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A review of clinical trial on evalution of *Taila Payita Amrutha Tantu* and *Mersilk* as suturing material w.s.r. to *Riju Granthi* technique in *Sadyo Vrana*

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ABSTRACT

Wounds are the most common problem faced by man since his very existence. So long as human has treated the wounds we have looked for the way to close them. Suturing is an inseparable part of surgery which needs no introduction, although the first description of sutures and suturing material is from *Susrutha Samhitha*. It is true that very few of them are practically tried now, *Amrutha Tantu* was taken for the study in view of testing its efficiency and whether it exhibits any medicinal property to wound. For these study effects were compared with Mersilk as this is also non absorbable most commonly used suture materials, Total 60 patients 30 in each group were taken for study about efficiency of both suture materials were assessed with criteria like pain edema colour temperature, tenderness and discharge. Efficacy of *Amruth Tantu* was found equal to Mersilk with extra benfit of faster wound healing due to anti-inflammatory and anti-bacterial property of *Guduchi*.

Key words: *Amrutha Tantu, Ayurvedic Suture Material, Seevana Karma, Rujugranthi Technique, Sadyo Vrana.*

INTRODUCTION

Wounds are the commonest problem faced by surgeon. Good approximation with good post-operative healing is the main aim of suturing of such wounds. When we go through the past history of surgery we come to conclusion that Indian history of surgery was considerably ahead of any other early civilization. Therefore many advancements in suture materials are done and being done in suture materials. Considering description in Sushruta Samhita.

Acharya Sushruta, "The father of surgery and Dhanvantari - The god of surgery is accepted by all the medicine exaplained various surgical techniques, Suture materials and suturing techniques in *Susruta Samhita*.[1]

Suturing is an important skill for medical students to learn and Acharya Susrutha has described this techniques in detail below the *Ashtavidha Shastrakarma* i.e. eight types of surgeries, among which *Seevana Karma* is one among them. While describing *Seevana Karma* along with technique, indications, contraindications, compilations, *Susrutha* has explained different types of suture materials are considered.[2]

AIMS AND OBJECTIVES

1. To know the efficacy of suturing materials explained by *Acharya Sushruta* with the current standardized suturing materials.
2. To standardize *Taila Payita Amrutha Tantu.*

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3. To evaluate the role of *Amrutha Tantu* as a *Seevana Dravya* for *Riju Granthi* technique explained by *Sushruta*.

Materials and Methods

The study design was open, Randomised prospective, comparative clinical study,. In this study 60 patients of *Sadyo Vrana* & post-operative minor surgery and post trauma patients were selected from OPD, IPD department of *Shalya Tantra*. They were divided into two groups Group A (N=30) and Group B (N=30). IEC approval was taken before starting the trail, informed written consent of all patients was taken before the operative procedure, and for patients below 18 years of age consent was obtained from parents or guardians. Duration of treatment was till 7-10 days. Follow up of the patients was carried out after one week from the day of sutures removal.[4]

Preparation of *Amrutha Tantu*

Detail of method of extraction of *Amrutha Tanta* for suture material are not available in Ayurvedic literatures, therefore fibers were extracted from tendrils. The mature *Guduchi* tendrils were collected and then dipped in *Tila Taila* at room temperature for 15 days which was standardise after microscopical study of *Amrutha Tantu* at the interval of 0,3,7 & 15 days to standardise the period of *Taila Payana*. *Amrutha Tantu* was sterilised with EO sterilisation.

Average length of single filament of *Amrutha Tantu* obtained was 30 cm. diameter of fibers obtained was 0.15mm. *Amrutha Tantu* was creamish white or palr white, smooth in texture. Tensile strength of single before *Taila Payana* is 18.6 N and after *Taila Payana*[5] is 28.6 N Measured using tensile motar drive machine.

Inclusion criteria

- Patients having wound due to trauma.
- Patients presenting with the classical lakshanas of *Sadyovrana*.
- Patients undergone Minor Surgery excisions like cysts and tumors will be included.
- Patients of age group of 18 years to 60 years, irrespective of gender, religion, socio-economic status & occupation were included in the study.
- *Sadyo Vrana* within size of 7cm x 1cm x 1cm (length x breath x depth).

Exclusion criteria[3]

- Patients who are contra indicated for *Seevana Karma.*
- Patients aged below 18 years and above 60 years will be excluded from the study.
- *Sadyo Vrana* with injury to major blood vessels and nerves & vital organs associated with *Bhagna* (Fracture).
- Patients with disorders like Diabetes mellitus (DM), Leprosy, Tuberculosis, Stabbed wounds, HIV, HBsAg positive and severely immune compromised subjects will be excluded.

Criteria of Assesment

The patients was assessed on subjective and objective parameters; *Vrana Vedhana, Vrana Daha , Vrana Kandu,* Restoration of daily work, days taken for wound healing as per grading.

Subjective and Objective parameter

- Pain
- Healing
- Edema
- Colour
- Temperature
- Discharge

Observation and Results

Phase 1: Microscopic study of *Amrutha Tantu* (*Tinospera cordifolia*)

The Microscopic study of sections of *Amrutha Tantu*/tendrils (*Tinospora cordifolia*) was also be carried out at varying intervals to evaluate the changes in cellular matrix. 15 days of *Taila Payana* is suffient to Osmotic pressure of cells sap and to enter

ISSN: 2456-3110 ORIGINAL ARTICLE Sept-Oct 2020

external solvent in xylem elements. Hence standarization of *Taila Payana* was done for 15 days.

Phase 2: Observation on Tensile Strength

- As load v/s cross head travel & the Result was promising in case of *Taila Payita Amrutha Tantu* were Tensile strength were seen 28.633N/mm2 as to Tensile of *Amrutha Tantu* before dipping in *Tila Taila* which was 18.69N/mm2
- The change in the tensile strength is observed due to *Taila Payana* of *Amrutha Tantu* for period of 15 days and Osmotic pressure of cells sap and to entery external solvent (*Tila Taila*) in xylem elements increased the tensile strength of the *Amrutha Tantu.*

Table 1: Showing the results of Group A.

Parameters	Mean difference	SD	SE	T test	P Value
Pain	3.87	0.346	0.63	2.604	0.0
Healing	2.36	0.124	0.18	3.496	0.131
Edema	2.28	0.183	0.33	2.693	0.0161
Colour	1.27	0.183	0.34	1.014	0.013
Temperature	1.83	0.305	0.46	4.709	0.001
Discharge	2.27	0.504	0.92	2.408	0.043

Table 2: Showing the results of Group B.

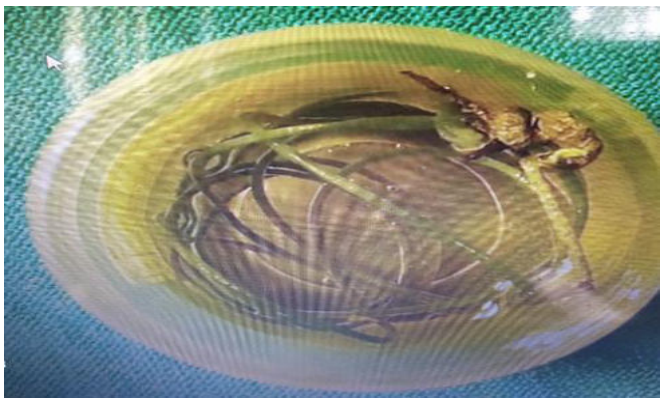
Parameters	Mean difference	SD	SE	T test	P Value
Pain	3.56	0.316	0.61	2.	0.0
Healing	2.16	0.126	0.18	3.496	0.131
Edema	2.25	0.163	0.23	2.693	0.0161
Colour	1.27	0.171	0.34	0.95	0.013
Temperature	1.63	0.305	0.46	1.014	0.001
Discharge	2.27	0.504	0.92	4.709	0.043

As the Maximum days for suturing for suture removal was fixed to 7 days in Study group out of 30 in patients 20 patients sutures were removed on 7th day while in control group in 25 patients Sutures were removed on 7th day in 3 patients of trail group and 1 patient in there was statistically insignificant wound healing difference in both groups.

Analgesic was given to 10 patients of study group and 18 patients of control group work activities was not statistically significant so, it can be inferred that recovery in restoration of daily activity is same in study and control group.

Strong and healthy scar was noted in both groups, No patients had presented with stitch abscess, granuloma and wound dehiscence in both groups.

Taila Payitha Amrutha Tantu



Microscopic study of *Amruth Tantu*

Study Group - Before

ISSN: 2456-3110 ORIGINAL ARTICLE Sept-Oct 2020

Study Group - After

Control Group - Before

Control Group - After

DISCUSSION

The significant difference in pain and odema in both groups can be attributed to Antinflammatory property of *Guduchi*.

No significant difference in days taken for wound healing was observed because a suture material whether it is *Amrutha Tantu* or Mersilk is used to approximate the wound edges only Healing of a wound is natural phenomenon. On comparing restoration in daily work is hampered because of wound so a suture material has no role to play Average knot pull tensile strength of study group 4-0 USP is 4.51 Tensile strength is 28.6N which is much more than the minimum knot pull tensile strength requirements as defined by USP. Therefore, spontaneous breakage was not observed in *Amrutha Tantu* until suture removal in trail group patients.

Due to anti-inflammatory property of *Tinospora cordifolia*, pain edema is less in study group compared to control group might be due to less tissue reaction. Due to Antimicrobial property of *Amrutha* stitch abscess or any kind of infection was not seen in post-operative period.

Limitations: The demerits are preparation of suture demands manual labour, Quality of sutures varies depending on raw materials quality.

CONCLUSION

Amrutha Tantu can be used as a alternative for Mersilk in skin closure as it is cost effective, facilitate easy handling, exhibit good knot security, maintain optimum tensile strength, less scar and less tissue reaction compared to cotton thread.

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ISSN: 2456-3110 **ORIGINAL ARTICLE** Sept-Oct 2020

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