

LAPAROSCOPIC PORT SITE WOUND INFECTION MANAGEMENT BY JALUKAVCHARANA FOLLOWED BY INTERNAL MEDICATION - A SUCCESSFUL CASE STUDY

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ABSTRACT

Wound healing becomes one of the challenging factors for surgeons due to the advancement and availability of higher antibiotics. Wound infection may interfere with wound healing and delay it.

Our ancient literature on *vrana chikitsa* (wound management) in *Ayurveda* references elaborates and explains various types of wound management principles through *Shashti-upakrama*. Among these, *Jalaukavacharana* (Leech application) has an effective role in wound management. It plays a vital role in removing local infections and promotes wound healing.

A case was successfully treated using Ayurveda principles of treatment—a 44-year-old female presenting complaints of post-operative laparoscopic port site non-healing wound for 4 months. After a complete systemic examination, it was diagnosed as *dushta vrana* (*pitta rakta pradhanadushti vrana*) on the basis of signs and symptoms. *Jalaukavacharana* and internal medication were given for 2 months, and the wound was completely healed without any complications. This case study concludes that in non-specific wound infections, *Jalaukavacharana* play an important role in removing local infections and are helpful for wound healing.

Keywords: Port site infection, non-healing wound, *Jalaukavacharana*, *dushta vrana*, *Dushta vrana chikitsa*.

INTRODUCTION

Approximately 0.5% to 3% of patients undergoing surgery will experience infection at or adjacent to the surgical incision site¹. Superficial surgical site infections exclusively affect the skin and subcutaneous tissues, constituting over 50% of all surgical site infections. Any surgical wounds declared infected or opened by the surgeon are designated as surgical site infections. These infections must occur 30 days following surgery or 1 year after implantation to meet the classification criteria². Diagnosis of a surgical site infection necessitates meeting one criteria such as wound dehiscence, presence of purulent discharge, a positive wound culture and at least one infectious symptom is present (fever, localised pain or tenderness).

Laparoscopic surgery (LS), also termed minimal access surgery, has brought a paradigm shift in the approach to modern surgical care. Early postoperative recovery, less pain, improved aesthetics, and early return to work have led to its popularity among surgeons and patients. Its application has progressed from cholecystectomies and appendectomies to various other fields, including gastrointestinal surgery, urology, gynaecology, and endo-surgery. Port site infection (PSI), although infrequent, is a bothersome complication undermining the benefits of minimally invasive surgery³.

Ayurveda literature explains wound management principles through *Shashti-upakrama*. Jalaukavacharana or Hirudotherapy (Leech application) effectively removes local infections (i.e., superficial infections) and promotes wound healing⁴.

Case report:

History: A 44-year-old female patient came with presenting complaints of mild burning pain, discharge, redness, mild swelling surrounding the wound area, and generalised weakness after the surgery.

On detailed history taking, a patient has had Heavy p/v bleeding during the menstrual cycle for 1 month. For this, the patient visited a gynaecologist

for her treatment. The USG report reveals bulky size with thick hyperplastic endometrium and cyst present in right ovary and left ovary with multiple fibroids seen. As per the surgeon's advice, she underwent Laparoscopic hysterectomy with bilateral salpingectomy and right ovary cystectomy procedure under general anaesthesia on 28th July 2022 in Kota, Rajasthan. The patient was on intravenous antibiotics and, later on, prescribed oral Antibiotics and local wound dressing, but the wound didn't heal. Again, visited surgeon and higher antibiotics were advised and daily dressing up to 2nd September 2022. On the next visit, started dressing with Placentrex gel, Neosporin skin ointment, and Tab. Vitamin C (twice daily), Syp. Bevon 5 ml (twice daily), and Cap. Menopace BD. No Improvement was found in the wound healing.

Due to a delay in wound healing, again secondary suturing was done under general anaesthesia on 20th October 2022 (approximately three months after the initial surgical procedure). The patient was on antibiotics and regular dressing, but the wound was not improved. On (19th November 2022) sent for Pus culture - the report was Negative. On 13th November 2022, a Tuberculosis Ferron test was done to rule out any TB infection, and the result was Negative. Later on, Started unthinkingly Anti tubercular drugs with tab. LIV-52 DS. After ATT (Anti Tubercular Treatment), the condition of the wound remains the same.

Due to a non-healing wound condition, the patient visited Shalya-Tantra OPD SAMCH Indore on 26th November 2022 (approx. 4 months later) for further treatment. In the hope of curing her condition, she was admitted to Shalya IPD. A complete history taking, local examination, and systemic examinations were done. After some days, the patient was advised to be discharged and called for daily dressing and *jalaukavacharana* as per schedule.

Table. 1 Details Clinical findings, Astavidha and Dasha vidha Pareeksha

<i>Astavidha Pareeksha</i>	<i>Dashavidha Pareeksha</i>
<i>Nadi-Pittaja</i>	<i>Prakriti: pittaja Kaphaja</i>
<i>Mala-Samanya</i>	<i>Vikriti-Dosha pitta</i>
<i>Mutra –Avila</i>	<i>Dushya-Mamsa</i>
<i>Jivha – Samanya</i>	<i>Agni-Tikshna</i>
<i>Shabda-Samanya</i>	<i>Samhanana-Madhyama</i>
<i>Sparsha-ushna Sparsha</i>	<i>Saara-Madhyama</i>
<i>Druk-Samanya</i>	<i>Pramana-Madhyama</i>
<i>Akruti-Samanya</i>	<i>Satva-Madhyama</i>
	<i>Satmya-Avara</i>
	<i>Aharashakti-Madhyama</i>
	<i>Vyayama Shakti-Avara</i>
	<i>Vaya-Madhyama</i>

Local Examination Findings and Diagnosis:

The patient has port site wound infection with inflamed surrounding skin, redness, burning sensation, mild serosanguinous discharge at three port sites, and wetting of one gauze pad in 24 hrs. The edges have no healthy granulation tissues. The external opening of the wound was minute, but there was a hollow space inside one port site. There was a small round hollow cavity on the lateral side port site wound, and an accumulation of discharge inside the wound was observed. Based on *Ashtavidha, Dashavidha Pareeksha*, and clinical findings, it was diagnosed as a case of **Dushta Vrana** (Port site wound infection/PSI). On detailed personal history, the patient has a severe burning sensation in the stomach, a burn-

ing sensation in their palms and feet, and excessive sweating. This condition reveals that the patient has *pitta* and *rakta dushti*.

Consent details: Informed consent was taken from the patient in written format before starting the treatment

Duration of the treatment: 2 months

Treatment plan: In *Ayurveda chikitsa siddhanta*, including various *pareekshya bhava* (factors), the treatment of *dushta vrana* (Port site wound infection) was planned with local wound care as daily dressing with *Jatyadi taila* and *Jalaukavacharana* (Leech application weekly once with regular interval) along with oral medications. Along with earlier prescribed anti-tubercular drugs were continued.

Table 1. Wound Care, Oral medications and Leech Application details

Wound care	<i>Jatyadi taila</i>	For daily dressing
Oral Medicine	<i>Tab. Arogyavardhini vati</i> (250 mg approx.)	500 mg with water
	<i>Avipattikara choorna 3 grams +</i> <i>Kamdudha rasa 125 mg</i> <i>Giloy Satva 250 mg</i> <i>Continued ATT Treatment up to completion of the course</i> <i>Tab.Liv 52 DS 1 tab</i>	Two times daily with water
For local cleansing	<i>Jalaukavacharana</i>	Two times daily Weekly once with regular intervals

OBSERVATION AND RESULTS: After admitting the patient, the oral medications were started for a

specific period based on the requirement (table 2) and discontinued simultaneously. The regular dressing was done with a *Jatyadi taila*. Over the peripheral side of the port site, Jalaukavacharana was done at regular intervals, and after two weeks, burning pain in the wound was reduced. Leech application shows a highly significant effect in reducing the redness and reduced discharge from wounds also in the collection in the cavity, the same treatment was continued, and the patient responded to the treatment and, later on, started the formation of healthy granulation tissue. After completion of the 2 months of treatment, the wound was completely healed.

DISCUSSION

Post-operative wound infections typically require additional hospital stay and financial burden to the patients, and also morbidity and mortality may occur. Multidrug resistance is also the cause of delayed wound healing. *Acharya Sushruta* elaborately describes *dushta vrana* and *vrana-upakrama* (management of wound) in the context of *Shashti upakrama* in detail. In infected wounds, proper *shodhana* and *raktaavasechana* are advised for removing the local infection (*i.e. in superficial wounds*) vitiated *doshas and dushyas*, treated as similar to *dushta vrana chikitsa*^{5,6}.

In this case, in the presence of delayed wound healing or in non-specific wound infection conditions (*i.e. pus culture was negative*), Ayurvedic principles of diagnosis and treatment plan according to *dosha*

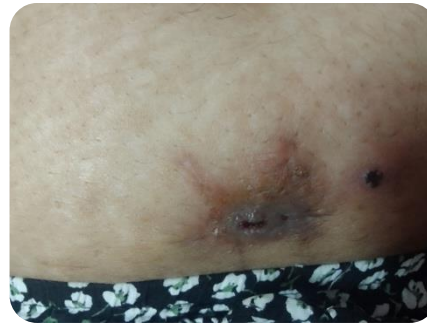
dushya involvement *Jalaukavcharana* shows an effective role in removing the toxins and formation new capillaries, increase in blood flow, removing the *Sthanika* vitiated *doshas*. *Jalauka* having *sheeta pradhana guna* removes the vitiated *pitta* and *rakta* from the wound and helps in *shodhana* and *ropana*. *Jatyadi taila* has *vrana shodhana and ropana* properties; it helps to remove toxins and purify the wound, supporting early wound healing⁷.

CONCLUSION

Management of *Vrana* is critical in post-operative surgical conditions, and it becomes very challenging for surgeons due to misuse of antibiotics and resistance to antibiotics; according to the Ayurvedic concept, *mithya-ahara vihara*, vitiation of *doshas* and *dushya* play an important role in delayed healing. In such conditions vitiation of *doshas* and *dushyas* involved in the wound is essential. Such wounds should be treated according to *Shashti-upakrama chikitsa siddhanta* and heal without any complications. The application of *Jalaukavacharana* increases local blood circulation and removes toxins. *Samhitas* also explained leech application was advised in *pitta and rakta dushti*. It is also helpful for the formation of new granulation tissue and helps remove vitiated *Doshas* in the affected part. The principles of Ayurveda methods explained in the *Shashti Upakrama* for managing *Vrana* have been proven and strengthened till today for managing *vrana*.



Pic 1: Port site condition on day 1



Pic 2: Port site condition during therapy



Pic 3: Leech application on port site



Pic 4: Port site condition during therapy



Pic 5: Complete healing status of port site

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