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**LEECH THERAPY AS CO-THERAPY WITH PHYSIOTHERAPY ON
QUALITY OF LIFE IN ELDERLY KNEE OSTEOARTHRITIS PATIENTS:
CASE REPORT**

JAYASHEELA M. GONI^{1*}, HEMANTH D TOSHIKHANE²

1: PhD Scholar, Parul Institute of Ayurved, Parul University, Vadodara

2: Dean, Faculty of Ayurveda, Parul Institute of Ayurved, Parul University, Vadodara

***Corresponding Author: Dr. Jayasheela M Goni: E Mail: jay300672@gmail.com**

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ABSTRACT

Introduction

Osteoarthritis(OA),is the most common musculoskeletal condition seen in elderly patients above 60 years. The study reveals that 10% of the global Geriatric population is suffering from Osteoarthritis. Osteoarthritis of the knee is a major cause of mobility impairment, Clinical and functional changes caused by Osteoarthritis (OA) influences the quality of life (QL) of elderly people resulting in reduced independence in older adults.Osteoarthritis is more common in women than men, 45% of women over the age of 65 years have symptoms while radiological evidence is found in 70% of those over 65years. In this case report Leech therapy which is practiced in Ayurveda since many years and suitable for elderly female patient is administered as co- therapy along with physio therapy. Leech therapy is beneficial in reduction of pain, tenderness, stiffness, and swelling, also enhances the quality of life, in elderly female patient of Knee Osteoarthritis.

Case Presentation

I Report two cases of elderly women suffering from knee Osteoarthritis visited OPD of Khemdas Ayurved Hospital, of Parul Institute of Ayurved and Research, Ishwarpura Vadodara, Gujarat.

Patient number 1 was a 65-year old elderly woman came with 3-year history of progressively worsening pain in both knees. Patient number 2 was a 67-year old elderly woman came with 5-year history of progressively worsening pain in both knees. Both showed all the clinical presentation of knee Osteoarthritis, not undergone any previous knee surgery. This resulted in restricted mobility and affected her daily routine. Patient number 1 was Intervened with Physiotherapy treatment. Patient number 2 was intervened with Leech therapy as co-therapy along with physiotherapy.

Conclusion:

The rate of improvement was evaluated using Visual Analogue Scale and WOMAC Osteoarthritis Index, shown significant results in the patient who has taken leech therapy as co therapy along with physiotherapy as compared to the patient who has taken physiotherapy alone. There was considerable improvement in reduction of pain, stiffness, also improvement in the mobility. This study aims in bringing quality of life in elderly knee Osteoarthritis patients visiting at Khemdas Ayurved Hospital at Parul University, Vadodara, Gujarat, India

Keywords: Leech therapy, Knee Osteoarthritis, Physio therapy, Geriatric

INTRODUCTION:

Knee Osteoarthritis is a major public health issue characterized by pain, functional impairment, disability, and diminished patient's quality of life. It is estimated that in 2025 the prevalence of knee Osteoarthritis will increase by 40% due to the aging of the world population¹ As incidence and prevalence rise with increasing age, extending life expectancy will result in greater numbers with OA.² The challenge in the 21st century is to delay the onset of disability and ensure optimal quality of life for older people. Prevention and management of health problems could help the elderly to improve quality of life and remain

independent for their daily activities to certain extent.

The commonly used treatment for pain associated with knee Osteoarthritis is non-steroidal anti-inflammatory drugs (NSAIDs) is frequently associated with undesirable side effects; thus, in the present case study both physiotherapy and Leech therapy were tried as noninvasive, non-pharmacological treatment options in the management of elderly knee Osteoarthritis. Leech therapy is a traditional healing procedure conventionally used in reducing pain has got empirical evidence for specific benefit in knee Osteoarthritis.³ Physiotherapy

encompasses numerous treatment modes including exercise, manual techniques, knee taping.^{4,5,6,7}

CASE PRESENTATION

Two cases both postmenopausal elderly women, above 60 years with a confirmed diagnosis of Osteoarthritis of the knee joint visited OPD at Khemdas Ayurved hospital, seeking advice.

Patient number 1 was a 65year old elderly woman came with 3year history of progressively worsening pain in both knees. She experiences stiffness more than 30 minutes when she wakes up in the morning and also feels stiffness for few minutes after getting up from a chair, this resulted in restricted mobility and affected her daily routine. She also complaints grating sound in the knee joints for most of the days of previous months, her symptoms were exacerbated by squatting or kneeling, relieved by resting position. On physical examination patient was not obese, her gait was antalgic. She was not able to flex or extend her knees completely, passive range of motion of both knees indicated palpable crepitus.

Patient number 2 was a 67year old elderly woman, came with 5year history of progressively worsening pain in both knees. She experiences stiffness more than 40

minutes when she wakes up in the morning, not able to sit on the floor, difficulty in walking, carrying items, occasionally relieved by non-steroidal anti-inflammatory drugs (NSAIDs) medicine and topical application, her symptoms were exacerbated during humid and cold days. On physical examination patient was slightly obese, gait was antalgic. Slower walking speed observed, she was not able to flex or extend her knees completely, Slight swelling and patellar tenderness on palpitation observed. Both Patientship and back were examined thoroughly all motions were pain free.Both Patients were not suffering from other concomitant diseases, not intolerant or allergic to leech, not on any anticoagulant or immune suppressants medicine, no history of any keloid formation at previous wound site, not undergone any previous knee surgery, after informed consent patients were enrolled for the treatment.

STUDY DESIGN: Prospective comparative case report

Intervention: Patient number 1 was given only physiotherapy

Standard operative procedure for Patient 1:

- Isometric Exercises for quadriceps each set of exercises consist of 10 repetitions, 3set.

- Straight leg raising [SLR] (10 repetitions, 3 sets),
- Hip abductors, flexors and extensors strengthening (10 repetitions, 3 sets)
- The last degree knee extension board exercise training (10 repetitions, 3 sets), The progression was done when patient was eased to do exercises either by increasing repetition or frequency of exercises.
- Lower limb Stability exercises (10 repetitions)
- Self-Hamstring stretching (static) (3 sets, each stretch 30 sec hold, between each set 5 sec rests).
- Self-calf stretching (static) (3 sets, each stretch 30 sec hold, between each set 5 sec rests).
- Ankle toe movement (10 repetitions, 3 sets)
- 2 Physio therapy sessions per week, each session was 30 minutes' duration & for 4 weeks – (Refer **Table 1**)

Patient number 2 was given Leech therapy as co therapy along with physiotherapy

Standard operative procedure for Patient 2:

- 2 Physiotherapy sessions per week, each session was 30 minutes' duration & for 4 weeks, as above Physio therapy SOP.
- Followed by Leech therapy, Leeches were procured from a local supplier and identified as medicinal leeches⁸
- Both the knee joints were thoroughly cleaned and rubbed, then four leeches were applied at painful particular sites of the knee joint for a period of approximately 30 minutes^{9,10,11}
- Leeches are detached using Haridra (Turmeric powder), the site was cleaned and bandage applied. The area around leech bite was routinely observed for any local reaction.

Table 1: Intervention

Treatment schedule	Patient 1	Patient 2
1 st day	Physio Therapy	Physio Therapy and Leech therapy
5 th day	Physio Therapy	Physio Therapy
9 th day	Physio Therapy	Physio Therapy and Leech therapy
13 th day	Physio Therapy	Physio Therapy
17 th day	Physio Therapy	Physio Therapy and Leech therapy
21 st day	Physio Therapy	Physio Therapy
25 th day	Physio Therapy	Physio Therapy and Leech therapy
29 th day	Physio Therapy	Physio Therapy

OBSERVATIONS:

The duration of the case study was 30 days and the assessment of subjective and objective parameters was done fortnightly (0 day, 15th day and 30th day). All the findings were recorded. The assessment was done with the help of WOMAC OA Scale^{12,13} and VAS Score^{14,15}. Changes in the use of pain medication was monitored (**Table 1**).

Observation of VAS score in Patient number 1 indicates approximately 28% improvement and 50% improvement in patient number 2 (**Table 2**).

From **Table 3** it was observed that out of 24 parameters one parameter of womac index shows 50% of improvement, 6 parameters show 25% improvement, 5 parameters show

33% improvement, 9 parameters show 12.5% improvement, 3 parameters show no improvement.

It was observed that out of 24 parameters Two parameters of womac index shows 67% of improvement, 7 parameters show 50% improvement, 8 parameters show 25% improvement, 8 parameters show above 37.5% improvement, none of the parameter shows no improvement. It was also noticed that use of pain medication, NSAIDs has decreased significantly in both cases, shown significant results in the patient who has taken leech therapy as co therapy along with physiotherapy as compared to the patient who has taken physiotherapy alone (**Table 4**).

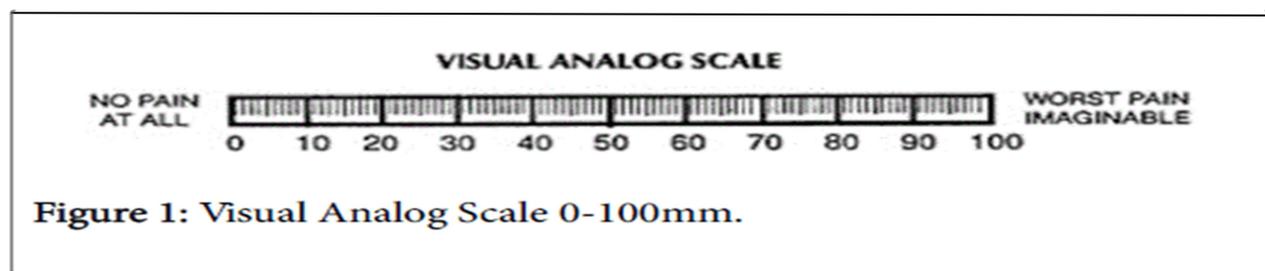


Figure 1: Visual Analog Scale 0-100mm.

Table 2: VISUAL ANALOGUE SCALE SCORE(VAS) - Parameters Pain (0-100)

S. No.		Baseline	15 th Day	30 th Day
1	Patient 1	90	80	70
2	Patient 2	90	75	60

Table 3: WESTERN ONTARIO AND MCMASTER OSTEOARTHRITIS INDEX (WOMAC) PATIENT NUMBER 1

S. No.	Parameters	Baseline	15 th Day	30 th Day
1	RATE YOUR PAIN WHEN...			
	Walking (0-4)	4	3	3
	Climbing stairs (0-4)	4	4	3.5
	Sleeping at night (0-4)	3	3	2
	Resting (0-4)	3	2	2
2	Standing (0-4)	4	3	2
	RATE YOUR STIFFNESS IN THE...			
	Morning (0-4)	4	3.5	3
	Evening (0-4)	3	2	2

3	RATE YOUR DIFFICULTY WHEN...			
	Descending stairs (0-4)	4	4	3.5
	Ascending stairs (0-4)	4	4	3
	Rising from sitting (0-4)	4	4	3.5
	Standing (0-4)	3	3	2
	Bending to floor (0-4)	4	4	4
	Walking on even floor (0-4)	4	3.5	3.5
	Getting in/out of car (0-4)	4	3.5	3
	Going shopping (0-4)	4	3.5	3.5
	Putting on socks (0-4)	4	4	4
	Rising from bed (0-4)	4	4	3.5
	Taking off socks (0-4)	4	4	4
	Lying in bed (0-4)	3	3	2
	Getting in/out of bath (0-4)	4	3.5	3
	Sitting (0-4)	4	4	3.5
	Getting on/off toilet (0-4)	4	4	3.5
	Doing light domestic duties (cooking, dusting) (0-4)	4	3.5	3
	Doing heavy domestic duties (moving furniture) (0-4)	4	4	3.5

Table 4: WESTERN ONTARIO AND MCMASTER OSTEOARTHRITIS INDEX(WOMAC)PATIENT NUMBER 2

S.no.	Parameters	Baseline	15 th Day	30 th Day
1	RATE YOUR PAIN WHEN...			
	Walking (0-4)	4	3	2
	Climbing stairs (0-4)	4	3.5	2.5
	Sleeping at night (0-4)	3	2	1
	Resting (0-4)	3	2	1.5
	Standing (0-4)	4	3	2
2	RATE YOUR STIFFNESS IN THE...			
	Morning (0-4)	4	3.5	2.5
	Evening (0-4)	4	2.5	2
3	RATE YOUR DIFFICULTY WHEN...			
	Descending stairs (0-4)	4	3.5	2.5
	Ascending stairs (0-4)	4	4	3
	Rising from sitting (0-4)	4	3	2.5
	Standing (0-4)	4	3	2
	Bending to floor (0-4)	4	4	3
	Walking on even floor (0-4)	4	3.5	2.5
	Getting in/out of car (0-4)	4	3.5	3
	Going shopping (0-4)	4	3.5	3
	Putting on socks (0-4)	4	4	3
	Rising from bed (0-4)	4	3.5	3
	Taking off socks (0-4)	4	4	3
	Lying in bed (0-4)	3	3	1
	Getting in/out of bath (0-4)	4	3.5	2.5
	Sitting (0-4)	4	3	2
	Getting on/off toilet (0-4)	4	3	2.5
	Doing light domestic duties (cooking, dusting) (0-4)	4	3	2
	Doing heavy domestic duties (moving furniture) (0-4)	4	3	3

RESULTS:

An improvement in WOMAC scores, and also in VAS, was found in both patients following treatment. These improvements were significant for treatment patient 1 and 2, during the complete treatment period. The reduction in individual requirements for pain medication was also significant. The greatest improvement was seen in the patient 2 treated with the leech as co therapy along with physiotherapy, with a long-term reduction of joint stiffness and improved function in the activities of daily living.

CONCLUSION:

Leech therapy and Physio therapy both reduces symptoms of Osteoarthritis like pain, stiffness, improves the mobility and quality of life. It was noticed repeated weekly application of leeches as co therapy along with physio therapy appears to improve the long term results in this case study. The observation indicates that Stretching, strengthening exercise, manual therapies which consist of mobilizing techniques using hands for the treatment of knee Osteoarthritis potentially reduces knee pain. It has to be determined whether the positive outcome of the leech therapy was caused by active substance released during the treatment or it may be placebo effect. Also the role of

complimentary pain therapies in geriatric patients should be evaluated systematically in larger randomized controlled trial.

Conflict of interest: None

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