



THE EXPERIMENTAL SURGERY AND ITS IMPORTANCE IN PRESENT ERA W.S.R. TO YOGYA- SUTRIYA

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ABSTRACT- Originally, *Ayurveda*, the Indian medical system, has strongly advocated ethical code of conduct for surgeons, but does not get its due recognition till this date. Experimental Surgery is an important part of Surgical Ethics, described in *Ayurveda* as *Yogya*. He who desires skill (expertise) in the use of sharp instruments, alkaline and thermal cautery etc. should make use of objects similar suitable to the act and become skilled in surgical work. Different suitable objects have been described by *Acharya Sushruta* on which the *ashtavidha shastra karma* can be practiced. If a surgeon performs surgical operations without proper practical training, it may lead to various complications and such surgeons are called quacks. So, experimental surgery is of utmost importance for the success of a Surgeon.

KEYWORDS: experimental surgery, surgical ethics, yogya, asthavidha shastra karma

I. INTRODUCTION

Ethics deal with the set of principles of right conduct. The four basic principles of bioethics - autonomy, beneficence, non-maleficence and justice are known as "principlism". Though these four principles are influenced by the western world; in the medical field they are adapted as universal ethics. Originally, *Ayurveda*, the Indian medical system, has strongly advocated ethical code of conduct for surgeons, but does not get its due recognition till this date. The surgical ethical principles in *Ayurveda* have been placed in the following order. General ethics, professional and academic ethics, preoperative ethics, operative ethics, postoperative ethics, experimental surgery (*yogya*) ethics, quacks, ethics toward the dying, and ethics in emergency surgery. Experimental Surgery is most important as described in *Ayurveda* for making the student fit to become a good surgeon.

Yogya

To obtain complete success in the aimed (operating) work, practise of similar operations before hand is called *yoga* (experiment); and performance of such practice is called *yogya*.¹

Yogya Sutriya

Yogya sutriya is making the student fit for surgical work as revealed by the venerable *Dhanvantari*.

Qualities of a Surgeon

A physician who wishes to become a surgeon should have introspection. Surgery needs a special framework of mind and body. It is not possible for all the physicians to become surgeon. *Sushruta* has specially quoted the qualities of a surgeon viz. *Shaurya* (courageous/boldness), *Ashukriya* (prompt action), *Shastra Taikshanya* (keeping the surgical instruments sharp), *Asveda* (himself not perspiring), *Avepathu* (no tremors), *Asammoha* (not illusioned/confused).² So before embarking on the surgical procedure one should assess himself that is he able to perform surgery or not.

Need of Experimental Surgery

Though the students have understood the meanings (implications) of the science fully (after completing the study) should be made a *yogya* (fit person), he should be instructed the practical methods of oleation etc (medical therapies) and excision etc (surgical therapies). Though a person is well read (thus possessing theoretical knowledge) if he is not made fit (by practical training) he becomes unfit (incompetent for surgical activities).

Hence, he who desires skill (expertise) in the use of sharp instruments, alkaline and thermal cautery etc. should make use of objects similar (suitable) to the act and become fit (skilled in surgical work).³

Practical Training in Experimental Surgery⁴

In Ayurvedic classics, eight kinds of surgical operations have been described : *chedana*, *bhedana*, *lekhana*, *vedhana*, *eshana*, *aharana*, *visravana* and *sivana*. Every student who desires to become a good surgeon should do experimental surgery before performing surgical procedures on live patients.

Different kinds of *chedana* (excision) should be demonstrated by using *puspa phala* (*kushmanda*), *alabu*, *kalindaka*, *trapusa*, *ervaruka*, *karkaruka* etc.; *utkartana* (excess cutting) and *apakartana* (inadequate cutting) should be instructed.

Bhedana (splitting, dividing) should be demonstrated on *druti bastiprasevaka* (urinary bladder of animals, leather sac and such others filled with water or slush) and *udaka-pankapurna* (leathern bottle with full of water and slime).

Lekhana (scraping/scarification) should be demonstrated on a *romayukta charma* (piece of hairy skin).

Vedhana (puncturing) should be carried out on *mruta pashu sira* (vessels of dead animals) and on the *utpala nala* (stalks of lotus plant).

Eshana (probing, exploring) should be demonstrated on *gunopahata kasta* (moth eaten wood), *venunala* (bamboos), *nala* (reed-tubes) and *suska-alabumukha* (mouth of a dried guard).

Aharana (extracting) should be performed on *panasa*, *bimbi*, *bilvaphala majja*, and *mruta pashu danta* (teeth of dead animals).

Visravana (draining fluids) should be demonstrated on *madhuchistopalipta shalmali phalake* (plank of *shalmali* wood smeared with bee wax)

Sivana (suturing) should be carried out on the borders of *sukshma ghana vastra* (fine closely knitted cloth)

Bandana (bandaging) should be carried out on *pustamaya-purushanga-pratyanga* (different parts and subdivisions on the dummies made of cloth).

Experiments on the use of fire (branding) and alkali (thermal and alkaline cauteries) should be demonstrated on *mridu-mamsakhanda* (soft muscle pieces).

Plastic surgery of ear should be demonstrated on *mridu charma* (soft skin), *mamsa peshi* (muscles), and *utpala nala* (the lotus stalks).

The experiments of application of nozzle of enema apparatus and wound irrigation should be demonstrated on *udakapoorna-ghataparshwasrotasya-alabumukhadisgu* (the side hole of an earthen pot full of water and on the mouth of a gourd).



(Courtesy, Prof. Subba Reddy)

**Surgical techniques, practised on fruits and vegetables
in Susrut's clinic.**

Fig. 1

Benefits of sExperimental Surgery

The intelligent (student) who does experimental surgery methodically on such articles as stated above does not lose the presence of his mind, while doing the actual operation.⁵

That surgeon always gets success who is well versed in the art of using surgical instruments, therefore he should always be trying to acquire knowledge in the use of various instruments.⁶

Complications of Surgery without prior training of Experimental Surgery (su.su.25/30)

If a surgeon directly performs eight kinds of operations without proper practical training, four kinds of complications might occur such as *hina cheda* (inadequate cutting), *atirikta cheda* (excess cutting), *tiryak cheda* (oblique/improper cutting) and *atmana cheda* (cutting of own body) (fingers etc. of the surgeon himself).⁷

When the surgeon performs surgical operations improperly, due to either ignorance, greed, inciting words of others, fear, delusion (confusion) or any other factors, then he creates many other diseases.

The instrument itself made use of by the foolish surgeon, produces severe pain in the vital points, joints, veins, ligaments and bones and sometimes causes even loss of life.

Giddiness, delirium, delusion, loss of activity of the body parts, semi-consciousness, increase of body temperature, weakness of body parts, increased excretions, severe pain caused by vata, blood resembling mutton wash flowing out, cessation of activity of all the sense organs – are the common symptoms when all the five (vital spots, joints, tendons, and bones) are injured by the sharp instruments.⁸

When the veins are cut or torn there will be profuse bleeding from the wound, the blood resembling *indragopa* (cochineal insect which is bright red in colour), vata getting aggravated gives rise to many diseases.⁹

Shortening, debility of body parts, inability to perform their actions, severe (excruciating) pain, wound healing after a long time – should be understood as caused due to cut or injury to the ligaments.¹⁰

When the joints, either movable or immovable are injured, there will be great increase of swelling, very severe pain, loss of strength of the joints, splitting pain, oedema and loss of function of the joints are the symptoms.¹¹

When the person is suffering with severe pain day and night (constantly) finds no comfort in any position (postures), thirst, weakness of the body, oedema and pain also being present he should be understood as being cut (injured) in his bones.

When the vital spots are injured, the above symptoms also should be included (along with others concerned to the particular vital spots), loss of sensation of touch, profound yellowish white colour of the body, will be symptoms, when vital spots of muscles are injured.

Quacks

The physician who causes injury by his instruments while performing his activities should be considered as a mean fellow; the intelligent person, desirous of long life, should avoid such a quack physician who kills the patient.

The *Kuvaidya* (quack physician/surgeon) thrive due to the inefficiency of the king.¹²

II. CONCLUSION

From the foregoing description, we understood the utmost importance our ancient teachers had given to experimental surgical activities, their ingenuity in selection of commonly used things and artificially prepared models suitable for each technique and their effort to make every student fit to perform all surgical activities.

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Publication Ideology: The University initiative behind this publication is to exhibit the uniqueness of the research work done in which both the students & teachers were actively involved where the teacher acted as the research mentor for the students to inculcate in them the research attitude. The highlight is that the work done is correlated with the ancient literature, invention, science & technology of ancient India.

Correlation with Ancient Indian Literature: Ayurveda, the Indian medical system, has strongly advocated ethical code of conduct for surgeons, but does not get its due recognition till this date. The surgical ethical principles in Ayurveda have been placed in the following order. General ethics, professional and academic ethics, preoperative ethics, operative ethics, postoperative ethics, experimental surgery (*yogya*) ethics, quacks, ethics toward the dying, and ethics in emergency surgery. Experimental Surgery is most important as described in Ayurveda for making the student fit to become a good surgeon.

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