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INTEGRATIVE MANAGEMENT WITH PRIMARY SUTURING FOLLOWED BY JALAUKAVACAHARANA IN PERIORBITAL TRAUMA- A CASE REPORT

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ABSTRACT

Periorbital trauma is a complex injury characterized by mechanical tissue disruption, such as contused lacerations, alongside severe secondary microvascular complications like hematoma and edema. In Ayurveda, such traumatic injuries fall under the management of *Sadyo Vrana* (traumatic/accidental wounds), where sudden blunt force leads to the immediate vitiation of *Rakta* (blood) and *Pitta Dosha*. While modern surgical principles prioritize immediate primary closure to restore anatomy, they often leave the surrounding contused tissue and seepage of blood into loose areolar tissues around periorbital region which takes lot of time to resolve conservatively, which can delay healing, increase tension on the suture line, and compromise cosmetic outcomes. *Jaloukavacharana* (leech therapy), a classical Ayurvedic para-surgical procedure, is highly effective in extracting this vitiated blood and decompressing microvascular complications. This article presents a case of a 24 year-old patient who sustained a contused laceration over the right superciliary arch (eyebrow) accompanied by a significant periorbital hematoma following a road traffic accident (RTA). The patient achieved an excellent structural and aesthetic recovery through a systematic, integrative therapeutic approach. Primary surgical suturing using Vicryl 6-0

provided precise mechanical closure, while subsequent *Jaloukavacharana* rapidly decompressed the severe periorbital-wound hematoma, preventing suture dehiscence and minimizing scar formation.

KEYWORDS: Periorbital trauma, contused laceration, *Jaloukavacharana*, primary suturing, *Sadyo Vrana*, *Raktamokshana.*

INTRODUCTION

The periorbital region is characterized by an extensive vascular network and loose areolar connective tissue. Consequently, blunt or penetrating trauma to this area invariably results in pronounced edema and ecchymosis, alongside any direct structural damage. Road traffic accidents (RTAs) frequently present a dual clinical challenge: mechanical tissue disruption (laceration) and severe secondary microvascular complications (hematoma and tissue congestion).

While modern surgical principles prioritize immediate primary closure to prevent infection and restore facial anatomy, the management of the surrounding contused tissue is often strictly conservative. However, excessive pooled blood can compromise local microcirculation, increase mechanical tension on newly sutured wound edges, and ultimately lead to unfavourable cosmetic scars or delayed healing.

In Ayurveda, acute traumatic injuries are classified under *Sadyo Vrana.* The sudden blunt force leads to the immediate local vitiation of *Rakta* and *Pitta Doshas*, resulting in localized swelling, pain, and discoloration (*Shotha* and *Vaivarnya*). To address these specific microvascular complications, *Raktamokshana* (bloodletting) via *Jaloukavacharana* (leech application) is considered a highly effective para-surgical intervention. Leech saliva is known to contain substances with analgesic (pain-relieving) and anti-inflammatory properties, contributing to the therapeutic effect.

By integrating modern surgical suturing for precise mechanical repair with Ayurveda speciality, *Jaloukavacharana* is used as a therapeutic purpose to extract the vitiated blood, the dual nature of contused lacerations can be comprehensively managed. This article presents a case study demonstrating the efficacy of this integrative approach in rapidly decompressing tissue and optimizing the healing of a periorbital contused laceration sustained during an RTA.

CASE STUDY

A 24-year-old female patient visited the casualty/Shalya Tantra OPD of Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, presenting with complaints of an actively bleeding wound and severe swelling around the right eye following a road traffic accident (RTA).

CLINICAL FINDINGS

On examination, a deep, irregular, contused laceration was noted transecting the right superciliary arch (eyebrow) and extending toward the upper eyelid. The surrounding tissue exhibited significant trauma.

General Examination (Vital Signs)

1.	**Blood pressure(BP)**	**120/80mmhg**
2.	Pulse rate(PR)	86bpm
3.	Spo2	98%
4.	Temperature	afebrile

Local Examination (Sthanika pareeksha)

Sr. No.	Clinical Feature	Observation
1.	Site	1 st Laceration - Right periorbital region (superciliary arch and upper eyelid) medial aspect upper border of eyebrow 3cms 2nd Laceration- mid aspect of upper eyebrow1 cm 3rd Laceration -Y shape on lateral canthus 1 cm
2.	Wound type	Contused lacerated wound (CLW)
3	Number of Lacerated	3
3.	Bleeding	Active bleeding present from the primary laceration
4.	Surrounding tissue	Severe localized edema and developing hematoma (ecchymosis)
5.	Pain	Severe tenderness over the traumatized area

TREATMENT

The patient underwent an integrative treatment protocol consisting of primary surgical closure to address the mechanical disruption, followed immediately by para-surgical procedure which helps in removal of inflammatory exudates which further reduces pain edema subconjuctival haemorrhage.

1. Surgical Primary Closure (Suturing)

The wound was copiously irrigated with sterile normal saline to clear micro-clots and road debris. Following the administration of local infiltration anesthesia, hemostasis was secured.

The irregular wound margins were meticulously approximated using simple interrupted sutures with Vicryl 6-0. This fine, absorbable suture material was specifically chosen to minimize tissue reactivity, avoid suture track marks, and ensure precise anatomical alignment of the delicate facial structures.

2. Application of Leech Therapy (*Jaloukavacharana*)

Following suturing, the profound secondary periorbital hematoma remained, creating high tissue tension. To manage this, *Jaloukavacharana* was performed.

Initially, one leech was placed on the affected areas (specifically targeting the congested hematoma adjacent to, but safely away from, the fresh suture line) and observed for two minutes to allow it to begin sucking blood. A damp cotton gauze was placed over the leech to maintain moisture. The leech actively drained the vitiated venous blood while injecting therapeutic, anti-inflammatory saliva. The leech naturally detached after completing the blood sucking process. A cotton gauze with *Haridra Choorna* (turmeric powder) was then applied to the bite site to prevent further bleeding. This procedure was carried out without any complications, resulting in rapid decompression of the periorbital swelling and significant reduction of mechanical stress on the Vicryl 6-0 sutures.

OBSERVATION

The clinical progress of the patient was recorded at three stages: before treatment, immediately following the integrative intervention by suturing, leech therapy and after complete healing suture removal and follow-up.

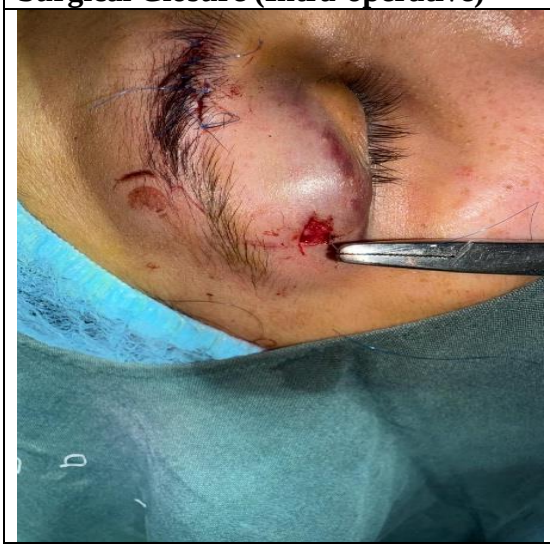
Sr.No.	Healing Stage	Clinical Visual Findings	Intervention / Status
1.	**Initial Presentation (Pre-treatment)**	Deep, irregular laceration transecting the superciliary arch. Active bleeding, contused margins, and rapidly developing Periorbital ecchymosis (hematoma).	Acute trauma phase; localized vitiation of *Rakta* and *Pitta Dosha*.
2.	**Surgical Closure (Intra-operative)**	Wound margins meticulously approximated. Hemostasis achieved.	Primary suturing performed using **Vicryl 6-0** to restore structural anatomy.
3.	**Post-Suturing (Peak Hematoma)**	Laceration is closed, but severe periorbital hematoma and localized edema are highly visible,	Mechanical closure complete, but microvascular congestion requires biological

		creating tissue tension below the suture line.	intervention.
4.	**Inflammatory exudates which further reduces pain edema subconjuctival haemorrhage. (Leech Therapy)**	A medicinal leech is seen actively feeding on the maximally congested area of the upper eyelid, adjacent to the suture line.	***Jaloukavacharana*** applied to drain pooled blood and inject anti-inflammatory saliva.
5.	**Complete Healing (Follow-up)**	Complete resolution of periorbital hematoma and edema. Scar is flat, well-approximated, and blends into the natural skin lines. Normal eyebrow hair regrowth.	Sutures removed. Successful integrative healing by primary intention with excellent cosmetic outcome.

Sr. no	Clinical features	Before treatment	Post-Intervention (Suturing & Leech Therapy)	After complete healing
1.	Pain / Tenderness	+++	+	No pain
2.	Active Bleeding	+++	No bleeding	No bleeding
3.	Localized Edema (Swelling)	+++	+	No edema
4.	Hematoma / Ecchymosis	+++	++	Completely resolved

DAY 1

Initial presentation	Surgical Closure (Intra-operative)
	

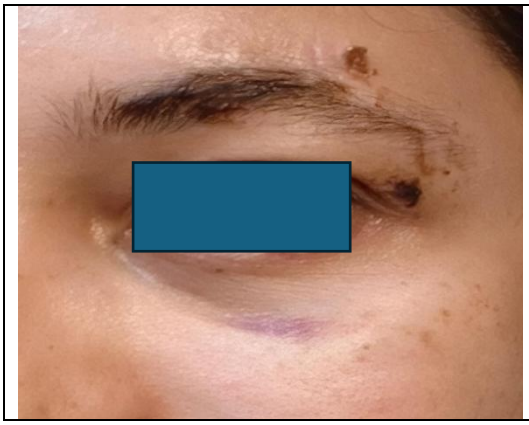
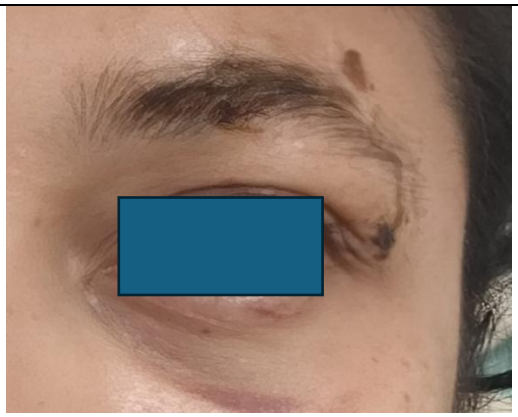
Surgical Closure (Intra-operative)	Post-Suturing (Peak Hematoma)
	

Jaloukavacharana (Leech Therapy)

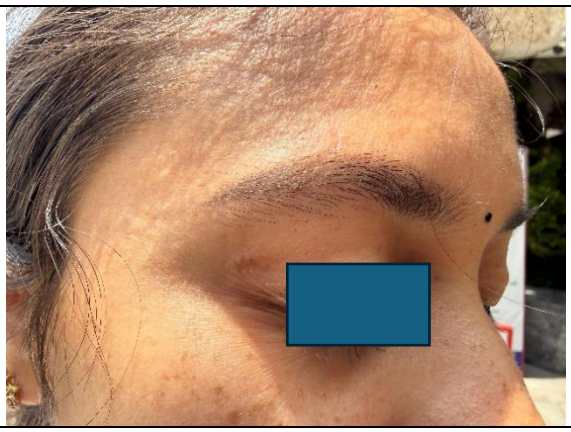
Complete Healing (follow up)

FIRST WEEK **SECOND WEEK**

THIRD WEEK **FOURTH WEEK**





DISCUSSION

The treatment administered to this patient aligned perfectly with both modern surgical protocols and the classical principles of Ayurveda. Periorbital trauma sustained during a road traffic accident presents a highly complex clinical challenge, as the blunt and shearing forces cause both structural tearing and severe microvascular damage. From an Ayurvedic perspective, this type of acute trauma leads to the immediate localized vitiation of *Rakta* (and *Pitta Dosha*. This physiological stagnation clinically manifests as a contused laceration accompanied by profound localized edema and an expanding hematoma.

To address the mechanical disruption of the superciliary arch and upper eyelid, immediate primary suturing was performed using Vicryl 6-0. This structural intervention is crucial for halting active bleeding, re-establishing precise anatomical contours, and closing the protective skin barrier against infection. However, while suturing is excellent for physical repair, it is inadequate for resolving the surrounding crushed tissue and pooled blood. If left unaddressed, the localized hematoma increases mechanical tension on the newly placed, delicate suture line. This pressure can compromise local microcirculation, heighten the risk of wound dehiscence, and ultimately result in a widened, hyperpigmented scar.

In view of the severe vitiation of *Rakta* and *Pitta Dosha*, and to provide quick symptomatic relief from the intense tissue congestion, *Raktamokshana* therapy using *Jaloukavacharana* (leech application) was carried out. The patient underwent targeted leech therapy specifically to extract the vitiated, pooled blood trapped beneath the periorbital tissues. Leech saliva is known to contain a complex matrix of bioactive substances with potent analgesic (pain-relieving) and anti-inflammatory properties, contributing significantly to the overall therapeutic effect.

As the leech actively drained the stagnant venous blood, the simultaneous injection of its highly therapeutic saliva—which includes spreading factors like hyaluronidase and anticoagulants like hirudin—rapidly decompressed the periorbital swelling. This synergistic biological action relieved all mechanical stress on the Vicryl 6-0 sutures, effectively restoring healthy capillary perfusion to the traumatized wound edges. Ultimately, this integrative approach facilitated rapid healing by primary intention and ensured an excellent, flat cosmetic outcome without the complications of localized tissue necrosis or permanent hair loss.

CONCLUSION

Based on the clinical progression of this case, it can be concluded that periorbital contused lacerations complicated by severe hematoma can be effectively managed using an integrative medical approach. Relying solely on surgical closure often leaves the patient to deal with prolonged swelling, pain, and suboptimal aesthetic healing due to untreated microvascular trauma. This dual-modality line of treatment—combining modern primary suturing for precise anatomical reconstruction with Ayurvedic *Jaloukavacharana* for rapid microvascular decompression—bridges the gap between structural repair and biological tissue salvage. This line of treatment not only helps alleviate the acute symptoms efficiently but also aims to offer a safe, cosmetically superior, and effective therapeutic option for trauma patients. However, further research involving a larger patient population is necessary to formally validate these integrative findings for broader emergency trauma care.

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