Case Report

Wound Healing Effect of Humri (*Securinega leucopyrus)* and Supportive Ayurveda Therapy in Beurger's Ulcer

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Abstract

Background: Beurger's ulcer is a non healing arterial ulcer developed due to Burger's disease caused by occlusion of small and medium sized arteries. The Burger's disease is also termed as TAO (Thrombo-Angiitis Obliterans) which indicates thrombosis, inflammation and obstruction of the arterial wall as supposed pathogenesis. of the disease. Due to deficient arterial supply, the affected part become ischemic leading to development of non healing ulcer.

Objectives: To evaluate effect of Humri (*Securinega leucopyrus)* and supportive Ayurved Therapy in Beurger's Ulcer in a single patient

Materials & Methods: A 45 years old male with Burger's ulcer at lateral malleolus of left foot visited OPD for Ayurveda treatment. The patient had history of smoking 15-20 bidi per day since last 25 years. Arterial color Doppler report showed complete blockage of dorsalis pedis and posterior tibial arteries of both foot. *Avagaha swedan* (foot bath) through *Panchavalkal* decoction, *Parisheka* (pouring oil on the foot) with *Bala oil* (*Sida cordifolia* Linn.),and *Nadisweda* (hot fomentation was done regularly for 5 minutes of both lower legs was the treatment given. Cleaning of wound was done by *Panchavalkala* decoction and wound dressing was done with Humri (*S. leucopyrus)* powder mixed with *Tila Taila* (Sesame oil).

Results: Throbbing pain at lateral malleolus of left foot with grade-3(subjective assessment) was reduced to grade-1 after one month. Relief in symptoms like swelling, discharge, wound size was observed. The blackish discoloration of left lower leg changes to normal skin and a big non healing arterial ulcer at lateral malleolus of left foot healed completely in four months.

Conclusion: This case demonstrates that arterial (Beurger's) ulcer can be treated with ayurvedic management added with local application of Humri (*S. leucopyrus)* powder mixed in Sesame oil.

Keywords: Ayurveda**,** Arterial ulcer, Burger's disease, *Securinega leucopyrus,* Thrombo Angitis Obliterance (TAO).

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Introduction

Buerger's disease or TAO (Thrombo-Angiitis-Obliterans) is an inflammatory reaction in arterial wall with involvement of the neighboring vein and nerve and terminating in thrombosis of artery. The inflammatory process is initiated within the tunica intima. It characteristically affects small and medium-sized arteries as well as veins of the upper and lower extremities. The cause of TAO is associated with smoking and frequently observed in males. The disease was given its first accurate pathological description, by Leo Buerger at Mount Sinai hospital New York. [1] Smoking plays major role for both initiation and progression of disease andit has been suggested that the tobacco may trigger an immune response in susceptible persons. [2] The patients suffering from Buerger's disease have pain (intermittent claudication) as predominant symptom which is due to ischemia of muscle and nerves. Other symptoms are numbness and tingling

sensation in extremity, the involved skin colour changes to black and leads to ulceration. In chronic or severe cases, gangrene of one or more digits takes place which may extend to foot or lower leg. Common patients are from age group of 20-40 years, male patients are affected three times more than females (male female ratio 3:1). It is common in India and Japan . The incidence of TAO is about 8 to 12 per 100,000 adults in the United States. [3] The patients are diagnosed on the basis of clinical findings and pulsation of the arteries of lower limb. [3] The diagnostic tools like arteriography and colour doppler helps to know the status of occlusion and extent of occlusion in the arteries. [4] The treatment of TAO is streptokinase which is said to be adjuvant therapy in some cases.[5] The vasodilators like pentoxyphyline also play important role in the symptomatic relief in some cases. In cases of gangrenous digits, amputation of the involved digit is frequently required but rarely amputation of lower leg like below and above knee.[6] The ulcer at the toe or lower leg secondary due to TAO is difficult to heal and termed as non healing arterial ulcer.

In Ayurvedic classics, Sushruta and Charaka have described *Vatarakta* (one of the disease in which *Vata* and *Rakta* get vitiated) in detail. Sushruta described signs and symptoms of *Vatarakta* like *Sparsa Asahishnuta* (parasthesia), *Toda* (pain), *Bheda* (throbbing pain), *Swapa* (numbness), *Sweta* (pallor), *Sheeta* (cold), *Shopha* (swelling) *Vaivarnya* (discoloration).[7] On the basis of these symptoms *Vatarakta* can be correlated with Burger's disease. Charaka has mentioned *Uttana* (superficial) and *Gambhir* (deep seated) types of *Vatarakta.* [8] So it can be said that *Vatarakta* is suggestive of vitiation of *Vata Dosha* and *Raktadhatu.*

Securinega leucopyrus (Willd.) Muell is known as *Humari* /*Thumri* in Saurashtra region (Fig-1). Its leaves act as antiseptic and so its paste is used to treat the infected wound by local people.[9] The healing process becomes diminished in chronic wounds due to reduced tissue perfusion and neurological defecits . [10] *Tila Taila* (Sesame oil) has *Vrana Shodhan* (wound cleaning) and *Vrana Dahanashaka* (relief in burning pain in wound) properties [11]

Case Report

A male, 65 year age patient visited OPD with ulcer at lateral malleolus of his left foot. Patient was a vegetable seller, had a history of prolonged standing and heavy smoking. Patient had complaints of burning and throbbing pain in left foot and ulcer at lateral malleolus. Upon history taking , patient revealed to smoke 15-20 bidi (a small, handrolled tobacco containing local made smoking device) per day since last 25 years. Before three years patient felt severe pain at left great toe which become gangrenous and amputated in 2013. Other complaints like intermittent claudication, sleep disturbance, worst pain at night were also reported by patient.

Local examination revealed theulceration at lateral malleolus, slough, inflamed wound edges black coloration of the surrounding skin, inflammation and cellulitis (Fig-2). The status of arterial pulsation on palpation was normal femoral artery, feeble popliteal artery while absent dorsalis pedis artery and posterior tibial artery of left leg. The right leg arterial pulsations were normal femoral artery, feeble popliteal artery, dorsalis pedis artery and posterior tibial artery. The left lower extremity was cold as compared to right. The hyperesthesia on the left foot and shining of skin was observed as compared to right foot. The size of wound was 8 x 6 x 2 cm, triangular in shape.

The blood investigations (Table-1) were carried out at baseline to rule out the diabetes mellitus and infection. These investigations were also done after treatment to mark any changes before and after the treatment. The report of colour doppler of left leg before treatment has shown diffuse stenosis with segmental total occlusion in bilateral anterior and posterior tibial arteries and bilateral dorsalis pedis artery.

Treatment protocol

After clinical and radiological diagnosis, Tab. pentoxyphyllin 400mg (peripheral vasodilators) two times a day was prescribed for initial one month as patient had severe claudication pain (discomfort or tiredness in the legs that occurs during walking and is relieved by rest). The ecosprin 75mg (anti-platelet) two times a day was

prescribed for 15 days. Inj Diclofenac sodium 75mg (analgesic) at night was given as per need. So the severity of pain was reduced and patient had sound sleep at night. After one month of this treatment , patient was treated with Ayurved treatment and reported improvement in all signs and symptoms gradually .

All the medicines used in this case were procured from Pharmacy of the study centre. *Securinega leucopyrus* was collected from the local area of study centre and identified by the pharmacognosist of the institute. *Avagaha Swedan* (foot bath) with *Panchavalkal* i.e. five plants bark [*Vata* (*Ficus bengalensis)*, *Udumbara (Ficus glomerata)*, *Plaksha* (*Ficus lacor* Buch-Ham), *Ashwathha (Ficus religiosa)* and *Parisha(Thespesia populenea* Linn)] decoction was done daily in the morning by keeping the foot in decoction for 10-15 minutes before dressing. The *Parisheka* (pouring oil on the foot) was performed with *Bala Taila* (*Sida cordifolia* Linn.) after foot bath for 10 minutes daily. Then *Nadisweda* (hot fomentation) by *Nadiyantra* (a rubber tube attached to pressure cookers tip for carrying heat in the form of vapors) was done regularly for 5 minutes of both lower legs. Cleaning of wound was done by *Panchavalkala* decoction and wound dressing was done with *S. leucopyrus* powder mixed with *Tila Taila* (Sesame oil) in equal quantity. The wound was covered loosely with sterile gauze piece and bandaged. All these procedures were performed once daily and wound status was recorded and photographed at weekly interval.

Observations and Results

The wound was treated with application of *S. leucopyrus* paste and observed that slough, swelling, redness and pain was relieved within 7 days which indicates that the *S. leucopyrus* has property to debride dead tissue or slough [Figure-3]. The wound became fresh having healthy granulation and good looking within one month which showed that applied drug prevents infection at wound site [Figure-4]. The dressing continued along with footbath, *Abhyanga*, *Nadiswedan* and wound healing observed with healthy granulation and slopping edges of wound. As infection was controlled and healthy wound get contracted leading to reduction in the size of wound after 2 months [Figure-5]. The wound improved day by day and other symptoms like swelling, pain, blackish colour, claudication was improved remarkably within three months [Figure-6-7]. Wound almost healed within four months of treatment with formation of white scar [Figure-8]

In first consultation patient had severe intermittent claudication having after walk of about 200-300meters. After one month of treatment, this increased to 800 meters with mild pain. Throbbing pain at lateral malleolus of left foot with grade-3 was reduced to grade-1 after one month and no pain after completion of treatment. Relief in symptoms like swelling, discharge, wound size were observed. The blackish discoloration of left lower leg changes to normal skin and a big non healing arterial ulcer at lateral malleolus of left foot healed in four months. After treatment , the patient was able to walk more than one kilometer without pain. The blood investigations carried out before and after treatment showed that there was marked reduction in the value of ESR (BT-100mm per hour, AT-10mm per hour). The increased ESR before treatment might be due to chronic nature of wound. Remaining observed values were not having significant differences (Table -1). There was no involvement of bone due to superficial nature of wound and so there was no any change in X-ray.

Discussion

Arterial ulcers are reluctant to heal due to obstruction in the end arteries and severe pain so in initial stage modern therapy with vasodilator, antiplatelet and analgesic were used. Smoking is the leading cause of TAO and after admission patient advised to quit the smoking. Ayuvedic principle of avoidance of the *Nidan* (causative factors) is most important aspect of the offered treatment. During course of treatment the patient reduced the smoke frequency to 2-3 bidi per day. After reduction in severity of the symptoms, patient was shifted on Ayurveda treatment plan including *Bala taila Abhyang, Parishek* and *Nadiswedan* which helped in soothing and improve circulation.

The *Taila* has properties like *Snigdha* and *Sukshma* which

has actions like soothing and dilatation of the lumen. [12] According to Sushruta, among 60 measures of comprehensive wound management, *Kalka* (paste) is indicated in cases of chronic wound, which is full of slough, deep seated and reluctant to heal.[13] The paste performs both the functions of *Shodhana* (cleansing) and *Ropana* (healing) in cases of *Dushta Vrana*. Broad spectrum antimicrobial activity of *S. leucopyrus*, controlled wound infection by controlling and reducing the microbial load. [14]

Panchavalkal decoction has the *Shodhan* (cleaning) and *Ropan* (healing) properties. Due to warmth it improves circulation at affected part. After foot bath, wound and surrounding skin was cleaned with *Panchavalkal* decoction that minimizes infection. [15] Dressing was done with *Humari (Securinega leucopyrus),* an unexplored plant of Saurashtra region of Gujarat. The similar property were found in herb *Katupila (Securinega leucopyrus)* from Si Lanka which had shown effective in chronic wound and diabetic wound.[16-17] The *Humari* has wound debridement activity and it is essential to relief from slough, edema and discharge. *Humari* has neovascularization property (improve circulation) which plays important role in cases of TAO as there is hampered blood circulation due to obstructed arterial lumen. So dressing of *Humari* along with adjuvant Ayurved treatment in chronic arterial ulcer (Burger's ulcer) is found to be effective and safe.

Conclusion

This single case study highlighted that paste of Humari (*Securinega leucopyrus)* has healing potential in non healing arterial ulcer due to TAO. The case argues for more systematic studies to explore the herb in a more conclusive manner.

Table-1: Investigations baseline and after treatment

Investigations	Before Treatment	After Treatment
TLC	6000/cu mm	10000 cumm
DLC	N-68, L-21, E- 9, M-2	N-62, L-28, E- 8, M-2
Hemoglobin %	17.3 gm%	14.0 gm%
ESR(Westergreen method)	100 mm per hour	10 mm per hour
Platelet count	223 mil/cu mm	342 mil/cumm
Bleeding Time	1 min 25sec	1 min 30sec
Clotting Time	3 min 40sec	3 min 45sec
Fasting Blood Sugar	83 mg/dl	80 mg/dl
Post Prandial Blood Sugar	88 mg/dl	95 mg/dl
Blood urea	21 mg/dl	24 mg/dl
Serum creatinine	1.0 mg/dl	1.0 mg/dl
HIV, VDRL, HBSAg	Non-reactive	Non-reactive
X-Ray Finding	Normal, No bony involvement	Normal, No bony involvement

(TLC- Total Leukocyte Count, DLC- Differential Leukocyte Count, N- Neutrophils, L-Lymphocytes, E- Eiosinophils, M- Monocytes, ESR- Erythrocyte Sedimentation Rate, HIV- Human Immunodeficiency Virus, VDRL- Veneral Disease Research Laboratory, HBSAg- Australia antigen.)

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Figures

Figure-1: Plant *Humari* (*Securinega leucopyrus)*

Figure-2: Non healing ulcer at lateral malleolus of left foot with inflamed edeges and slougn on first visit of size 7x9 cm

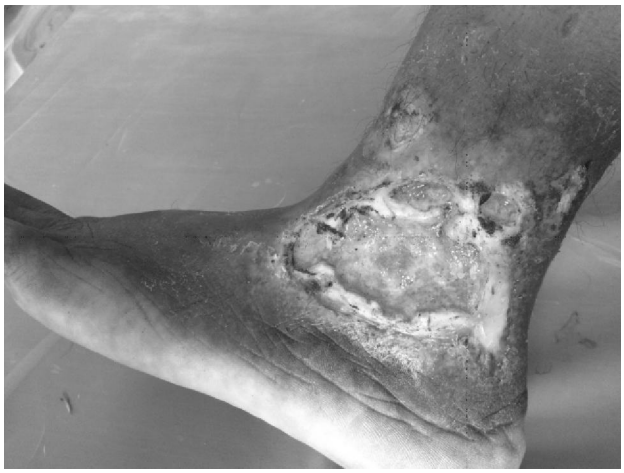


Figure-3: Fresh wound with mild sloughafter 7 days having size 8x9 cm

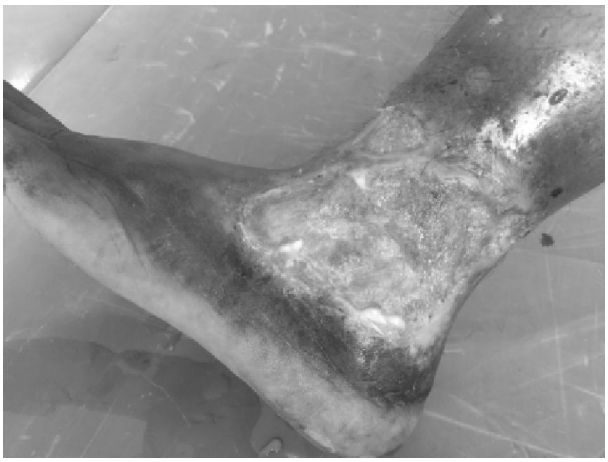


Figure-4: Healing wound with granulationafter one months having size 6x7 cm

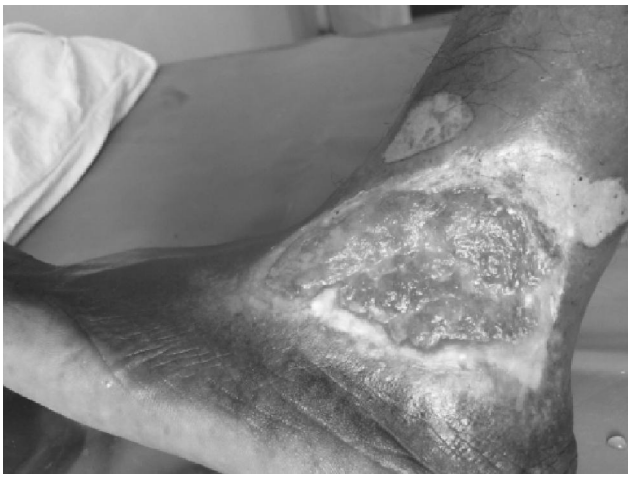


Figure-5: wound margin contraction and clean wound after two months having size 4x5 cm

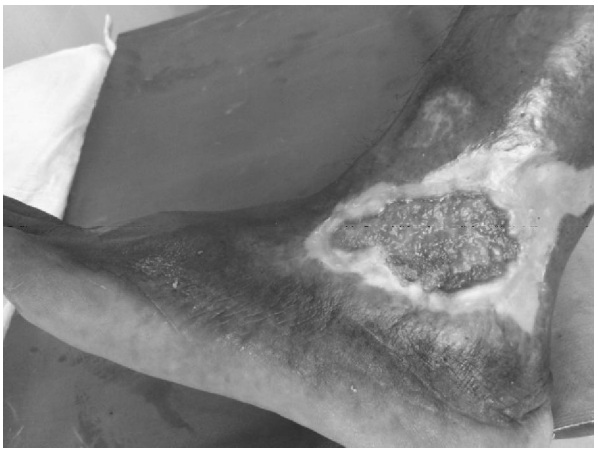


Figure-6: Healthy wound with marked contraction of wound after three months having size3x4 cm

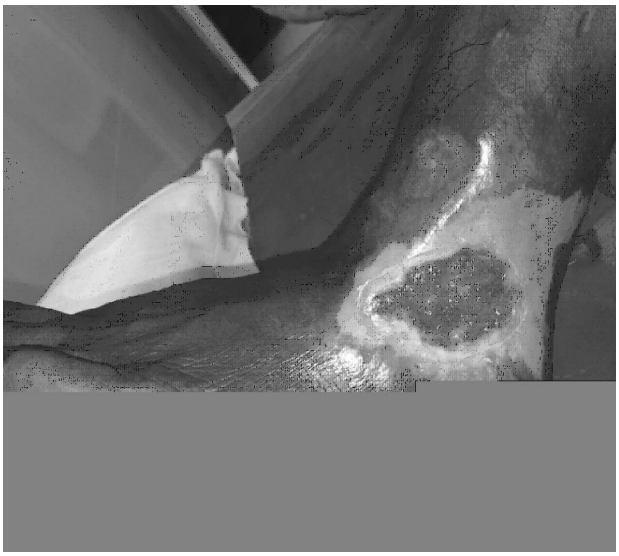
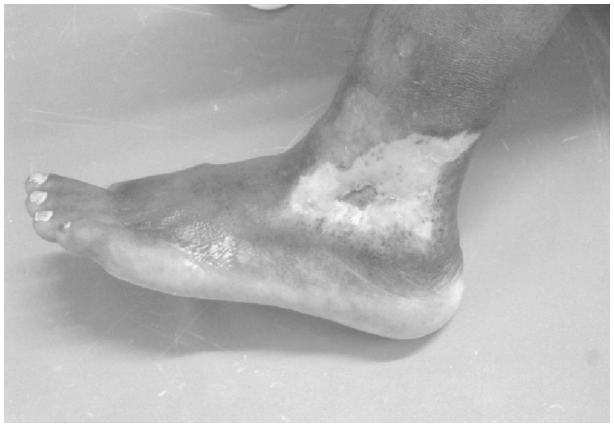


Figure-7: Further contraction and scab after Three and half months having size 2x2 cm

Figure-8: Healed ulcer after four and half month



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