



## **Efficacy of *Asanadi Kwatha* in Post Operative Wound Management of Inguinal Hernia**

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### **ABSTRACT**

Poor wound healing and scar formation remain critical problems in daily surgical practice. Planning a cost effective, reliable and simple management is the need of the day. To find the efficacy of *Asanadi kwatha* in primary wound healing of post operative cases of inguinal hernia. 2) To compare the results with the control group treated with *Asanadi kwatha*, *Triphala guggulu* and *Gandhaka rasayana*. The drugs *Triphala guggulu* and *Gandhaka rasayana* were used and proved to be efficacious in the management of post operative conditions. Present clinical study was an open labeled, randomized trial, in which 20 patients who had undergone elective surgery for inguinal hernia were randomly divided into two groups. The control group patients were administered *Asanadi kwatha*, *Triphalaguggulu*, and *Gandhaka Rasayana*. The trial group patients are administered *Asanadi kwatha*. They were further evaluated on the basis of a proforma prepared specially for the study. The pain and wound healing were assessed on daily basis for 1 week with aseptic precautions. The sutures were removed after establishing sufficient tensile strength of wound edges. The patient's response was assessed based on subjective criteria (pain, temperature, itching) and objective criteria (tenderness, edema, colour of wound, tensile strength of wound edges, size and appearance of scar). The efficacy of *Asanadi kwatha* was determined from a statistical analysis of the post operative treatment symptom scorings. The data was subjected to statistical test (paired *t*-test) and analyzed. The difference in intensity of pain and tenderness between the trial and control group was found to be statistically insignificant ( $P > 0.05$ ). Patients who were administered *Triphala guggulu* and *Gandhaka rasayana* along with *Asanadi kwatha* needed lesser number of analgesics. The course of healing in both the groups were identical. In both the groups, there was no significant discharge, no significant edema or itching. The healing of wound seems to be more effectively promoted by a combination of *Triphala guggulu*, *Gandhaka rasayana* and *Asanadi kwatha* in comparison with *Asanadi kwatha* alone.

*Key words:* Inguinal hernia, *Asanadi kwatha*, *Triphala guggulu*, *Gandhaka rasayana*.

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### **INTRODUCTION**

Healing is a remarkable living phenomenon and without it, surgery as we know it would be impossible. The response of living tissue to injury forms the foundation of all surgical practice indeed from a biological view point. Tissue injury and its sequel constitutes majority of general medical problems. Better wound healing with minimal scar formation and controlling pain effectively are the prime motto of every surgeon.

Although healing is a normal body response to any type of trauma or injury, it is very much essential to take care of the injured site. It is also true that even with the best precautions, some scope for impairment of wound healing can exist. The majority of technical advances in wound care over the past century have been based on a 'minimal interference' concept. If a surgeon can remove all impediments, normal wound healing processes produce the best possible results [1].

Even after development of various technologies and methods for the treatment of wounds, we still face problems in their management. The major parts of the wound management in present day include prevention of sepsis by proper antibiotics, various types of bandages and prescription of some vitamins. Still, modern science is unable to find the way by which they can really hold up the process of wound healing [2].

For the follower of *Shalya tantra*, it is needed to establish an effective Ayurvedic management for wound healing. Sushruta has used various techniques to achieve a primary wound healing. Planning a cost effective, reliable and simple management is the need of the day. The current problem, efficacy of *Asanadi kwatha* in post-operative wound management is an effort in that direction. Inguinal hernia is one of the common surgical problems handled in day today practice. Hence it is selected for study. The surgical procedure of herniorrhaphy produces an average equal intensity of tissue injury and hence provides

uniform groups of subjects for the study.

### Objectives of the Study

1. To find the efficacy of *Asanadi kwatha* in primary wound healing of post operative cases of inguinal hernia.
2. To compare the results with the control group treated with *Asanadi kwatha*, *Triphala guggulu* and *Gandhaka rasayana*. The drugs *Triphala guggulu* and *Gandhaka rasayana* were used and proved to be efficacious in the management of post operative conditions.

## MATERIAL AND METHODS

### Drug review

*Asanadi kwatha* is an *anubhoota yoga* which is prescribed in SDM Ayurveda Hospital, Udupi for the treatment of *Prameha*. This *yoga* is also used in Dhanwanthari surgical section for post operative wound management along with *Triphala guggulu* and *Gandhaka rasayana*. The drugs used for the preparation of *Asanadi kwatha* are- *Asana*, *Khadira*, *Shariva*, *Manjishta*, *Ushira*, *Chandana*, *Haritaki*, *Vibhitaki*, *Amalaki*, *Punarnava*, *Ashvagandha*, *Haridra*, *Gokshura*, and *Saptarangi*. Composition and ingredients of *Asanadi kwatha* are given in Table 1 [2-11].

**Method of Preparation:** All the raw materials were procured and checked for genuinity, then dried and selected for particle size viz: *Kwatha churna*.

**Probable action of *Asanadi kwatha*:** The *kwatha* contains 14 drugs, most of which have *sheethavirya*. Some drugs like *Triphala* which is an ingredient of *Asanadi kwatha* are *vrana ropaka* in nature. Most of these drugs have *tikta*, *kashaya rasa*, *katuvipaka*, and *laghu ruksha guna*. Hence, it produces *rukshana* and is *kaphaghna* and *medoghna*. *Asanadi kwatha* reduces excess *kleda* that paves the way for infections in the body. It also reduces the *kshathoshma* which is produced at the site of incision. Hence it helps in promoting *vrana ropana*.

### Source of Data:

Patients who underwent elective surgery for inguinal hernia were selected from Dhanvantari surgical section of SDM Ayurvedic Hospital, Udupi.

### Method of Collection of Data:

Patients of either sex who underwent surgery were randomly grouped into two classes. The control group patients were administered *Asanadi kwatha* - 40 ml. BD, *Triphala guggulu* 450 mg - 1 tid, *Gandhaka rasayana* 250 mg - 1 tid. The trial group patients are administered *Asanadi kwatha* 40 ml. bd.

They were further evaluated on the basis of proforma prepared specially for study.

The oral medicines were administered as - *Asanadi kwatha* - 40 ml. BD and patients were administered injection Diclofenac Sodium 25mg IM when they complained of severe pain on 1st post operative day only.

### Observation period: 7 days

The pain and wound healing were assessed on daily basis for 1 week with aseptic precautions. The sutures were removed after establishing sufficient tensile strength of wound edges. The results were compared to an identical control group treated with *Triphala Guggulu*, *Gandhakarasyana* and *Asanadi Kwatha*.

### Inclusion Criteria:

Patients who had undergone elective surgery for inguinal hernia by Bassini's repair (uncomplicated and elective surgeries), between age group 20 - 70 years of age, were included in the study.

### Exclusion Criteria:-

Patients suffering from systemic diseases like DM, TB, Hepatitis and HIV; and those having emergency surgical conditions were excluded from the study.

### Assessment Criteria

The patient's response was assessed based on the subjective and objective changes.

### Subjective criteria:-

Pain, Temperature, Itching.

### Objective criteria:-

Pain, Tenderness, Discharge, Temperature, Itching, Edema. Color of wound, tensile strength of wound.

All the criteria were graded arbitrarily as follows:

### Pain

No pain

1. Patient complains of pain only on movement

2- Pain in resting position

3- More severe pain which requires analgesic intervention

**Tenderness**

0- No tenderness

- 1- Tenderness on deep pressure
- 2- Tenderness on moderate pressure
- 3- 3- Tenderness even on touch

**Srava**

- 0- No discharge
  - 1- One layer of gauze is wet
  - 2- Dressing has to be changed more than once a day
- A. Body temperature-** in Farenheit  
**B. Itching-** Present or Absent  
**C. Edema-** Present or Absent

**RESULTS**

Among the 20 patients selected for study, all were males and most of the patients (35%) belonged to the age group of 31 to 40 years. Maximum number of patients (40%) were agriculturists followed by businessmen (25%), hotel workers (20%), and labourers (10%), and fishermen (5%). 25% were addicted to alcohol and 10% to smoking, while the rest (65%) had noaddictions.

**Side involved**

Out of the 20 patients selected for study, one patient each in trial group and control group hadbilateral hernia, while the rest had unilateral hernia.

**Type of Hernia**

Among the 20 patients, 4 each in control group had direct hernia, 4 in control group and 5 in trialgroup had indirect hernia, and 2 in control group and 1 in trial group had bubenoccele (Table 2).

**Reducibility of hernia**

8 patients in control group and 9 patients in trial group had reducible hernia, whereas 2 in controlgroup and 1 in trial group had non reducible hernia. (Table 3)

**Time taken for surgery**

The maximum and minimum time taken for surgery in bilateral hernia was 60 minutes and 30minutes respectively and the same for unilateral hernia was 30 min and 20 min respectively.

**Amount of bleeding**

The maximum and minimum amount of bleeding during surgery in bilateral hernia was 200 ml and 100 ml respectively and the same for unilateral hernia was 100 ml and 20 ml respectively.

**Type of Suturing material used**

In both groups, the patients were operated by using same suturing materials ie. sutupak no.1monofilament and cotton thread no. 10.

**Length of Incision**

In both groups average length of incision in bilateral hernia were 8.19 and 8 cms ( maximum 10.5 and 7 cms, minimum 7 and 8 cms ) and in unilateral hernia , it was 8.29 cms ( maximum 12cms, minimum 5 cms)

**Number of Skin Sutures**

In both groups , no of skin sutures in bilateral hernia were maximum 7 and minimum 3 sutures ,and in unilateral hernia it was maximum 5 sutures and minimum 3 sutures.

**Comparison of pain**

Statistically insignificant P value of 0.660 ( $P > 0.05$ ) was obtained in the comparison of painbetween the two groups (Table 4)

**Comparison of Tenderness**

Statistically insignificant P value of 0.660 ( $P > 0.05$ ) was obtained in the comparison oftenderness between the two groups (Table 5).

**Temperature:**

Trial group - as per the observation done during the study with respect to temperature, it wasrecorded as in 98 F to 99 F whereas three of patients in this group recorded the temperature 100 F to 101 F, in one patient on second day and in two patients on third day. They were treated with *Mrityunjaya rasa* and *Amrutarista*, by which the temperature came back to normal.

Control group - all the patients registered in this group were recorded as 98 F to 99 F whereas two of the patients in this group recorded the temperature 100 F in one patient on first day and in one patient on third day. They were treated with *Mrityunjaya rasa* and *Amrutarishta* by which the temperature came back to normal.

**Number of patients who needed analgesia**

On the first postoperative day, six patients required analgesics in trial group. Three patients in control group required analgesics on first day. No patients required analgesics from second day in either group (Table 6).

**Day of removal of skin sutures**

Sutures were removed after establishing full tensile strength of wound edges and primary wound healing. In all the patients the sutures were removed by 7 days. (Table 7).

Discharge, Itching, Edema and Colour of wound . In both the groups ie . Control and trial groups, none of the patients registered with either of these complaints. Tensile strength of wound edges that was assessed after removal of stitches ie. after 7 days were found to be of same quality in both the groups.

**Septic complication:**

No patients in trial group and control group had presented with septic complication.

**Follow up:**

In both the groups the intensity of pain and tenderness reduced on the 15th day during follow up.

**Table 1: Composition & Ingredients of Asanadi kwatha**

Name of Drug	Latin name	Proportion
<i>Asana</i> <sup>2</sup>	<i>Pterocarpus marsupium</i>	1 part
<i>Khadira</i> <sup>3</sup>	<i>Acacia catechu</i>	1 part
<i>Shariva</i> <sup>4</sup>	<i>Hemidesmus indicus</i>	1 part
<i>Manjishtha</i> <sup>5</sup>	<i>Rubia cordifolia</i>	1 part
<i>Ushira</i> <sup>6</sup>	<i>Vetiveria zizanioides</i>	1 part
<i>Chandana</i> <sup>7</sup>	<i>Santalum album</i>	1 part
<i>Haritaki</i> <sup>8</sup>	<i>Terminalia chebula</i>	1 part
<i>Vibhitaki</i>	<i>Terminalia bellirica</i>	1 part
<i>Amalaki</i>	<i>Emblca officinalis</i>	1 part
<i>Punarnava</i> <sup>9</sup>	<i>Boerhavia diffusa</i>	1 part
<i>Ashvagandha</i> <sup>10</sup>	<i>Withania somnifera</i>	1 part
<i>Haridra</i>	<i>Curcuma longa</i>	1 part
<i>Gokshura</i> <sup>11</sup>	<i>Tribulus terrestris</i>	1 part
<i>Saptarangi</i>	<i>Salacia reticulata</i>	2 parts

**Table 2: Type of hernia**

Type	Control group	Trial group	total	%
Direct	4	4	8	40
Indirect	4	5	9	45
Bubenocele	2	1	3	15

**Table 3: Reducibility of hernia**

Reducibility	Control group	Trial group	Total	%
Reducible	8	9	17	85
Non reducible	2	1	3	15

**Table 4 : Comparison of pain**

Group	BT -AT	Difference	SD	t value	P value
Trial	2.700± 0.153	0.100	0.483	0.447	= 0.660
Control	2.600 ± 0.163		0.516		

**Table 5: Comparison of Tenderness**

Group	BT -AT	Difference	SD	t value	Pvalue
Trial	2.400±0.163	0.200	0.516	+0.886	=0.398
Control	2.600±0.163		0.516		

**Table 6: Number of patients who needed analgesia**

Group	No of Patients
Control	3
Trial	6

Table 7: Day of removal of skin sutures

Group	No.of patients	Day of removal of skin sutures
Control	10	7
Trial	10	7

## DISCUSSION

According to the demographic data, majority of patients belonged to the age group of 31-40 years, which comes under *madhyama vayas* during which healing capacity of the body is in its best form. All the patients in the study were males. This could be because of the higher incidence of inguinal hernia among men due to the peculiarity of inguinal anatomy in men [2-4].

Maximum number of patients (40%) were agriculturists followed by businessmen (25%), hotelworkers (20%), and labourers (10%), and fishermen (5%). The direct relationship between physical strain and incidence of inguinal hernia is well established. This could be the cause for the higher incidence among agriculturists who perform heavy physical work.

All the patients were operated under local anaesthesia injection xylocaine 2% with adrenaline 10ml was infiltrated. Although the length of incision varies according to size of sac and contents of sac, on an average, there was no significant change in length of incision. The amount of blood loss was of uniform quantity. Suturing material is a foreign body and that can cause irritation and impair the healing process. As the same suturing material was used in all the cases, variable impact of this is nullified [5-8].

Sutures were removed after establishing full tensile strength of wound edges and primary wound healing. In all the patients the sutures were removed by 7 days. This suggests that the course of healing was almost same in both the groups.

The variation in intensity of pain and tenderness among control and trial groups was found to be statistically insignificant. On the first postoperative day, six patients required analgesics in trial group. Three patients in control group required analgesics on first day. No patients required analgesics from second day in either group. Patients who were administered *Triphala guggulu* and *Gandhaka rasayana* along with *Asanadi kwatha* needed lesser amount of analgesics. This could be due to *shothagna* and *vata shamana* property of *Triphala guggulu*. The course of healing in both the groups was almost identical. There was no discharge, edema or itching in either group, and colour of wound was suggestive of normal healing. These observations point towards better effectiveness of the combination of *Triphala guggulu*, *Gandhaka rasayana* and *Asanadi kwatha* in wound healing in comparison with *Asanadi kwatha* alone.

## LIMITATIONS OF THE STUDY:

- The sample which was selected for study comprised of 20 patients only. To comment more about efficacy of drug in pain and tenderness, further large-scale studies are required.
- Chronic pain management with Ayurvedic formulations has to be assessed in future studies.

## CONCLUSION

Inguinal hernia is a common surgical disorder in the *shalya tantra* department and effective Ayurvedic postoperative management is needed. The present study involving 20 patients in two groups substantiates that *Asanadi kwatha* should be used along with *Triphala guggulu* and *Gandhaka rasayana* to get the desired results. The need for analgesics and prophylactic antibiotics can be reduced effectively with *Triphala guggulu*, *Gandhaka rasayana* and *Asanadi kwatha*. No adverse effect of treatment was seen in any of the patients and the treatment is also economical. *Asanadi kwatha* has to be administered orally and hence cannot be used in all postoperative patients. Hence there is need to develop more Ayurvedic techniques for the post operative management in such cases. Further large scale studies in other surgical interventions involving more tissue injury may be carried out in future.

## REFERENCES

1. David C Sabiston. Sabiston's textbook of Surgery. Edn 14, HBG international, Philadelphia, 1991, 164
2. Dr Priyavath Sharma. Dravyaguna vigyan. Chowkhambha bharati academy, Varanasi, 1999, 753
3. Dr Priyavath Sharma. Dravyaguna vigyan. Chowkhambha bharati academy, Varanasi, 1999, 239
4. Dr Priyavath Sharma. Dravyaguna vigyan. Chowkhambha bharati academy, Varanasi, 1999, 758
5. Dr Priyavath Sharma. Dravyaguna vigyan. Chowkhambha bharati academy, Varanasi, 1999, 275
6. Dr Priyavath Sharma. Dravyaguna vigyan. Chowkhambha bharati academy, Varanasi, 1999, 54
7. Dr Priyavath Sharma. Dravyaguna vigyan. Chowkhambha bharati academy, Varanasi, 1999, 343
8. Dr Priyavath Sharma. Dravyaguna vigyan. Chowkhambha bharati academy, Varanasi, 1999, 675
9. Dr Priyavath Sharma. Dravyaguna vigyan. Chowkhambha bharati academy, Varanasi, 1999, 453

10. Dr Priyavath Sharma. Dravyaguna vigyan. Chowkhambha bharati academy, Varanasi,1999,465
11. Dr Priyavath Sharma. Dravyaguna vigyan. Chowkhambha bharati academy, Varanasi,1999,322
12. Dr Priyavath Sharma. Dravyaguna vigyan. Chowkhambha bharati academy, Varanasi,1999,340

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