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## Revisiting and recreating plastic surgery concepts of Acharya Sushruta through Torn Ear Lobule Repair vis-à-vis Karnasandhana w.s.r. to Lobuloplasty - A Single Case Study

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### ABSTRACT

Plastic surgery is one of the oldest forms of surgery which was expounded to the world by *Ayurveda* through *Acharya Sushruta* in his treatise *Sushruta Samhita*. Reconstructive plastic surgical procedures were performed in ancient India. The plastic surgery of ear (Otoplasty) and Nose (Rhinoplasty) are described in the *Sushruta Sutrastana* 16th chapter. First methods are described for piercing the ear lobes of an infant which is still a wide spread practice in India. Often these ear lobes; due to the use of heavy Ornaments; gets considerably expanded - split and tear as time passes. *Sushruta* has described 15 methods of joining these cup-up ear lobes through basic concepts of plastic surgery under the broad heading of *Karnasandhana*. For correcting ear lobe tear, people demand good cosmetically appealing surgery which comes with minimal scar formation. All these types of *Sandana Karma* with due consideration to its finest details were explained in detail, represent the school of surgery of *Acharya Sushruta*, who made significant contribution to the principles and techniques of plastic surgery which are surprisingly applicable even in today's modern surgical era. It highlights the status and sophistication of ancient Indian surgery. Here, A brief review on a patient suffering from split ear lobules, was operated on the lines of *Karnasandhana* as described by *Acharya Sushruta*, which can be compared with Lobuloplasty, is detailed below.

**Key words:** Plastic Surgery, Karnasandhana, Torn Ear Lobule, Lobuloplasty

### INTRODUCTION

During the Vedic period, the birth of plastic surgery took place in India. If we look in to the vedic rituals, we find the knowledge of Plastic and Reconstructive surgery was known to *Bramha*, *Vishnu*, *Maheshwara*, *Indra*, *Dhanwantari*, *Dadhichi* and *Aswini Kumaras*. In *Rigved* (1-158;4-6) *Dakshya* cut the head and trunk of

*Rishi Chyavan*, then *Ashwini Kumaras*, Celestial Surgeons, performed the first plastic surgery on re-uniting the severed head and thus gave back life to *Rishi Chyavan*.<sup>[1]</sup>

In *Samhita* period, Surgeons in ancient India utilizing the skin graft for reconstructive purpose was documented as early as 800B.C. Description regarding the methods of transplantation was first found in *Sushruta Samhita* (600 B.C). At that time, Rulers imposed punishment in the form of cutting the Ears, Ear lobules, Nose of captured enemies and the victims resorted to the surgeons help for the correction of the severed parts. Indian surgeons have applied their technique of correcting such deformity by usage of transposition of the skin flap to reconstruct the nose and ear lobule etc.<sup>[1]</sup>

It's revival can be traced to report from India in 1974 and illustrated accounts of Rhinoplastic operation upon one Cowasjee, a bullock cart driver, was

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published in gentle man's magazine in England.<sup>[1]</sup> Basic principles laid down by *Sushruta* for usage of skin flaps serves as the basis for modern day plastic surgeries.<sup>[2]</sup>

The ear of the child was punctured for protective and ornamental purpose. Ancient authors believes that it protects the child from evil effects. From cosmetic point of view this procedure has equal importance. Often these ear lobes; due to the use of heavy Ornaments; gets considerably expanded split and gets torn as time passes. *Acharya Sushruta* has described 15 methods of joining these cup-up ear lobe which is dealt under the heading called as *Karna Sandana*.

15 types of surgical repair of the ear is mentioned in *Sushruta Samhita* namely 1.*Nemisandhanaka* 2.*Utpala Bhedyaka* 3.*Valluraka* 4.*Asangima* 5.*Gandakarna* 6.*Aharya* 7.*Nirvedhima* 8.*Vyayojima* 9.*Kapatasantdhika* 10.*Ardhakapata Sandhiaka* 11.*Sanksipta* 12.*Hinakarna* 13.*Vallikarna* 14.*Yasti Karna* 15.*Kakaustaka*.<sup>[3]</sup> All these 15 types of surgical procedures explained for the correction of various deformities revolves around the basic purpose of providing the following

- Form
- Function
- Cosmesis

Even today, in contemporary medical science the basic aim of plastic surgery remains the same.

#### Correct method of Repair for Torn Ear Lobule

बाह्यायामिह दीर्घायां सन्धिराभ्यन्तरो भवेत्। आभ्यन्तरायां दीर्घायां बाह्यसन्धिरुदाहृतः।

एकैव तु भवेत् पालिः स्थूला पृथ्वी स्थिरा च या । तां द्विधा पाटयित्वा तु छित्वा चोपरि सन्धयेत् ॥ (Su.Su.16/15)

If there is only one flap split ear lobule and if it is thick, wide and fixed, then it should be divided, trimmed and joined with upper portion. The plastic surgeons now-a-days following this technique and named it as Y-V Repair.<sup>[4]</sup>

ततोव्रणंसमुन्नाम्यस्थापयित्वायथास्थितम्।

सिव्येत्सूक्ष्मेणसुत्रेणावल्केनाश्मन्तकस्यवा॥ (Su.Su.25/20)

The edge of the wound should be raised, both the flaps should be brought in to opposition, then Suturing should be done by a fine thread.<sup>[5]</sup> Now instead of *Ashmanthaka*, we have used Vicryl 6-0, for suturing.

After Suturing, the ear lobule should be irrigated with fresh sesamum oil continuously for three days, Dressings should be changed on every third days.<sup>[6]</sup> When the wound is properly healed without any complication and attains its normal colour then proper measure should be taken to elongate the slit by means of *Bardhanaka* (Dilator). Otherwise complications like inflammation, burning sensations, suppurations, redness and pain will occur and the ear lobule again may split in to two parts .

Instead of *Aamataila/Tilataila*, now we are using *Vranahari* which is having *Vranaropaka* quality. Patient should follow the proper *Patya, Apathya*.

Lobuloplasty is the repair of torn ear lobule. Otoplasty is a general term for ear reshaping ear lobule repair is one of the procedure. It is done for enlarged; splitted, torn ear holes in the lobule.<sup>[7]</sup> The main cause is due to wearing of heavy earring, that causes downward dragging pole causing expanded split and tear in the lobule. Lobuloplasty procedure normally is done under local anesthesia where the local anesthetic agent is injected in to the lobule by piercing the needle in to the lobule to make it anesthetized. Then a 15 no. surgical blade is used to excise the scar all around the hole, following which the wound is sutured in anterior and posterior aspect with Appropriate suturing material.

#### CASE PRESENTATION

An old woman of 65yr/F house wife by profession came to the Shalya Tantra OPD on October 2021 with the complaint of B/L ear lobule tear.

She is N/K/C/O DM; HTN; BA.

#### H/O Present Illness

As per the statement given by the patient, she was apparently normal before 5 years. Later gradually developed ear lobe tear due to habitual wearing of heavy earrings. She does not give H/O of pain and

swelling in the ear lobule. For the above complaints she approached our hospital for reconstructive ear lobule repair.

### Personal History

- *Ahara*: Vegetarian
- *Vihara*: *Madyama*
- *Nidra*: Disturbed sleep
- *Vyasana*: Tea 3 times /day.
- *Mala*: Once in a day.
- *Mutra*: 4-5 times/day.

### Astastana Pareeksha

*Nadi*: *Vataja Nadi*

*Mala*: Once in a day, *Prakruta*

*Mutra*: 4-5 times a day, *Prakruta*

*Jihwa*: *Aliptata*

*Shabda*: *Prakruta*

*Sparsha*: *Prakruta*

*Drik*: *Prakruta*

*Akruti*: lean built

### Samanya Pareeksha

- Built: moderately built
- Appearance: normal
- Temperature: 98°F
- Pulse: 72bpm
- RR: 20cpm
- BP: 110/80mmHg
- Nourishment: Poorly nourishment.
- Pallor: Present
- Icterus: absent
- Edema: absent
- Cyanosis: absent
- Kilonechia: absent

- Clubbing: absent

### Systemic Examination

#### Central nervous system

Higher mental function test: Conscious, well oriented to time place and person.

#### Cardio vascular system

Auscultation S1 and S2 heard.

#### Respiratory system

Auscultation: B/L NVBS heard.

#### Gastro intestinal tract

O/P: soft, non-tender, not distended, no organomegaly.

no dullness sound heard.

#### Musculo Skeleton System Examination

All range of movement possible, without pain/difficulty.

#### Local Examination

On Inspection

Site: Lobular region

Healed scar present both the ear lobules.

No pain, tenderness

Discharge: absent

Bleeding: absent

Tear in the left ear measuring 1\*2cm linear

Tear in the Right ear measuring 0.7cm\*0.2cm linear

#### Investigation

RBS: 107mg/dl

Blood urea: 21mg/dl

Serum creatine: 0.8mg/dl

Troponin-T: 0.011ng/ml

Serum electrolytes: Sodium - 137meq/l, Potassium - 3-94meq/l

HB: 11.4gm/dl

TC: 11800Cells/cum

Neutrophils: 89.5%

Lymphocytes: 3.4%

Eosinophils: 0.1%

Monocytes: 6.7%

Basophils: 0.3%

RBC Count: 3.02mil/cu

PCV: 23.4%

MCV: 77.6fl

MCH: 27pg

MCHC: 34.8%

Platelet count: 2.68lakhs/cumm

BT: 2.10 min

CT: 5.10 min

#### Operative Procedure

##### Pre operative procedure

Oral consent to be taken

Inj. Xylocaine test dose given.

Inj. T.T 0.5ml inj given

Part Preparation

Fitness taken

##### Operative procedure

Under all aseptic measures patient was shifted to minor OT.



Local Anesthesia infiltrated to lobular junction (ear lobule block).



Part prepared painted and draped.



Left ear torn lobule – had a tear measuring 1cm \*2cm of linear shape, similarly right ear torn lobule had a linear tear measuring about 0.7cm \*0.2cm.



Then a 15 No Surgical blade is used to excise the scar in the Anterior aspect of the tear – excising out a rim of margin measuring 0.2cm all around the torn ear lobule and a fresh wound is created along the borders.



Following which the margins of the wound is approximated in proper alignment in with Vicryl 6-0, wound is sutured to create a minimally visible scar line and at the same time, shape of the lobule is given consideration to maintain normal anatomical shape.

Same Procedure is repeated on posterior aspect with 6-0 Vicryl suture.

Left ear 11 suture done (6-anterior,5-posterior).



Similar procedure is repeated in right Ear Lobule, and 4 Anterior and 3 posterior suture done.

*Vranaprakshalana* (Wound wash) given with *Triphalakashaya*.

Wound covered with *Vranahari* lotion

Pressure bandage applied and dressing done.

##### Post operative procedure

Tab. *Triphala Guggulu* (2-2-2) A/F For 15 Days.

Tab. *Gandhaka Rasayana* (2-2-2) A/F For 15 Days.

**Follow up:** 7, 14, 21 days

##### Observation findings

*Vedana* after *Sandana Karma* - Mild pain is noticed first 3 days of labuloplasty procedure.

No infection noted.

It took around 10 days for healing wound.

On 10<sup>th</sup> Day sutures removed.

Wound was healthy and healing.

Very minimal Scar mark noted

##### DISCUSSION

Lobuloplasty which can be compared with *Karnapali Sandanavidhi* explained by *Acharya Sushruta*. *Sushruta* mentioned that 6<sup>th</sup> month and 7<sup>th</sup> months are the right time for piercing the ear of the child. The ear of the child was punctured for protective and ornamental purpose. It means the child whose ear has been punctured will not afflicted then the bad effect will remain for a shorter period. In *Dharmashastra* it has clearly mentioned that it increases *Prusti, Ayu, Shri* of the child.

Often these ear lobes; due to the use of heavy Ornaments; gets considerably expanded split and tear as time passes.

15 types of plastic repair of the ear is mentioned in *Sushruta*. Such as 1. *Nemisandhanaka* 2. *Utpala Bhedyaka* 3. *Valluraka* 4. *Asangima*. 5. *Gandakarna* 6. *Aharya* 7. *Nirvedhima* 8. *Vyayojima* 9. *Kapatasantdhika* 10. *Ardhakapata Sandhiaka* 11. *Sanksipta* 12. *Hinakarna* 13. *Vallikarna* 14. *YastiKarna* 15. *Kakaustaka*.

*Utpalabhedaka* and *Nemisandanaka* procedure done here, was told by *Sushruta* in *Karna Bhandha* technique.

The edge of the wound should be raised, both the flaps should be brought in to opposition, then Suturing should be done by a fine thread. Now instead of *Ashmanthaka* we are using Vicryl.

After Suturing, the ear lobule should be irrigated with fresh sesamum oil continuously for three days. Dressings should be changed on every third days.

Instead of *Aamataila/ Tila Taila* now we are using *Vranahari* which is having *Vranaropaka* quality.

Surgeons push ahead with innovations, improving current techniques and discovering new ones.

### CONCLUSION

This was a case performed on the lines of *Sandhana Karma* i.e., Reconstruction surgery explained by *Acharya Sushruta* in his treatise. Classical textual references for *Karnapali Sandhana* can be compared to lobuloplasty and this procedure was successfully done on the lines of *Shastra Karma Vidhi* according to Ayurveda.



Image 1: Pre Opp Right Ear Lobule



Image 2: Pre Opp Left Ear Lobule



Image 3: Left anterior ear lobule sutures



Image 4: Left posterior ear lobule sutures



Image 5: Right posterior ear lobule sutures



Image 6: Right Anterior ear lobule



Image 10: Right anterior ear lobule suture removal



Image 7: Left Posterior ear lobule



Image 11: Right posterior ear lobule suture removal

### Follow Up - Suture Removal



Image 8: Left anterior ear lobule suture removal



Image 9: Left anterior ear lobule suture removal



Image 12 & 13: Right and left ear lobule after 6 months of lobuloplasty

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