

Leech Therapy as a minimal invasive procedure in facial subcutaneous hematoma - A Case Report

Shubhangi Badole^{1*} Sanjeev Yadav²

¹Associate Professor, ²Professor and HOD, Shalyatantra Dept, Dr. G. D. Pol Foundation's Y.M.T. A.M.C. Kharghar, Navi Mumbai, Maharashtra, India

Abstract:

Reported case acts as a reminder of an important therapeutic lesson and proves the effectiveness of *Jalaukavacharan* i.e. medicinal leech therapy from Ayurveda science in the case of hematoma. *Jaulaukawacharan* is one of the *Anushastrakarma* procedures explained in *Sushruta samhita*, which can be said to be minimal invasive parasurgical procedures. In present case a 46 year female patient presented with the complaints of pain, discolouration and swelling on left sided cheek region since 15 days with history of local blunt trauma. She was treated with conservative management at local hospital but swelling not reduced completely and symptoms persisted, she was advised surgical drainage of the same as second line of management. As patient doesn't want the postoperative scar and pain of surgery she approached *Shalya Tantra* OPD of our Ayurveda institution for alternative treatment. After examination it is diagnosed as subcutaneous hematoma and confirmed as complex cyst in subcutaneous fat of molar region of left cheek s/o hematoma of size 11x8x8 mm by Ultrasonography. As *Jaulaukawacharan* is indicated for local application in conditions with hematogenous, deep seated pathologies, and its scarless aftereffect and clinically and research proved results of its secretions like Hirudin, Gelin and Destabilase which has properties like anticoagulant, antifibrotic, anti-inflammatory and analgesic, it was decided to do leech therapy in present case. After primary treatment of antibiotics and blood investigations leech therapy is advised. Outcome after three sittings proved the surgical aspect of Ayurveda as hematoma and its symptoms subsided completely without any scar.

Key words: Cosmetic Effect, Facial Hematoma, Leech Therapy, Minimal Invasive Surgical Procedure.

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***CORRESPONDING AUTHOR:**

Shubhangi P. Badole^{1*}

Associate Professor and PhD scholar,
Shalyatantra Dept., Dr. G. D. Pol Foundation's
Y.M.T. A.M.C. Kharghar, Navi Mumbai
Email: spbadole20@gmail.com
Mobile: +919167750838

Introduction:

In 8th chapter of *Shastra-Avacharniya Adhyaya Sushruta* has explained *Anushastra* which are 14 in number and he emphasizes their use for surgical procedures instead of sharp surgical instruments in the conditions where main instruments are not available and patient is physically and mentally weak, old individual or young children who cannot tolerate the surgical pain. *Jalaukavacharan* i.e. medicinal leech therapy from Ayurveda science is one of the minimal invasive parasurgical procedure explained in 13th chapter of *Sushruta Samhita Sutrasthan*.^[1-2] In Leech therapy where leech i.e., *Hirudo medicinal* is applied locally at the diseased site under all aseptic precautions. Its indications are found mainly for *Raktaj* and *Pittaj Samprapti* diseases like Gout, Varicose Veins, DVT, non-healing ulcers and in postoperative cases with Skin Graft, various skin lesions, Perianal Hematoma, Thrombosed Hemorrhoids, AVN and other peripheral circulatory insufficiency disorders.^[9]

As definition said a hematoma is an extra vascular blood outside the blood vessels, this is caused by the limitation of the blood to escape in subcutaneous or intramuscular tissue space as they are isolated by fascia planes^[10]. After conservative treatment the swelling and the pain of hematoma will go away and this takes from 1 to 4 weeks depending on the site, depth and size of the hematoma. The skin on the hematoma may turn bluish then brown and yellow as the blood is dissolved and absorbed, usually this only takes a couple of weeks but can last for

months. Commonly hematoma is treated with treatment protocol called RICE – Rest, Ice, Compression, Elevation of the affected part with addition of some medication^[11]. If it is not subsided with conservative treatment it has to be incised and drained under required anesthesia to avoid secondary complications like abscess formation, sinus and compression of neighboring organs.

Case Report:

A 46 year female patient attended the OPD of Shalya Tantra department on 14/09/2017 with the complaints of discoloration, pain and swelling at left cheek region since 15 days. She gave the history of local blunt trauma. She was treated with conservative management at local hospital but swelling not reduced completely and symptoms persisted, she was advised surgical drainage of the same as second line of management. As patient doesn't want the postoperative scar and pain of surgery she approached *Shalya Tantra* OPD of our Ayurveda institution for alternative treatment. On examination there was bluish discoloration and swelling of left cheek at molar region with tenderness, clinically it seems to be a hematoma (Fig-1). For further confirmation of diagnosis and depth of hematoma Ultrasonography was done of left cheek region which showed the hematoma of size 11x8x8 mm (Fig-4). Preprocedure CBC, RBS, BT, CT was normal (WNL). As patient was not ready for surgical excision, it was decided to apply leech on swelling on OPD basis.

Methodology:

Procedure of Leech Application:^[1]

Fresh leeches are taken in bowl with solution of water and turmeric powder to activate the same then it is transferred in fresh clean water bowl, patient was made to sleep on right side and cotton was placed on both eyes and inside ears, the leech is held on the swelling of cheek and wet gauze piece is kept on it, within 2 minutes it starts sucking blood which can be confirmed by changes in anterior sucker end of leech which take shape of horse shoe (Fig-2). After around 30

minutes it got detached from the site itself, the bite wound was packed with *HaridraChurna* after slight massage with *Shatdhout Ghruta* and tight pressure bandage is applied. The used leech is made to vomit the blood sucked by applying turmeric powder on its sucker end and was kept in separate jar with fresh water labeled with patients details. Patient was advised *Kaishor Guggul*, *Manjistha Ghanvati*, and *Lakshadi Guggul* with 500mg TDS dose. Leech application done on 14/09/2017, 21/09/17 and 09/10/17.



Fig-1: Before Treatment



Fig-2 :During Leech Therapy

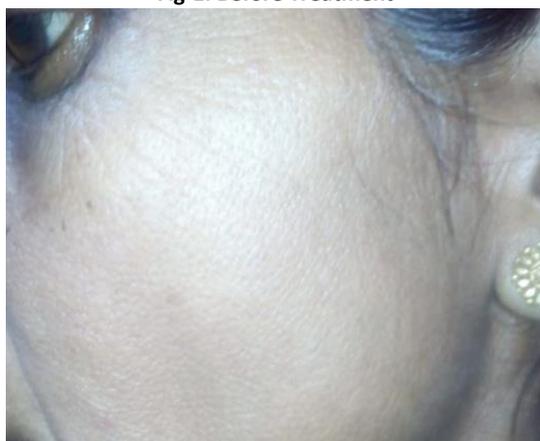


Fig-3: After Treatment

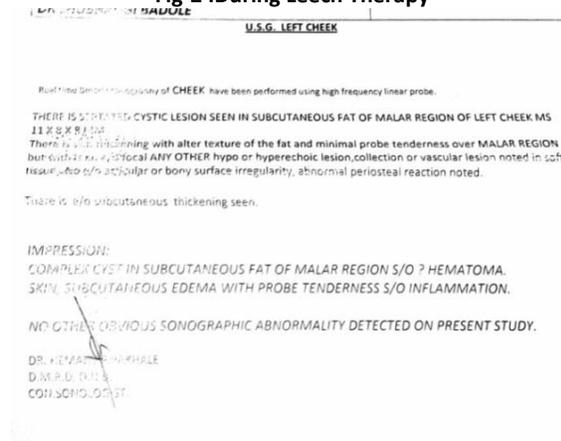


Fig-4: USG Report Before Treatment

Results:

In present case within 25 days of medication and 3 sittings of leech application local symptoms like discoloration, pain and swelling due to hematoma at affected left cheek region reduced gradually and completely. The local leech therapy doesn't cause any scar at application site. No other local and systemic complication of therapy is observed in present case (Fig-3).

Discussion:

Subcutaneous hematoma may not resolve due to limitation of blood escape in subcutaneous space as they are isolated by fascial planes. Depending upon size and site, hematoma will take 3 to 5 weeks to resolve with conservative management. In persistent cases surgical intervention requires.

References in Ayurveda science Sushruta *Samhita Sutrasthana* Ch.no.13 and *Sharirsthan* Ch.no.8 and *Wagabhata Sutrasthana* Ch.no.26 states leech therapy as *Anushalyakarma* i.e. one of the minimal invasive parasurgical procedure which is called as *Jalaukaawacharan*. The 14 types of *Anushastras* are useful in the conditions where patient cannot tolerate the surgical procedure or with poor fitness. One of its indications is application in deep seated, *Raktaj* i.e. haematogenous pathology where blood gets clotted inside deep tissues. ^[12] Beauty of this procedure is it requires around one hour on OPD basis without any anesthesia and complications and can be carried out in patients with all ages.

Research on the effect mechanisms of leeches mentioned in various scientific studies reflect although more than 100 particular proteins with different molecular masses are observed in leech secretions, only a few have been identified that have a major active role which are divided into six types to make them more understandable, but these mechanisms are closely related to each other and should be evaluated as a whole. Following a leech bite, it has to establish a sucking pathway (extracellular matrix degradation); inhibit adhesion, aggregation, and coagulation (inhibition of platelet functions, and anticoagulant effect); increase blood flow; protect itself (antimicrobial activity); and avoid detection (analgesic and anti-inflammatory effects).

While studying Anticoagulant effect of leech it is observed that Coagulation during feeding is fatal for leeches, so anticoagulant effects are necessary. The coagulation cascade is a chain reaction and bioactive molecules in leech secretions have effects at various points. Thrombin inhibitors are Hirudin and Gelin, factor Xa inhibitor breaks the chain reaction, ^[8] and Destabilase has a fibrinolytic effect. Thrombin has a strong effect on platelet activation and ADP release and so these inhibitors may indirectly have a negative impact on platelet functions. Hirudin is a 7.1-kDa protein and irreversibly binds to thrombin, which causes consumption of active thrombin and results in antithrombin activity. This substance is the most interesting one and was the subject of many studies. There is a strong consensus about it being a therapeutic alternative to heparin, since it has higher anticoagulant

activity and fewer adverse effects. Gelin is an Eglin analog and a potent thrombin inhibitor. Gelin also shows inhibitory effects on Chymotrypsin, Cathepsin G, and neutrophil elastase. [8] Factor Xa inhibitor breaks the coagulation cascade and has a direct anticoagulant effect. In addition antistasin directly inhibits factor Xa, and ghilantens, LDTI, C1 inhibitor, and Eglins have possible anticoagulant effects, potentially via direct and/or indirect inhibition of coagulation factors. Destabilase is an enzyme with glycosidase activity and shows both antibacterial and fibrinolytic actions. It has a major degradative action on stabilized fibrin and it should also be evaluated as an anticoagulant agent. [3-9]

In present case clotted blood was accumulated in subcutaneous plane which was not resolving with conservative treatment causing persistent pain, discoloration and tenderness on face. To avoid surgical scar and pain of surgery Leech therapy done. 3 sittings of *Jalaukaawacharan* resolved the hematoma completely without any scar.

Conclusion:

Jalaukaawacharan i.e. medicinal leech therapy is one of the *Anushastrakarma* procedures from *Sushruta Samhita*, this procedure can be said to be minimal invasive parasurgical procedures which is having one of indication for patients with hematogenous, deep seated pathologies. As in present case cosmetic advantage for facial pathology is noticeable. While studying leech secretions some secretions like hirudin,

Gelin, Destabilase and so on its anticoagulant and antifibrotic properties are helpful for resolving hematoma.

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