for it. Therefore, practical aspect of treatment of various surgical and non-surgical conditions are vividly described.

Sandhan karma is also one amongst the *Shasti Upakrama* which is basically a concept and a terminology that has been used in varied context in *Susruta Samhita*. In this article, these concepts will be dealt in detail.

The evidence of the first reconstructive surgery on man is controversial but as *Susruta Samhita*, the oldest script written in Sanskrit contributed a special chapter dedicated to this concept, it can be considered as the earliest scripture in this context i.e 1000BC.

## AIM

- To assess the various dimensions of the term “*sandhan karma*” and its justification

in modern reconstructive surgical principles.

- To collect the references about reconstructive surgery in *Susruta Samhita*.

## MATERIALS AND METHODS

The term *Sandhan* is in various context of surgical treatment in Ayurveda, they are elaborated below:<sup>2</sup>

1. *Sandhan osthadi sanyojanam-sandhan* means apposition of the wound margin. Wound may be self-created or traumatic.

This is mentioned in case of *Shashti Upakram*. It may include all resources right from suturing of the margins of non-healing, traumatic, or incised wound to adhesion of wound margin now a days for cosmetic purpose.

2. *Sandhan sastrapadasya*-means haemostasis with instruments.

This is mentioned in context of measures to control bleeding. It may include all measures for haemostasis- chemical, mechanical and also surgical.

3. *Karna sandhan, nasa sandhan, otha sandhan*- reconstructive surgery of ear lobule, rhinoplasty, reconstructive surgery of cleft lip.

The terms are mentioned in context of process of lobuloplasty, rhinoplasty and reconstructive surgery of lips.

**The pre-requisites, procedure and post-operative care is being described.**

**Table 1- CAUTION<sup>1,2</sup>**

<b>AYURVEDIC SANDHAN KARMA</b>	<b>RECONSTRUCTIVE SURGERY</b>
Avoid <i>asuddha rakta</i>	Avoid infection and discharge.
avoid <i>atiprabritti of rakta</i>	Avoid Uncontrolled bleeding
Avoid <i>kshina rakta</i>	Avoid inadequate bleeding from grafting site.
In <i>vata dusti ofrakta,pariputana</i> of skin occurs.	Avoid dry inadequate , non oozing donor graft, or else it cracks because of arterial insufficiency. Maintainance of perfusion is important.
in <i>pitta dusti of rakta, daha ,paka, raga, vedanavan</i> occurs.	All the factors of inflammatory reactions which may be impending for rejection.
If in <i>atiprabritti of rakta, sandhan</i> done, localized area becomes <i>shyava, sofa.</i>	There is formation of haematoma between flaps
<i>Usnata</i> to be maintained.	Avoid cyanosis, cooling and venous stasis, thrombosis or insufficiency.

**Prerequisites;-<sup>1</sup>**

It is mentioned in context of otoplasty.

- Accumulation of required apparatus, instruments.
- Pre-operative light food advised for the patient.
- Area is to be marked and selected.
- *Snehan* and *swedan*.

Modern reconstructive surgery considers proper capillary outgrowth, acceptance of graft according to different areas of body , exposure to radiation, vascularity and thickness of graft and presence of harmful organisms and temperature regulation.

Moreover,

- Treating existing infection.
- Assess wound risk.
- Administration of vit A
- Tight blood sugar control.

**PROCEDURE<sup>2</sup>**

The basic principle is same for otoplasty, rhinoplasty or labioplasty.

- Grafting area should be measured and the donor site as well.
- Scrapping or *lekhan* of both the areas done with *sefalika patra*.
- Placing of the donor graft over the area and suturing of the margins done.
- The patency of the hole in the ear lobule or nostrils are maintained .
- Proper *bandhan* is given.
- After assessment of the fixity of the grafted skin, the connected bridge in between is cut.

**POST OPERATIVE CARE:<sup>2</sup>**

- Irrigation of the wound with *taila* preparation for three nights.
- This has a great significance in wound healing as the hydration of the skin is maintained by oil coating and also 72 hours is necessary for utmost care of the graft, because it is a fact that in successful free or pedicled flap, oedema occurs after 24 -48 hours and it begins to settle after 72

hours, so wound care for 72 hours is hence justified.

- *Bandhan* is to be changed every 3 days or according to the doshas and ritus.
- Different management done as per respective necessity.

#### DIET AND REGIMEN:<sup>1,2,3</sup>

AYURVEDIC	MODERN
Medicated <i>ghrita</i>	Vit A for early epithelialization
<i>Shali pistak</i>	Cereals contain biotin , other proteins
<i>Amla kanji</i> etc	Vit C or ascorbic acid helps synthesis of collagen , acts as effective antioxidant

#### COMPLICATION AND MANAGEMENT<sup>2</sup>

- If *sangrambha* (excessive swelling), *daha* (burning), *paka* (suppuration), *rag* (redness) , *vedanaban* (painful) observed in graft, then *chedana* (excision of the part) is advised.
- If *doshic* involvement seen, *raktamokshan* may be done.

In modern concept of reconstructive surgery, if graft , or a part of graft is rejected confirmed by colour change , discharge etc, it may be excised. Pharmaceutical agents or suction are used to maintain good perfusion of the flaps.

#### SIGNS OF OPTIMUM GRAFTING IN AYURVEDA:<sup>2</sup>

- *SUVARTMA*- optimum lobule with hole ( in otoplasty).

- *SLISTA SANDHI* – proper apposition of both margins ( either flap or tissue )
- *SAMA* – even level.
- *STHIRA* – firm
- *SAVARNA*- even skin colour tone.

#### Satisfactory progress in modern plastic surgery is indicated by :<sup>3</sup>

- Flap with definite pink colour.
- Blanching on pressure which is the sign of capillarisation
- Like a healthy random pattern flap having same surface level.

Deviation from this pattern should give rise to suspicion that a graft is not taking properly.

#### DISCUSSION

The authenticity of principles in *susruta Samhita* neednot be established time and again. It is clarified that term “ *sandhan* ” doesnot merely mean reconstructive surgery of ear, nose or lips but also apposition, haemostasis and a pharmaceutical preparation.

The basic principles of reconstructive surgery has its seeds in this earliest treatise of surgery. To begin with, extreme importance of wound is given by *Susruta Samhita* along with its various modalities of management. *Sandhan karma* or reconstructive surgery is one amongst them; whose procedure is elaborately



discussed which is contemporary even in this era. The pre-operative, intra-operative and post-operative measures are although crude but they prove themselves to be the basis of modern day reconstructive surgery; although the recent scope of procedures and varieties are far more evolved due to developed science and technologies.

This article throws light upon ancient facts that are authentic and similar to modern procedures, for example, factors for successful grafting, pre-requisites, conditions to be avoided for good take of graft, care of graft, immobilization, post-operative diet and regimen etc. Facts are scattered and mentioned in different aspects in the treatise which are considered worth analysis.

It is evident that the ancient surgeons gave importance to minute things like early vascularization, assessment of fixity of graft, gap maintained for wound dressing and proper hydration of skin for *sandhan karma*. Complications like rejection of graft is also mentioned which is to be excised.

The more the literary researches are done, the more underneath glories of Indian surgery come upon.

## CONCLUSION

- *Sandhan* not only mean plastic surgery in Ayurveda, *Sandhan* also mean suturing, haemostasis, a type of pharmaceutical preparation and reconstructive surgery.
- Ancient procedure of *Sandhan karma* shares the same basis with the modern reconstructive surgery.
- Advent of modern day microscopic plastic surgery is the presentation of the gradual and scientific evolution since centuries.
- Though *Susruta Samhita* is known to be a compilation of practical approaches of management and procedures done in diseases, there are also bouquets of various concepts which are to be researched upon.

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