RAKTAMOKSHANA: A WAY TO THERAPEUTIC PURIFICATION
Gupta Sudesh1*, Sharma Titiksha2, Parihar Vasundhra3, Bavouria Deepika4
1Lecturer, Department of Shalya, Jammu Institute of Ayurveda and Research, Nardani, Jammu, India
2Student, Final Prof, Jammu Institute of Ayurveda and Research, Nardani, Jammu, India

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*Corresponding author
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ABSTRACT
Raktamokshana is one of the principle shodhana therapies in Ayurveda. It has widely been practiced in the various clinical settings depending on the training and exposures of the physician. With renewed interest in the Parasurgical procedures in the recent times raktamokshana has gained foremost appraisal to attempt treatment to diseases of various categories. Raktamokshana is indicated as a therapy of choice in many diseases, formally being indicated in rakta and pitta related morbidities. Moreover, the scope of this therapy is further extended to diseases that are found to be refractory to conventional sheeta - ushana- snigdha- rooksha kind of treatment. The final attribute of raktamokshana can be considered on its tremendous prophylactic potential to do away certain diseases.
Keywords: Rakta Mokshana, Bloodletting, Shodhana, Surgical procedure, Rakta and Pitta

INTRODUCTION
As Ayurveda has always emphasized the necessity for the elimination of doshas (humors) over the conventional treatment followed for various disorders. Shodhana karma has emerged as an integral part of the ayurvedic therapeutics.
Ancient Indian texts have talked variedly about various procedures that can cause immense shodhana or purification of the body. Among the five cardinal shodhana karmas ‘raktamokshana chikitsa’ is emphasized as half treatment as far as shalya tantra is concerned and every second patient invites this treatment.1
In the present day practice there are set of disorders which do not respond to medical treatment. If at all they respond, palliative relief is found and after sometime chance of recurrence does exist. In surgery, a set of minor surgical procedures like chemical cauterization, bloodletting is prescribed in addition or substitute for major surgical procedure.

Bloodletting is one among the minor surgical procedures yet one of the principal shodhana therapies2. If the disease does not respond to the palliative measures it is considered to be due to vitiation of blood thus, it is indicated as a therapy in various rakta and pitta related morbidities3 Suppose a person has habit of bloodletting at periodic intervals4 he/she will not suffer from many skin disease, glandular swellings and varities of local swelling as well as blood letting disease will not manifest.
Further, bloodletting is one of the purification therapies where the disease causing factors i.e. vitiated humors are expelled out from the body in addition to relief from the disease symptomatology as well as without recurrence of the disease. Hence it is said to be a complete treatment.
Bloodletting can be carried out either by sharp instruments i.e. prachana5 i.e. making linear cuts on the skin, venesection6 or phlebotomy. Even though various sharp instruments like axe, bisturys, and needles are explained in the classics of phlebotomy, 16 or 18 hypodermic needles can also be used, shrunga, or jalouka7 are other methods of carrying out the procedure.
In the classics, reference is available to let out blood from engorged vein near to the disease site. In a disease, that has manifestations all over the body (skin disease) like psoriasis, generalized eczema, strangled hemorrhoid etc. letting of the blood from the antecubital vein in the elbow joint will produce remarkable results.8

Method
A tourniquet is tied 4 fingers above the site and vein is made visible. Vein is punctured and blood is allowed to flow for some time. Later it stops on its own. Other than sharp instruments, cow’s horn, bottle gourd or leeches are also used for bloodletting.

History of blood letting
Blood letting has been the part of history for more than 2500 years. Upto the end of the middle age, the rationale of bloodletting originated from ancient Greek Humoral Theory. The great scientific progress from 16th century and onwards did not weaken its position. Prominent physicians such as Andreas Vasalius (1578-1687) and Thomas Sydenham (1624-1689) defended blood letting. In the beginning of the 19th century the use of leeches became the major of the blood letting in Europe. In Norway, bloodletting was mentioned in royal decrees from the 13th century and the method became popular in the folk medicines too. In the 19th century blood letting was regarded less effective for most of its traditional purposes and hence its use declined rapidly. Today, however bloodletting has been restored in modern medicine as the most effective methods of treating the increasing disorders caused by iron overload.
Bloodletting is practiced in Ethiopia. Physicians in Israel engaged in trans-cultural encounters with the Ethiopian immigrants were generally unaware of these ethno-medical beliefs and practices. Interview with 50 adult
patients of Ethiopian origin about the present and past use of bloodletting was carried out. A second consecutive, 10 patients who often asked their doctors to perform blood tests were identified and interviewed. More than half the patients reported the use of blood letting as scars were commonly present on their upper extremities. It was concluded that some Ethiopians continued to perform the same traditional bloodletting in their resident country. Patients thus might ask for blood sampling as the culturally accepted way to perform bloodletting. 

Bloodletting acupuncture is one of the most classic methods of acupuncture therapy and is still popularly used to treat acute lumbar sprain in the oriental world. A study was done to determine the same and it was demonstrated that bloodletting acupuncture to the engorged vein around the ipsilateral B1-40 (Weichung) followed by the ordinary acupuncture upon contra lateral side S1-31 had more pain relief than the ordinary acupuncture on the contra lateral S1-31 alone. Bloodletting acupuncture to the engorged vein around the ipsilateral B1-40 decreased pain by 56.23% and the former mentioned ordinary acupuncture on the contra lateral S1-31 decreased the pain to about 44.28%. These findings suggest that bloodletting acupuncture to the engorged vein around the ipsilateral B1-40 has only substantial contribution to the treatment of acute lumbar sprain. 

Minor therapeutic cups of bloodletting is little known in Russia but conventional in China. The method was compared in efficacy to chemotherapy, acupuncture, phytotherapy in allergic and non-allergic forms of bronchial asthma. Bloodletting alone or in combination with acupuncture and phytotherapy stabilizes the course of asthma and prevents asthmatic attacks, produces routine use of necessary broncholytics and glucocorticosteroids. The study was to evaluate the effect of hyper barric oxygen and medicinal leeching of axial flaps subjected to total venous occlusion. Axial epigastric skin flaps were elevated on their vascular pedicles in 40 male wistar rats. Total venous occlusion was achieved by division of all veins draining the skin flaps. Arterial inflow was left intact. Animals were randomly divided into 5 groups: sham (n-8) control, occlusion with leeching, and occlusion with leeching and hyper-barric oxygen. Hyper-barric oxygen treatment for 90 minutes twice daily with 100% oxygen at 25 atmospheres absolute for 4 days was administered. 

Leeching Protocol: Placing of medicinal leeches on the congested flaps for 15 minutes once daily for 4 days. Laser Doppler measurements of flap perfusions were recorded preoperatively, postoperatively on days 1 and 3. Percentage of flap necrosis was evaluated on postoperative day 3. Mean percentage necrosis and mean Laser Doppler readings were compared between both groups. The flaps in sham groups demonstrated 99% survival whereas the flaps in occlusion with leeching and occlusion with leeching and oxygen groups demonstrated 1%, 25%, 65% survival rate respectively. There was a decrease in the Laser Doppler measurements significantly after surgery but the perfusion remained stable throughout the remainder of the study. The study demonstrated that Hyper-barric oxygen alone is not an effective treatment for skin flaps compromised by total venous occlusion. The combination of leeching and Hyper-barric oxygen treatment of total venous occlusion results in the significant increase in flap survival about that found in the leeching alone. It appears that hyper-barric oxygen is effective because of venous outflow provided by the leeching as is demonstrated by the Laser Doppler flow readings. 

Leeches were widely used throughout the antiquity and middle ages. The rabbinic response literature acknowledges the use of leeching for prevention and treatment of certain diseases. Jewish sources including Bible, Talmund and codes of Jewish law describes leeches and also mentions its medicinal use. Although swelling of the leeches is considered dangerous and may lead to abdominal swellings, yet the Talmunds describes an oral concoction containing leeches in wine for patients with enlarged spleen. It is also documented that engorged leeches placed in salt quickly discharges its blood and can be used again. Modern plastic surgery and microsurgery have discovered the medicinal leech hirudo-medicinalis to reduce venous congestion. Clearly, the value of this annelid worm lies in its secretion of an anticoagulant known as hirudin, which has several advantages of heparin.

**Method of Collection and Nurturing**

The leeches are collected in the month of October and November from the ponds that contain lotus and spirogyra, with a wet leather and meat piece. They should be non-poisonous and nourished in a pot containing clay or sand. Every 7 days water is to be changed and every 15 days the leeches should be transferred to a new pot. The food usually given is arrow root powder, dry meat powder and spirogyra. As substances purify, frequent changing of water and mud may be essential. Hence clay which doesn't possess stone is sufficient for preservation and nurturing as well.

**Method of application**

The site is to be cleaned with water but not with soap or any antiseptics, since the leeches are odor sensitive and they may not bite. Site is to be rubbed well till the patient feels the sensation of pain. The oral end of the leech is to be placed on the site. When the leeches raise their shoulders and start sucking they should be covered with a wet cloth. To facilitate the sucking of blood, wet repeatedly.

The leech will fall off after some time when the chambers of the digestive system are full of blood. Since the salivary secretions contains an enzyme hirudin, while sucking blood will not clot. During sucking some amount of hirudin is liberated in to the tissues. Thereby free flow of blood from the bitten site exists. This can be arrested by massaging with rock salt and sprinkling turmeric powder after keeping a gauge pressure to be applied. After 5-10 minutes gauge and pressure pack of gauge with turmeric powder may be essential. The fallen leeches should be vomited, if not they will die. This is carried out by applying turmeric powder to the oral area and sucker will open up. When the blood comes out from the anterior sucker, gentle squeezing from the posterior suckers towards anterior sucker to be carried out.
till all the chambers of digestive system are empty. If the leech is active when placed in water, it indicates vomiting is proper.\textsuperscript{12} Leeches can be reused only after fortnight either to the same patient or to others. Used leeches are kept in the separate bottles with name, date of application etc. The diseases which are localized respond well to leech therapy. The disease like ringworm, eczema, pimples, and ocular lesion, strangulated hemorrhoids, acute attack of piles etc. respond well. In the author’s opinion, leech therapy alone may not be useful but the combination of leeching and oral medications gives better results.

CONCLUSION

Thus, through the above quoted references it can well be deciphered that raktamokshana though being a minor surgical procedure can be applied in varied aspects especially where rakti and pitta related morbidities manifest.

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