ROLE OF LEECH THERAPY (TALEEQ) IN ATHEROSCLEROSIS - A CASE REPORT

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ABSTRACT
Atherosclerosis is a type of peripheral arterial disease (PAD) due to atherosclerosis of arteries with ageing. They share common risk factors namely smoking, diabetes, hypertension, hyperlipidaemia. Most frequently found in males and affects lower limb eight times more than upper limb. The disease is presented by two distinct features; intermittent claudication and critical limb ischaemia². In unani system of medicine no disease is mentioned by this name but this pathy has various processes to treat impending condition causing Gangrene. Leech Therapy is one among them. Leech therapy is being applied to remove the fasid mad´da (morbid humour) that in turn lead to healthy circulation and perfusion of tissues, resulting in proper healing process to take place. This paper is an attempt to present the valuable effect of leech therapy in atherosclerosis (PAD).

KEYWORDS: Atherosclerosis, Intermittent Claudication, Critical limb ischemia, Taleeq, Fasid Mad´da, PAD, Leech Therapy.

INTRODUCTION
Leech therapy (Hirudotherapy) is one of the ancient medical practices of bloodletting. It was first introduced by famous Unani physician, Hippocrates, about 3500 years back. The purpose of it is withdrawal of considerable quantity of blood form the body where other processes of bloodletting are not possible (Venesection, cupping). In Unani system of medicine, it has been used in various problems like chronic skin diseases, thromboembolic diseases, swellings, ENT disorders, as well as congestion in brain and mental illness.[¹] Of late it is reckoning in thromboembolic diseases (CAT, IHD), plastic surgery, replantation and other constructive surgeries all over the world.[¹,³]

The therapy has remarkable effect on peripheral vascular diseases (PAD) like Senile atherosclerosis, Buerger’s disease, CAD, etc.

Atherosclerosis is disease of the arteries. It causes narrowing of vessels that in turn leads to decreased blood flow to the affected corresponding body part. Gradually with time ischemic features develop; like loss of hairs, thin, dry and brittle nails, claudication, decreased local temperature, skin discoloration (necrotic changes), diminished or absent pulse and muscular wasting. This disturbs the routine life of the individual.[²]

The case study is an effort to show the effect of leech therapy in atherosclerosis.

Case history
A 45 years old male patient came with the complaints of severe pain and burning sensation with subungal ulcer in the right great toe, blackening of the adjacent two small toes. The pain was severe and of burning nature. It was aggravated on exertion and on elevation of the foot. It was localised to lower part of the right leg.

On examination, we found that the affected part was swollen, skin at the distal part of the toes were blackened, subungal ulcer in the right great toe with severe tenderness. The affected leg was colder than the opposite one with missing dorsalis pedis pulse. On part elevation there was severe pain in the great toe and burning sensation up to lower 1/3rd of the leg. Arterial Colour Doppler study showed diffuse obliteration of Anterior Tibial and dorsalis pedis artery. There were diffuse atherosclerotic changes in all the arteries of right lower limb and mild arterial insufficiency noted in Anterior Tibial Artery. On these findings he has been diagnosed as a case of Atherosclerosis.

MATERIAL AND METHODS
The patient was explained regarding the condition of the affected part, about the disease and the outcome of treatment by leech therapy. His informed consent was obtained for leech therapy.

- Schedule - Twice in a week
- No of leech - 3 per Sitting
- Site - Proximal and Distal ends of toes. One at the dorsum of the right foot
- Duration - Till leech leave by itself (20-30)min
- Total No of Sitting - 9
- Patient’s Evaluation - After 9 sitting.

Leech therapy was carried out twice a week and in each sitting three leeches had been applied around the affected area (proximal and distal part). They were placed until they quit by themselves. A total of 9 sitting have been performed. The subjective features insidiously subsiding after the first day of intervention. The condition was evaluated by examination of the affected part and arterial colour Doppler of the right lower limb.

**OBSERVATION AND RESULTS**

All the subjective complaints of the patient were relieved. The jeopardized blood circulation re-established. That is evident by subsiding of pain, resolved swelling, necrotised area reduced in size, granulation tissue develop leading the ulcer to heal, skin gradually regain its normal colour and texture, dorsalis pedis pulsations can be best appreciated.

On comparing the previous arterial Doppler of the right lower limb, the report showed that diffuse atherosclerotic intimal calcification was noted in all the vessels of the limb, all arteries shows normal triphasic flow pattern except ATA of right limb while the arterial Doppler scan, done after the completion of Leech therapy showed atherosclerotic plaques only in the right common femoral artery with mild insufficiency and triphasic flow in the ATA artery. This shows that patient had improvement.

**Images**

![Before treatment](image1)
![After 2 sittings](image2)
![After 9 sittings](image3)
![3rd Toe After 3 Days](image4)
DISCUSSION

In PAD is a very notorious one which is very hard to get cure. Poor patient are very unfortunate to procure top class treatment. Their poorness kills them in bits. The Leech Therapy is a procedure in our system used in various diseases to cure them. Like; varicose vein, gangrene, cellulitis etc. The effect of the therapy is due to the specific bioactive substances present in its saliva. They perform their respective functions thereby clearing the channels, reducing inflammation etc. That in turn improves circulation in the affected area to regain its normal state and function. It keeps the patient ambulatory during the treatment and is cost effective too. The therapy may be a better parasurgical alternative for the treatment of early condition of PAD. There is the need of further study that may proof it to be a boon for the sufferers.

Mechanism of Action In The Light Of Unani Concept of Humour

As per the unani concept of leeching therapy, it works on the principles of;
- Tanqiyea mawad (Evacuation of morbid humours)
- Imalae Mawad (Diversion of Humours)
- Mussakin (Sedative)
- Muhallil (anti-inflammatory)

Tanqiyea mawad means painless evacuation of morbid mawad from the whole body or locally. Thereby reducing its load over the tissues that gives way to act Tabiyat, which maintain qualitative and quantitative homeostasis of all the four humours of the body that actually maintain the normal health.\(^\text{[1]}\)

Imalae Mawad is the process in which the diversion of morbid mawad takes place from affected organ and tissues to the site from where it can be easily excreted from the body tissues (kidneys, liver, skin, intestine). Along with these features, the effectivety it may be attributing of Mussakin and Muhallil actions of the Saliva. The Unani physicians on the basis of holistic approach apart from PAD have been widely using the therapeutic regimen for a number of diseases to cure them.\(^\text{[1]}\) However, nowadays it has been proved by various research studies that the efficicy of leech therapy lies in it’s Saliva not in the amount of blood sucked by leech. This special property of saliva is due pharmacologically bioactive substances present in it. These include anticoagulants, anti-inflammatory, vasodilators, anaesthetic, thrombolytic activities etc.\(^\text{[1,3,4,5,6,7]}\) The anticoagulants (hirudin, calin,) keep check on the blood

- Hirudin - Inhibits blood coagulation by binding to thrombin.
- Calin - Inhibits blood coagulation by blocking the binding of von-Willebrand factor to collagen Mediated platelet aggregation.
- Hirustasin - Inhibits Kallikerin, Trypsin, Chymotrypsin, Neutrophilic Cathepsin G.
- Bdellins - Anti-inflammatory, Inhibits trypsin, Plasmin and Acrosin.
- Tryptase inhibitor - Inhibits Proteolytic enzymes of host mast cells.
- Complement inhibitors - May possibly replace natural complement inhibitors, if they are deficient.
- Destabilase - Monomerizing activity; dissolves fibrin, thrombolytic effects.

The thrombolytic, like hyaluronidase, destabilase, bdellins etc. have role in dissolving the fibrin and collagen plaques thereby clearing the channels for circulation. Along with these substances, the vasodilators like histamine, aids to increase blood circulation. Further, there are some substances having anti-inflammatory (bdellins, Eglin’s) that subsides local inflammation and other additional effects such as lipotropic activity.\(^\text{[1,3,4]}\)

It promotes the improvement of blood circulation, renders thrombolytic, anti-inflammatory and immune-stimulant action. So leech application is beneficial in this...
compare to oral Unani medicines. Thus leech therapy is the better parasurgical alternative for the treatment of atherosclerotic changes. This keeps the patient ambulatory during the treatment and is very cost effective and is a boon for the sufferers.

CONCLUSION
The therapy was found effective in treating the condition of the patient within 30 days due to atherosclerosis. The study shows that it is effective in treating changes in atherosclerosis. Further study must be carried out on a large number of patients to confirm it potential on a long-term basis.

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REFERENCES