

## COMPARATIVE STUDY OF SURGICOANATOMICAL CONCEPT OF SKIN INCISION IN SUSHRUTA SAMHITA AND MODERN SCIENCE

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### ABSTRACT

Perfect incision enable surgeon to succeed in his work. Surgeon should know the complete knowledge about anatomy to avoid complications due to cutting of vital structures like arteries, veins, nerves, ligaments, tendons, muscles. Incision has great cosmetic value. *Acharya sushruta* has opined that incision should be *Aayat* (long), *Vishal* (large), *sama* (evenly matured), *Suvibhakta* (well divided) and *Nirashraya* (devoid of deep base). Generally incisions are designed to proper access to the pathology to be operated on. It may be diagnostic. *Sushruta* has mentioned about the condition of inflammatory swelling suitable for incision, exact method for incision, precautions to be taken to avoid recurrence and complications if wrong method used for incision. This knowledge has ample importance for surgeon. Modern science has laid down various types of incisions. There are some similarities and differences between modern science and ayurvedic concept of incision.

This article presents concept of incision described by *sushruta* which helps the surgeon to increase their efficiency and emphasize the importance of it in present era also.

**Keywords** incision, surgicoanatomical, *Sushruta*

### INTRODUCTION

*Sushruta samhita* is one of the great treatises in *Ayurveda*. It has predominance of surgery. Sushruta explains the eight types of *shastrakarma*<sup>1</sup> (surgical operation) such as *chedhan* (excision), *bhedan* (incision), *lekhan* (scraping), *vedhan* (puncturing), *ashyam* (probing), *aaharya* (extraction), *vistravya* (draining) and *sivan* (suturing). Surgeon should be fearless and swift in action. He should not have perspiration, trembling and confusion during surgical operation. These are the qualities<sup>2</sup> of ideal surgeon. But how one can get these qualities? Simply regular practice of surgical procedure said by *Acharya* with complete knowledge about anatomy may be the answer. Making inci-

sion is the basic surgical procedure. Incision has both surgical and anatomical importance. Surgical view of incision avoids cosmetic damage and anatomical view provide safeguard to vital structures.

*Acharya* stated specific incision in relation to various parts of body as well as in relation to specific diseases. This increases safe and cosmetic value of incision. Most of the patients are very conscious about their beauty or good looking. In this competitive era one cannot afford the improper incision which affects beauty.

Therefore to becoming a good surgeon who operates successfully without damaging patient's beauty one should under-

stand the concept of skin incision in *sushruta samhita*.

## MATERIALS AND METHODS

1. Sushruta samhita
2. Various modern surgery textbooks

### Incision

Sushruta stated that surgeon who knows well immature, maturing and mature stages of inflammatory swelling (*Shofa*) is the real one whereas others are burglars<sup>3</sup>. Surgeon should make incision keeping in mind that there are anatomical structures which must be secured such as *Marma* (vital point), *Sira* (vein), *Snayu* (ligament), *Sandhi* (joint), *Dhamani* (artery). *Shastra* should apply once and immediately taken out. Incision should be made two or three fingers deep even in large inflammation. Wound such as long, large, well divided, without fixtures and matured in proper time is preferred for operation. Special precautions should take in case of child and old people. Surgeon should apply *shastra* in *anuloma* direction means fol-

lowing direction of hairs<sup>4</sup>. This might be due to cosmetic reason. According to modern sciences certain operations in neck the transverse incision along the natural crease is preferred to avoid further keloid formation though longitudinal incision would have been better for proper access<sup>5</sup>. Surgeon should make incision in such a way that the *dosha* (impurity/ pus) does not remain in *utsang* (site of pathology). *Utsang* may be the depression formed by torn up tissues due to accumulation of *doshas* (pus) for a long time at this site. If pus is not evacuated by one incision then surgeon should make another one<sup>6</sup>.

*Acharya sushruta* stated various incisions according to body parts to avoid complications like cutting of veins and ligaments, severe pain, delayed healing and appearance of *Manskandi* (polyp like growth). These incisions are tabulated as follows

Table no.1 -TYPE OF AYURVEDIC INCISIONS<sup>7</sup>

Sr. no.	Type of incision	Site of incision
1	<i>Tiryak</i> (oblique)	1. <i>Bhroo</i> (eyebrows)
		2. <i>Gand</i> (Cheeks)
		3. <i>Shank</i> (temples)
		4. <i>lalat</i> (forehead)
		5. <i>akshiput</i> (eyelids)
		6. <i>aushta</i> (lips)
		7. <i>dandveshatak</i> (gum)
		8. <i>kaksha</i> (axilla)
		9. <i>Kukshi</i> (belly)
		10. <i>Vankshan</i> (Groin)
2	<i>Chandramandal</i> (orb of moon)	1. <i>Pani</i> (hands)
		2. <i>Pada</i> (feet)
3	<i>Ardhachandrakuti</i> (half moon shaped)	1. <i>Guda</i> (anus)
		2. <i>Medhra</i> (penis)

Table no.2 – INCISIONS -ACCORDING TO MODERN SCIENCES

Sr. no.	Site of incision	
1	Abdomen <sup>8</sup>	<ol style="list-style-type: none"> <li>1. Midline incision</li> <li>2. Left upper paramedian incision</li> <li>3. Kocher's incision</li> <li>4. Upper transverse incision</li> <li>5. Right lower paramedian</li> <li>6. Gridiron incision</li> <li>7. Lanz's incision</li> <li>8. Battle's pararectal incision</li> <li>9. Left iliac muscle cutting incision</li> </ol>
2	Breast <sup>9</sup>	<ol style="list-style-type: none"> <li>1. Cuteo areolar incision</li> <li>2. Radial incision</li> <li>3. Gaillard Thomas's submammary incision</li> </ol>
3	Groin <sup>10</sup>	<ol style="list-style-type: none"> <li>1. Incision for high operation Mcevedy</li> <li>2. Incision for inguinal operation of Lotheissen</li> <li>3. Incision for low operation of lockwood</li> </ol> <p>These 3 incisions are useful in femoral hernia</p>
4	Penis <sup>11</sup>	<ol style="list-style-type: none"> <li>1. Circumferential Incision for Van der Meulen's operation</li> <li>2. U shaped Incision for epispadias</li> <li>3. Racket shaped Incision for total amputation of penis</li> </ol>
5	Rectum and anal canal <sup>12</sup>	<ol style="list-style-type: none"> <li>1. Circumferential Incision for Theirsch's operation</li> <li>2. Curved incision for Rectopexy</li> <li>3. Cruciate incision for ischiorectal abscess</li> <li>4. Circular incision for high level fistula</li> </ol>
6	Scalp <sup>13</sup>	<ol style="list-style-type: none"> <li>1. U shaped incision is used in Osteoplastic flap method for access to brain.</li> </ol>

### Similarities between Ayurved and modern incisions

Various incisions are mentioned while describing particular surgical operatives of diseases in modern sciences which may be correlated with incision for particular organ or region described in *sushruta samhita*. Few examples are as follows.

1. Radial incision is made along the line radiating from the areola of breast for excision benign tumour and drainage of pus in breast. It can be correlated with *tiryak* (oblique) incision in *kaksha* (breast) region.
2. Kochers incision- it starts in the midline just below the xiphoid process and runs downwards and laterally about

2cm below and parallel to the costal margin.

It is popularly used for gall bladder operation. It can be correlated with *tiryak* (oblique) incision in *kukshi* (abdomen) region.

3. Gridiron incision- it is perpendicular to the right spinoumbelical line (which extends from the right anterior superior iliac spine to the umbilicus) through McBurneys point. It is commonly used for appendicetomy.
4. Incision for Herniotomy- the incision is made half inch above and parallel to the medial two third of the inguinal ligament. It can be correlated with *ti-*

ryak (oblique) incision in *Vankshan* (Groin/inguinal) region.

5. In Guillotine type and circular flap method of amputation, the incision is circular which can be correlated with *Chandramandalvat* (orb of moon shaped) incision in *Pani* (hand/upper limb) and *Pada* (leg/lower limb) described by *sushruta*. It is commonly used in Gas-gangrene.
6. U shaped incision is made to reconstruct the urethra in case of Epispadias (urethra opens on dorsal surface of urethra). This can be correlated with *Ardhachandrakruti* (half moon shaped) incision at *Medhra* (penis).
7. *Acharya sushruta* opined four types of excision in *Bhagandar* (fistula in ano). Surgeon can excise fistula in ano in two ways by probe or skin incision. So there are four types of incision also. These are namely *Ardhalangalak* (incision on both sides, being shorter on one side), *Langalak* (incisions equal in both sides), *Sarvotabhadrak* (circular), *Gotirthak* (semicircular)<sup>14</sup>.
8. Kakpadakar<sup>15</sup> (crows foot shaped) incision on scalp is described in *sushruta samhita* in case of snake bite.

### Dis-similarities between Ayurved and modern incisions

There are lots of differences between Ayurved and Modern science concern with incisions but basic one is described as follows.

Modern sciences opined incisions according to diseases. Ayurveda has mentioned incisions of some specific diseases only like *Bhagandar* (fistula). It does not mentioned incisions for every diseases instead of that it mentioned incisions according to body parts likewise *tiryak* incision for *bhroo* (eyebrows).

### DISCUSSION:

There may be damage to muscles, vessels, ligaments, joints and bones; excessive hemorrhage, appearance of pain, tearing, manifestation of many complications or traumatic abscess, if immature inflammation is incised. When surgeon considers mature as the immature and neglects the disease for long time due to fear and confusion pus deep-seated and not finding exit tear its location, produces cavity by big lap like space. It becomes curable with difficulty or incurable. Well knowledge regarding inflammatory swelling is mandatory.

If anatomical structures mentioned above get damaged then there will be complications or they might lose their function. Proper access to pathology avoids the recurrence of disease.

Radial incision does not injure the lactiferous ducts, which lie in the same line as the line of incision. Kocher incision may damage few intercostals nerves, yet no weakness of scar is found practically. Gridiron incision does not damage any nerve and also heals quickly because of its muscle splitting feature. Superficial epigastric and superficial external pudendal artery are secured during incision of herniotomy. U shaped incision in epispadias helps to reconstruct urethra. These incisions follow the principles said by *sushruta* that anatomical structures should be preserved and the shape of incision for particular organ.

In modern sciences whether a fistula is a low or high level type is decided by Good-salls rule and according to that incisions or treatment is decide. *Acharya sushruta* has explained various incisions for *bhagandar* (fistula in ano) taking into consideration various types and stages of disease. Also *sushruta* mentioned life saving incision for snake bite. Hence we can say that

sushruta has well knowledge of incision.

### CONCLUSION:

1. Surgicoanatomical concept of skin incision mentioned in sushruta samhita still has ample importance in surgical operation.
2. It is useful in operatives of various diseases.
3. Surgeon can increase efficiency by considering the principles of skin incision laid by sushruta and serve the society.

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