



## Integrated Management of Knee Osteoarthritis Associated Hypertension with Naturopathy and Yoga: A Case Report

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### Article Info

#### Article history:

Received on: 27-08-2022

Accepted on: 22-10-2022

Available online: 31-10-2022

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### ABSTRACT:

Osteoarthritis of the Knees (OA Knees) also known as degenerative arthritis or degenerative joint disease is a group of mechanical abnormalities involving the degradation of joints, including articular cartilage and subchondral bone. Associated comorbid conditions such as hypertension increase the symptoms. Allopathic drugs taken to relieve the symptoms have their own side effects. The aim of treatment with naturopathy, yoga, and diet therapy is the reduction of symptoms and an increase in functional activities of patients with osteoarthritis of the knees. Naturopathy and therapeutic yogic exercises reduce pain, improve the strength of the joints, and support muscles and ligaments which provides good flexibility of the joints, and increases the range of motion. Diet plays a major role to prevent and control degeneration. A Vitamin D-rich diet helps to regenerate the joint wear and prevents worsening of the knee symptoms. Osteoarthritis may lead to early disability condition which needs to be managed as soon as possible. Osteoarthritic management requires a holistic approach.

**Keywords:** Osteoarthritis (OA), Naturopathy and Yoga, Traditional Chinese medicine, Physiotherapy, diet control.

## INTRODUCTION

Osteoarthritis (OA) is a chronic degenerative joint disorder characterized by loss of articular cartilage, hypertrophy of bone at the margins, subchondral sclerosis, and alteration in the synovial membrane of the joint.<sup>1</sup> The clinical features of OA include joint pain with limited activity, morning stiffness, restricted motion, joint crepitus, per articular tenderness, bony swelling, and functional disability.<sup>2</sup> Osteoarthritis is more common in women than men but the prevalence increases dramatically with age. A 45% of women over the age of 65 have symptoms while radiological evidence is found in 70% of those over 65 years. However, in India overall prevalence of OA is 22-

39%.<sup>3</sup> Additional structural changes include cartilage fibrillation, degeneration of articular cartilage, thickening of subchondral bone, osteophyte formation, and synovial inflammation, degeneration of ligaments and meniscus, hypertrophy of joint capsule, cellular and molecular changes in nerves, as well as changes to periarticular muscle, bursa, and fat pads.<sup>4</sup> According to World Health Organization (WHO), 18.0% of women and 9.6% of men over the age of 60 years have symptomatic OA worldwide. They have limitations in movement in 80% of cases while 25% of them cannot perform their major day-to-day activities of life.<sup>5,6</sup> The purpose of the present study was to



assess the effect of Yoga, Naturopathy and diet control in reducing pain and improving functional status in patients with OA of Knees.

## CASE DISCUSSION

A 76-Year-old female patient visited Yog Wellness Center, Sultanpur, Uttar Pradesh, India with presenting complaints of pain in bilateral knees for 12 years. Right knee pain is more prominent than left knee and more in the back region of the joint. History of pain in the bilateral knee joint and swelling with morning stiffness, the pain was continuous till 15-20 minutes after waking up from bed and then it becomes gradually normal. She described the pain as a deep ache, more in the antero-medial aspect of both the knees and it was aggravated while climbing stairs, in long-standing as well as while walking for a longer distance. Usually, her pain got relieved by taking medication (NSAIDs). She also complained irregular bowel movement, headache and fatigue. She was hypertensive for 12 years and diagnosed for OA in 2012. Her appetite was good with a vegetarian diet. She had normal thirst, sweat and disturbed sleep due to pain, irregular bowel movements and frequent micturition and 2 cups of tea per day. Her pulse rate was 78 per minute and regular, with blood pressure of 168/100 mmHg, temperature of 98.6<sup>o</sup> F, respiratory rate of 22 per minute, height of 4.2 feet, weight of 50 kg, and BMI of 30.9. Systemic examination showed normal S1 and S2 sound, clear respiratory system, distended abdomen, oriented, alert, with swelling, tenderness, stiffness, crepitus in both the knees. SLR of right hip joint was 30 degrees and of left 45 degrees. Both the knee joints felt warm, limping in the gait, on alternate leg raising, pain on the back of the knee (Popliteal fossa) and posterior side of the thigh. Obers Test of both knees showed limited extension and flexion. Antero-posterior X-ray views of both knee joints revealed osteophyte formation, the joint space reduction appeared to be fairly noted on the right and left knee joint of the medial tibiofemoral joint. (**Figure 1-2**) Pain in right knee joint (scale-9) was slightly more than left knee joint (scale-8). She was taking Tab. Nervmax-D, Bindbone capsule, Tab. Kenacort-4mg, Tab. Ultracet, Tab. Calpol, Tab. Pantop 40, Tab. ZAC-D , and Tab. Tryptomer. Other associated parameters are depicted in **Table 1-3**.

### Treatment Progress

After 14 days of treatment, she felt good and relaxed. There was a change in vital parameters (**Table 1**) and relieve in pain, crepitus, stiffness, warmth, and tenderness, and an

increase in straight leg range, range of motion and muscle strength grade test. (**Table 2-3**) Her lipid profile was also improved. The liver function test and Thyroid function test were normal. (**Figure 3-6**)

Follow-up instructions were given as regular eating of natural diet preferably two times in a day, loosening exercise, Yogasana, Pranayama, relaxation twice in a day, expose body to sunlight and fresh air as far as possible, knee pack with Epsom salt, hot foot bath, massage of legs twice in a day, chew well and eat with a peaceful mind, and drink water 4 to 5 liter per day. Avoid coffee, tea, oily and fried food, frozen /processed/fast/preserved/ refined edible items, white flour, white sugar, saturated fats/ over eating/ untimely eating, late lunch, dinner/ late sleep, intake of water immediately before and after food, stress, anger, worry, hurry, depression, anxiety etc.

## DISCUSSION

Naturopathy, Yoga and Diet therapy, have been proven to be effective in the management of OA. Hydrotherapy or water therapy is the application of water that initiates healing. Three states of water (liquid, steam, and ice) can be used therapeutically. The goals of hydrotherapy are to increase the circulation and quality of blood. Hydrotherapy has substantiated to be a highly effective type of natural therapy that works by stimulating the endorphins which in turn help to relieve tension and pain. The hot compress or hot pack will increase blood circulation to the area and relax the muscles while the cold compress helps reduce inflammation.<sup>7</sup> Mud has anti-inflammatory, pain-relieving and revitalizing actions. It relaxes the muscles and increases resistance to pathogens. Thermal mud is said to prevent or cure chronic inflammatory problems and rheumatic illnesses.<sup>8</sup> Massage therapy may diminish symptoms and improve the course of OA by increasing local circulation to the affected joint, improving the tone of supportive musculature, enhancing joint flexibility, and relieving pain.<sup>9</sup> Epsom salts are high in magnesium sulfate mineral. Epsom salt compress helps to pull toxins from the body, which enhances the healing process and relieve joint pain.<sup>10</sup> Mustard is rich in copper, magnesium, iron, and selenium relieves spasms, backbone pain and other muscular aches.<sup>11</sup> Ultrasound reduces pain and swelling and are very useful in the treatment of functional disorders in patients with degenerative diseases.<sup>12</sup> Acupuncture is most effective for reducing osteoarthritic pain, and improvements in functional mobility. With its analgesic effects, acupuncture is widely used and a relatively safe

non-pharmacological treatment of musculoskeletal pain.<sup>13</sup> Reflexology is applied to the specific reflex points which are located on all parts of feet, hands, or ears. Applying pressure on these reflex areas of the whole body stimulates the normal functions of glands, organs as well as parts of the body and finally encourages the body's healing process.<sup>14</sup> Phytochemicals are found in vegetables, fruits, whole grains, legumes and nuts and in other plant-based foods. They modify and reduce oxidative stress and inflammation and, thus, protect organisms.<sup>15</sup> Daily 45 minutes practicing of Yoga balances our physical and mental conditions. Asanas strengthen muscle, increase flexibility, balance and the co-ordination of the mind, body and breath, in combination with pranayama and meditation exercise to calm the mind and develop self-awareness.<sup>16</sup>

## CONCLUSION

The findings of this case report suggest that Naturopathy and Yoga, Physiotherapy, and Traditional Chinese Medicine with proper diet modification help to alleviate the symptoms of osteoarthritis.

**Acknowledgment:** None

**Conflict of Interest:** None

**Source of Funding:** None

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**How to cite this article:** Singh P, “Integrated Management Of Knee Osteoarthritis Associated Hypertension With Naturopathy And Yoga: A Case Report ” IRJAY.[online]2022;5(10); 62-69. Available from: <https://irjay.com> DOI link- <https://doi.org/10.47223/IRJAY.2022.51009>

**Table1: Vital Parameters Pre – treatment and Post-treatment**

S. No.	Vital data	Pre- treatment	Post- treatment
1.	Pulse rate	78/minute	74/minute
2.	Respiratory rate	22/minute	18 /minute
3.	Blood pressure systolic	168 mmHg	146 mmHg
4.	Blood pressure diastolic	100 mmHg	88 mmHg
5.	Weight	50 kg	49 kg
6.	B.M.I	30.5	29.9

**Table2: Clinical Examination Pre- treatment and Post- treatment**

S.No.	Clinical feature	Pre- treatment	Post- treatment
1.	Pain Scale	Right knee-9 Left knee-8	Right knee-4 Left knee-3
2.	Crepitus	Present	Decrease
3.	Stiffness	Present	Decrease
4.	Warmness	Present	Decrease
5.	Tenderness	Present	Decrease
6.	SLR	Right-30° Left-45°	Right- 60° Left- 90°
7.	ROM	Right lying knee ext. = 0 - 5° Right knee flex. = 0 -100° Left lying knee ext. = 0 - 10° Left knee flex. = 0 -110° Right ankle inversion rotation= 0-20° Right ankle eversion rotation=0-10° Left ankle inversion rotation=0-20° Left ankle eversion rotation= 0-10°	Right lying knee ext. = 0-10° Right knee flex. = 0 -110° Left lying knee ext. = 0 – 15° Left knee flex. = 0 – 120° Right ankle inversion rotation=0-25° Right ankle eversion rotation= 0-15° Left ankle inversion rotation=0-25° Left ankle eversion rotation=0-15°
8.	MSGT	Right knee Grade test= 2 (Poor) Left knee Grade test= 3 (Fair)	Right Knee Grade test= 3 (Fair) Left Knee Grade test= 4 (Good)

**Table 3: Hematological Parameter Pre-treatment and Post-treatment**

S. No.	Test Name	Pre-treatment	Post-treatment
1.	Hemoglobin	12 gm/dl	11.1 gm/dl
2.	Platelet count	185000/cu.mm	193000/cu.mm
3.	ESR	20 mm/hr	14 mm/hr
4.	Creatinine	0.68 mg/dl	0.66 mg/dl
5.	CRP	2.97 mg/L	2.09 mg/L
6.	25-OH Vitamin D	20.1 ng/ml	24.9 ng/ml
7.	Vitamin -12	198 pg/ml	204 pg/ml
8.	Urea/SR. Creatinine Ratio	63.21 ratio	60.31 ratio
9.	BUN/SR. Creatinine Ratio	29.12 ratio	28.18 ratio

### Treatment Plan and Treatment Progress

Conservative management was started with Yoga, Naturopathy, Traditional Chinese Medicine and Diet control.

**Table 4: Naturopathic Management**

S.No.	Name of treatment	Duration	Frequency
1.	<b>Hydrotherapy</b>		
	Hot Foot bath with Epsom salt	10 minute	14 times
	Steam bath with chest pack	10 minute	5 times
	Local steam on legs	10 minute	9 times
	Woolen and cotton pack on abdomen and knees	20 minute	14 times
	Hot and Cold Fomentation on abdomen	30 minute	7 times
2.	<b>Mud therapy</b>		
	Mud pack on Abdomen and eyes	30 minute	7 times
	Hot mud pack on legs	20 minute	7 times
3.	<b>Manipulative therapy</b>		
	Full body massage	45 minute	5 times
	Massage on legs	20 minutes	9 times
4.	<b>Naturopathy Packs</b>		
	Oil + Epsom salt pack on Both knees	30 minutes	7 times
	Mustard pack on both knee	30 minutes	7 times
5.	<b>Sun bath</b>	20 minutes	7 times
6.	<b>Physiotherapy</b>		
	Infra-red rays on knees	10 minute	7 times
	Ultra sound on knees	10 minute	7 times

**Table 5: Naturopathic Management Continued**

S.No.	Name of treatment	Points upon the body	Duration	Frequency
7.	<b>Acupuncture</b>	Acupuncture points- Du- 20, LI-4, LI-11, St-34 ,St-35 ,St-36, St-44, Sp - 9, 10, UB – 11 ,UB-32,UB-36, UB-40, UB-54, GB –34, Ex- 31,Ex-32	20 minutes	7 times
8.	<b>Reflexology</b>	Reflexology upon Foots	10 minutes	14 times

**Table 6: Yogic therapy**

S.No.	Name of Yogic treatment	Duration
1.	<i>Loosening exercise</i>	10 minutes
	Neck movements	
	Wrist, elbow and shoulder movements	
	Lumber twisting and rotation	
	Knee flexion and extension movements	
	Ankle movements	
2.	<i>Asana</i>	10 minutes
	<i>Tadasana</i>	
	<i>Ardhkatichakrasana</i>	
	<i>Katichkrasana</i>	
	<i>Ardha salabhasna</i>	
	<i>Bhujangasana</i>	
	<i>Salabhasana</i>	
	<i>Makrasana</i>	
	<i>Uttanpadasana</i>	
	<i>Udarakarsan</i>	
	<i>Setubandhasana</i>	
	<i>Savasana</i>	
3.	<i>Pranayam</i>	10 minutes
	<i>Anulom- Vilom</i>	
	<i>Sheetli pranayam</i>	
	<i>Sheetkari pranayam</i>	
	<i>Bhramari pranayam</i>	
5.	<i>Relaxation</i>	10 minutes
	Instant relaxation technique (IRT)	2 minutes
	Quick relaxation technique (QRT)	3 minutes
	Deep relaxation technique (DRT)	5 minutes
6.	<i>Meditation</i>	5 minute
	OM Kara meditation	

**Table 7: Diet therapy**

Time	Name of ingredients
7:00 am	Fenugreek kadha / Giloy Kadha
8:00 am	Sprouted green gram and fenugreek, 4-5 almond, 7-8 black raisins, 2-3 walnut, 3-4 cashew and one seasonal fruits.
10:00 am	Carrot juice/ bottle guard juice
1:00 pm	Ragi roti -2, steam green vegetable, Green chutney
3 :00 pm	Papaya/ Apple/ Orange/ Pomegranate / Coconut water or Lemon honey water
5 :00 pm	Beetroot soup/ Tomatoes soup/ Drumstick soup
7 :00 pm	Ragi roti 1or 2 with steam green vegetable or Green vegetable daliya one medium bowl.



**Figure 1:** X-rays showing Osteoarthritic changes



**Figure 2:** Photographs of the patient

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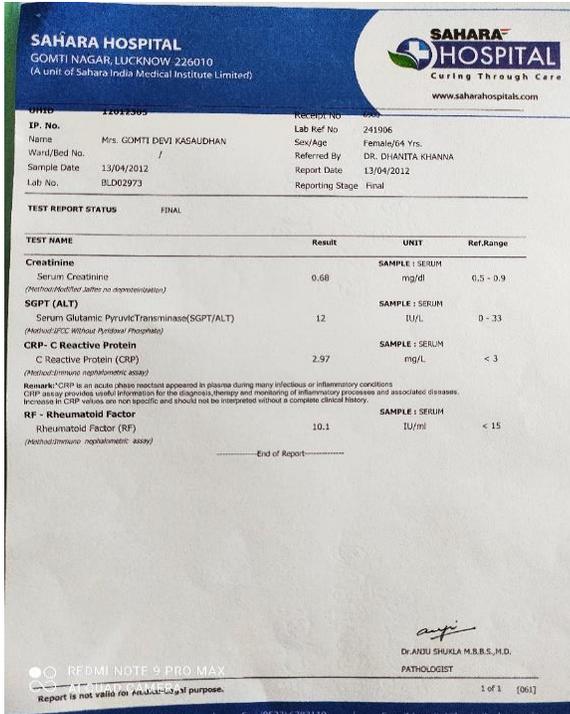


Figure 3: Pretreatment investigations

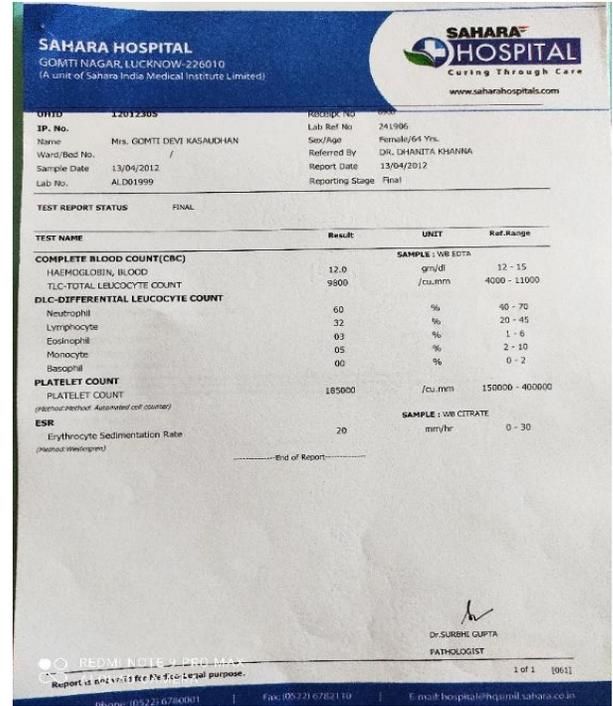


Figure 4: Pretreatment investigations

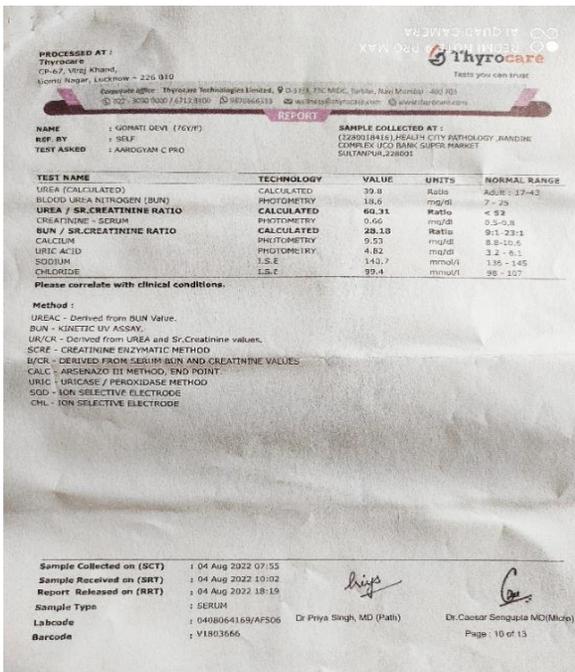


Figure 5: Post-treatment investigations

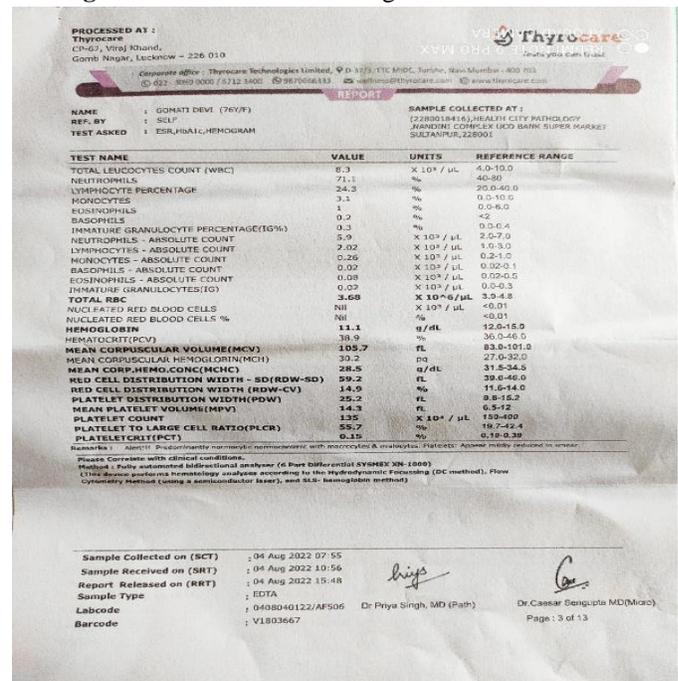


Figure 6: Post-treatment investigations