



Journal Homepage: -www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/13313

DOI URL: <http://dx.doi.org/10.21474/IJAR01/13313>



RESEARCH ARTICLE

A CLINICAL SUCCESS IN THE MANAGEMENT OF KOTHA (DIGITAL GANGRENE) BY LEECH THERAPY AND PANCHTIKTAGHRITAGUGGULU - A SINGLE CASE STUDY

Dr. Bharat Bhalara¹ and Dr. Joyal Patel²

1. Assistant Professor, Department of Shalya Tantra R.K. University Ayurvedic College & Hospital, Kasturbadham, Rajkot.
2. R.M.O. & I/C Assistant Professor, Department of Shalyatantra, ITRA, Jamnagar, Gujrat.

Manuscript Info

Manuscript History

Received: 25 June 2021

Final Accepted: 28 July 2021

Published: August 2021

Key words:-

Kotha, Jalaukavacharana,
Panchtiktaghritha Guggulu

Abstract

Gangrene is a type of tissue death caused by lack of blood supply. Symptoms may include a change in skin colour red or black, numbness, swelling, pain, ulceration and detachment of local skin. The feet and hands are most commonly affected. This condition may arise because of an injury, infection or other health conditions, majorly diabetes. Gangrene and its associated amputations are clinically challenging, but Ayurveda offers therapy options. In Ayurveda, gangrene can be considered as Kotha under DushtaVrana due to Margavarana and Dhatu Kshaya. This case study aims to investigate whether Ayurvedic intervention can manage Kotha (gangrene) without amputation of the gangrenous part. Here a case report discussed diagnosed with kotha (Dry Gangrene) treated with Ayurved management, Panchtiktaghritha guggulu oral and Jalaukavacharana (leech therapy), which were found very effective and safe in a patient of dry gangrene.

Copy Right, IJAR, 2021,. All rights reserved.

Introduction:-

Gangrene is a general term that can be used to describe a number of conditions that involve death and subsequent decay of the tissue in one regional portion of the body¹. A complication of necrosis, gangrene can arise because of critically insufficient blood-supply². Gangrene occurs when a body part loses its blood supply. Without a substantially functioning blood supply, the cells struggle to survive and ultimately die. This necrosis or cell death, can result when a portion of the body's tissues becomes infected, injured or constricted, interrupting the blood supply. There are several types of gangrene, but the three most common variations are wet, dry and gas gangrene. Less common variations include internal and Fournier's gangrene. Gangrene can involve any part of the body, but the most common sites include the toes, fingers, feet and hands³. Dry gangrene is a condition that involves tissue death and turns it dry, dark and mummified due to arterial occlusion. It occurs gradually, progresses slowly and affects the lower extremities of the body (toes and feet) due to insufficient blood supply to the tissues. Dry gangrene is very common in individuals suffering from arteriosclerosis, high cholesterol, diabetes and smoking⁴. In dry gangrene, due to necrosis, the tissue becomes shrunken and blackened and gets detached. In this condition, autoamputation is usually practiced due to occurrence of clear lines of demarcation. If dry gangrene is left untreated or treatment is delayed, it may progress to cause infections and complicate the condition. Following autoamputation practice also increases the painful phase and decreases the quality of life⁵. Dry gangrene is usually less severe than wet gangrene and may result in auto-amputation (i.e., spontaneous detachment from the body and elimination of a

Corresponding Author:- Dr. Bharat Bhalara

Address:- Assistant Professor, Department of Shalya Tantra R.K. University Ayurvedic College & Hospital, Kasturbadham, Rajkot.

gangrenous part), whereas wet gangrene may lead to cellulitis, loss of the extremity, septicemia and death⁶.

In Ayurveda, gangrene can be considered as *Kotha* under *DushtaVrana* due to *Margavarana* and *Dhatu Kshaya*. *Margavarana* (encapsulation) and *Dhatu Kshaya* (depletion of *Dhatu*) are the two major causative comorbidities of *VataVyadhi*. The word *Marga* in general refers to any channels within the body, but, contextually, it refers to the vessels carrying the nutrients and *Avarana* means *Avarodha* and is translated as obstruction. Pathological probability of gangrene may be accumulation of morbid *Kapha* and *Pitta Dosha* within the channels that the momentum of the *VataDosha* circulation in the channels or impairment of momentum⁷. The influence of *Margavarana* is not limited proximal to the obstruction but distal to the obstruction, the circulation of the nutrients is affected and hence the body part distal to the obstruction is deprived of nutrition and hence suffers from pathology of *Dhatu Kshaya*⁸.

Leech therapy is becoming increasingly popular among practitioners of contemporary and alternative medicine. Many studies are currently under way to evaluate its effects, mainly in the treatment of pain⁹. In Europe and the United States, thousands of patients have been healed using leech therapy¹⁰. Many traditional medical systems, for example, the Greek, Arab, and Russian, mention leech usage¹¹. The origins of traditional Indian medicine Ayurveda remain unclear, but it is said to date back some 3000 years. Leech therapy has been an active part of traditional Indian medicine throughout its history *Panchatiktaghritguggulu*, reference from Bhaishjyarnavalikushthrogadhikara¹². which is combination of 5 drugs which has bitter taste (*tiktarasatmaka*). So probable mode of action of *Panchatiktaghritguggulu* can be considered as, all properties of this drug acts on cellular level of skin decreasing Keratinization of skin layer thus improving cell cycle as a result of these symptoms like Itching, extensive patches, unctuous & raised red color of patches were reduced giving normal texture to skin.

Case Report

A 45-year-old lady visited the Shalya Tantra outpatient department of Govt. Akhandanand Ayurved Hospital, Ahmedabad with complaints of blackening, numbness, feeling of cold and moderate pain, with slight swelling near line of demarcation of the distal index, middle and ring finger of the left hand [Figures 1]. The above sign and symptoms were spreading to proximal part of the finger from more than 1 month. She had consulted modern medicine doctors for the treatment. Color Doppler, X-ray of the left hand and pathological investigations were done as per the advice of previous doctors. Color Doppler report showed color flow in middle and ring finger up to middle phalanx and no color flow in pulp/distal index finger and X-ray and pathology reports were normal. As per the upper limb arterial color doppler report, modern medicine doctors diagnosed it as gangrene of the distal index finger probably due to cellulitis, because it initially started with redness and pain in the distal part of the index finger, then gradually spread proximally with blackening and numbness. Modern medicine doctors advised surgical amputation as ultimate treatment. She opted alternative option for the same problem without surgical intervention.

After confirmation of *Kotha* (dry gangrene), Ayurvedic treatment consisting of *PanchatiktaghritaGuggulu* thrice a day before meal with water, and *Jalaukavacharana* was done for 6 weeks. The treatment intervention was selected on the basis of clinical presentation of the *Kotha* (dry gangrene) condition and therapeutic properties of the drug with possible ability to modify the same. The patient showed mild improvement after the 2nd week; therefore, the same medicines were continued every week and clinical improvements were observed

Case Observation



Figure 1:- Before Treatment.



Figure:2.1:-During Treatment



Figure:2.2:-During Treatment



Figure:3.1:-After Treatment



Figure:3.2:- After Treatment

Result:-

Initially, the patient was taking analgesic medicine as and when there was unbearable pain and burning sensation Ayurvedic treatment was found highly significant. Application of leech continued towards demarcation line [figure 2.1 & 2.2]. At the end of the treatment period of 2 months as compared to baseline, there was marked reduction in pain and inflammation at the site of gangrene and decrease in blackening. The patient returned to her routine work, and there was no discomfort after treatment [Figures 3.1 & 3.2]. There was no recurrence of symptoms in the follow-up period. Neither side effects nor complications were reported during the treatment and follow-up period.

Discussion:-

In the modern era, treatment of gangrene infections includes the removal of necrotic tissue in an attempt to allow healing of the surrounding living tissue. It is also an important step toward the prevention of further infection. The treatment options of the various types of gangrene, however, differ due to different types of conditions. In Ayurveda, gangrene can be considered as *Kotha* under *DushtaVrana* due to *Margavarana* (obstruction) and *Dhatu Kshaya*. *Margavarana* is caused by imbalanced *Tridosha*. *Panchtiktaghritaguggulu* and Leech therapy combination aimed primarily at removing deepseated *Pitta* from the tissues. In *Dhatu Kshaya* (degenerative) condition at gangrenous part, it also acts to nourish and strengthen the system, supporting the overall health and proper function of the joints, the muscles and the connective tissue.

The main contents of this drug are *Panchatiktaganadravyas*, *ghee&Guggulu*. So probable mode of action of *Panchatiktaghritaguggulu* can be said as all contents are having *tikta rasa*, *laghu* and *rukshguna*, so it acts as anti-itching property, *kledand vikrutmedaupashoshan*, *vrnashodhak*¹³. It mainly acts on body wastes (*kleda*), *meda*(fat),

lasika (plasma), *rakta* (blood), *pitta*, *swed* (sweat) and *shleshma*¹⁴. *Nimb* (*Azadirachta indica*) has chemical composition of Nimbin, Nimbidin possesses significant dose dependant anti-inflammatory activity & significant anti-ulcer effect¹⁵. *Guduchi* (*Tinospora cordifolia*) having Berberin and tinosporin mainly acts as anti-oxidant & immune-potentiating thus cell layers during disease pathology are improved by this drug¹⁶. *Vasa* (*Adhatodavasic*) the Vascicicone has anti-histaminic property as well as it is anti-oxidant and anti – inflammatory¹⁷. *Patol* (*Trichosanthes dioica*) has anti-oxidant¹⁸ and *Nidigdhika* (*Solanum xanthocarpum*) has anti-histaminic property¹⁹. *Guggulu* (*Commiphora mukul*) has excellent property to act on *vikrutkleda* (abnormal body wastes) and *meda* (fat), *mamsa dhatu* (flesh) as it has *Katu*, *Tikta*, *Kashay*, *Madhur rasa*, *Ushnaveerya* and *katu Vipak*²⁰. *Guggulu* stimulates body activity to build up immune system. *Ghrta* has lipophilic action so helps in ion transportation to a target organ. This lipophilic nature of *Ghrta* facilitates entry of drug in to cell and its delivery to mitochondria and nuclear membrane. Also, it helps in restoring the normal texture to skin²¹. So, all these properties act mainly at cellular level of skin decreasing keratinization of cell layer thus improving cell cycle as a result symptom like itching, deranged complexion, unctuous, perspiration, white or red patches are reduced giving normal texture to skin. Leeches act by secreting biologically active substances in their saliva. This saliva, which contains a hundred of so different substances, includes an antiplatelet aggregation factor, anaesthetic, and anti-inflammatory and antibiotic agents. Leech saliva also contains an anticoagulant, hirudin, which stops blood clotting and dissolves thrombi, clearing partial and complete blockages in distal arteries. When leeches bite, chemicals in their saliva dilate host's blood vessels and thin their blood. Simultaneously secreting a local anaesthetic, mask any pain from the bite, rendering hosts unaware of leech presence. By ingesting excess blood, leeches reduce tissue swelling and promote healing. These micro-circulatory actions enable fresh oxygenated blood to reach host's affected areas prior to the restoration of the normal circulation²².

Conclusion:-

Ayurvedic management consisting of *Panchtiktaghrtaguggulu* and leech application was found very effective and safe in the management of case of *Kotha* (dry gangrene). The observed benefits may be attributed due to antiallergic, antibacterial and blood-purifying properties, skin health promoter, detoxifying and anti-inflammatory action of *Panchtiktaghrtaguggulu*. The findings of this case report suggest that with above Ayurvedic intervention *Kotha* (dry gangrene) may be managed without surgical intervention. The findings need to be confirmed and validated in more of a number of patients of gangrene

References:-

1. Brittany Stapp – Caudell. Gangrene-Recognizing and Treating Cellular Necrosis. Association of Surgical Technologists for Reprint Permission; 2008. p. 548. Available from: <http://publications@ast.org>. [Last accessed on 2008 Sep 18]
2. Diseases and Conditions. Gangrene; 2007. Available from: <http://publications@ast.org>. [Last accessed on 2008 Sep 18].
3. Ho H. Gas Gangrene; 2006. Available from: <http://publications@ast.org>. [Last accessed on 2008 Sep 18].
4. National Health Portal. Gangrene. India: 2015. Available from: <https://www.nhp.gov.in/>. [Last accessed on 2017 Oct 26].
5. Fikri R, Bicknell CD, Bloomfield LM, Lyons SP, Samarasinghe DG, Gibbs RG, et al. Awaiting autoamputation: A primary management strategy for toe gangrene in diabetic foot disease. *Diabetes Care* 2011;34:e134.
6. Kalish J, Hamdan A. Management of diabetic foot problems. *J VascSurg* 2010;51:476-86.
7. Acharya YT, editor. Charaka Samhita of Agnivesha, Reprint. Varanasi: Chaukhambha Orientalia; 2009. p. 619, 738.
8. Rajalaxmi MG, Shrinivasa Acharya G. DhamaniPratichaya (atherosclerosis) eventuating VataVyadhi (disorders caused due to Vata). *Int Ayuvedic Med J* 2014;5:877-83
9. Michalsen A, Klotz S, Lu'dtke R, Moebus S, Spahn G, Dobos GJ. Effectiveness of leech therapy in osteoarthritis of the knee: a randomized, controlled trial. *Ann Intern Med*. 2003;139:724-730.
10. Kutschera U, Roth M. Notes on the ecology of the Asian medicinal leech *Hirudinaria manillensis* (Hirudinea: Hirudinidae). *Lauterbornia*. 2006;56:9-13.
11. Papavramidou N, Christopoulou-Aletra H. Medicinal use of leeches in the texts of ancient Greek, Roman and early Byzantine writers. *Intern Med J*. 2009;39:624-627
12. Charaksamhita, ChikitsasthanaKushthrogadhikara 7/8, Published by ChoukhambaOrientalia, 2th Ed. 1994
13. Priyavat Sharma, Charaksamhita, ChikitsasthanaKushthrogadhikara 7/16, Published by ChoukhambaOrientalia, 2th Ed. 1994

14. Dr.Ambikadatta Shastri, SushrutsamhitaPurvardha, Published by Choukhamba Sanskrit Sansthana, Ed.2005
15. Priyavrat Sharma, DravyagunaVidnyana Part II, Published by Choukhamba Bharti Akadami 2003Ed.
16. Priyavrat Sharma, DravyagunaVidnyana Part II, Published by Choukhamba Bharti Akadami 2003Ed
17. Priyavrat Sharma, DravyagunaVidnyana Part II, Published by Choukhamba Bharti Akadami 2003Ed
18. Priyavrat Sharma, DravyagunaVidnyana Part II, Published by Choukhamba Bharti Akadami 2003Ed
19. Priyavrat Sharma, DravyagunaVidnyana Part II, Published by Choukhamba Bharti Akadami 2003Ed
20. Priyavrat Sharma, DravyagunaVidnyana Part II, Published by Choukhamba Bharti Akadami 2003Ed
21. Kashinath Shastri ,Charaksamhita Sutra sthana 13/14 Published by, Published by Choukhamba Sanskrit Sansthana, 8th Ed. 2004
22. Singh AP. Medicinal leech therapy: a brief overview. Complement Ther Clin Pract. 2010;16:213-215.