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Management of Lumbar Degenerative Spondylolisthesis by Integrated Naturopathy and Yoga Therapy: A Case Report

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Abstract

A spondylolisthesis is the forward displacement of a vertebra relative to the vertebra below, arises as a result of a pars defect. Lumbar Degenerative Spondylolisthesis is an established condition classically involves the L4/L5 level with mild degenerative changes, and the symptoms vary from lower back pain to lower limb radiculopathy depending on the severity. We report the case of 57 years old married women diagnosed with Lumbar Degenerative Spondylolisthesis after an accidental fall and her symptoms began with severe pain and numbness in both legs radiating from her buttock region. This case study was done to investigate the effectiveness of combined yoga and naturopathy therapy in relieving degenerative pain. The subject received specific Yoga protocol includes Yogasanas, Pranayama and Relaxation technique along with Naturopathy treatments including hydrotherapy, acupuncture and natural diet therapy for 30 days. According to the findings of the VAS and SF-MPQ-2 scale, the pain symptoms score changed from 9.2 to 1.3 and 79 to 20 respectively. This result has been shown that the combined effect of Yoga and naturopathy treatment helps in relieving pain and improves the quality of life in patients with degenerative spondylolisthesis.

Keywords: Lumbar degenerative spondylolisthesis; Integrated therapy; Naturopathy; Yoga therapy; Acupuncture; Meridian massage

Introduction

Spondylolisthesis is a common condition that occurs in the spinal cord of the lumbar vertebrae due to the repetitive micro trauma to the posterior facets-pars interarticularis of the vertebral arch [1]. The incidence ranges from 2% to 6% of the lower back pain populations [2]. Depending upon the severity of the misplacing it is broadly classified into Grade I to Grade IV and the percentage of displacement varies from <25% for Grade I; 26%-50% for Grade II; 51%-75% for Grade-III; >75% for Grade IV. According to Wiltse, spondylolisthesis it is divided into five types (Etiological Classification): degenerative, Isthmic (A and B), dysplastic, traumatic, pathologic and Iatrogenic. Degenerative and isthmic (Spondylolytic) types are more common in nature below 50 years [3]. The symptoms includes low back pain, back tenderness, stiffness of lower back, radiating pain and numbness over the buttock and lower limbs. The treatment of spondylolisthesis includes medications (NSAID's, Oral Steroids), Epidural steroid injections and spondylolisthesis surgery to reduce inflammation and pain on the affected site. Majority of the population may also adopt the alternative therapies like heating therapy, physiotherapy, acupuncture, Yoga therapy and hydrotherapy for pain management and speedy recovery of the affected joint [4].

In this present study, integrated approach of Yoga therapy and Naturopathy treatment modalities like hydrotherapy, diet therapy, Acupuncture and meridian massage were implemented to reduce the pain threshold, increase the spinal flexibility and improve the quality of life in patients with lumbar spondylolisthesis [5].

Case Report

A 57 years old female presented to our department with a chief complaint of lower back pain for the past 4 year. The pain was continuous and shooting in nature, radiates to lateral thigh muscle, associated with numbness in bilateral buttock region. The pain aggravates on physical activity and relieves on taking rest. She had a previous history of accidental trauma way back in 2016, and was diagnosed with severe multilevel spinal anal stenosis from L2-S1 with a disc protrusion of ligamentum flavum with mild degenerative listhesis at L4-L5 (MRI Imaging) she was on oral analgesic medication for the pain, and not underwent any surgical procedures.

Her vitals were normal; and she presented with dull physical attitude. On clinical evaluation, her buttocks were flat with lumbar hyper lordosis and spastic gait was observed due to calf muscle stiffness. On palpation, tenderness was seen on the lumbar region (para spinal muscle), gluteal maximus muscle and hamstring tightness on leg rising. Lumbar spine flexion and extension were limited and painful. Straight leg raising test and crossed SLR test was positive on both the sides. Loss of sensation was noted on the L4/L5 dermatome (Buttock and lateral thigh) with other neurological functions were intact.

Based on the clinical evaluation and MRI findings, she was diagnosed as mild lumbar spondylolisthesis L4/L5 with spinal stenosis. She was informed about the integrated treatment modalities, and after getting her informed consent, she got admitted in inpatient department our hospital. Therapeutic yoga session (morning and evening) which includes loosening exercises, lumbar stretch yoga asanas, pranayama and relaxation were given, along with mud pack to eyes and eyes (20 min) on daily basis for 30 days. Acupuncture needling was given with 1 t-sun filiform needles at the specific points of UB-40, GV-6, UB-30, SP-6, Liv-13, SI-11, K-3, GB-30, GB-31, regularly for 15 days along with meridian massage on kidney channel and back shu points on alternate days. After 30 days of admission the patient feels improvement in pain and stiffness and completely free from her numbness. The details of treatment module and dietary module are given in the Tables 1 and 2

respectively.

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Treatment	Duration	Number of sessions
Yoga therapy Loosening exercise Tadasana Ardha katichakrasana Ardha chakrasana Supta udharakarshasana Yogic breathing Nadi shodhana pranayama	30-45 min	Regularly for 30 days
Relaxations Deep relaxations Yoga nidra	40 min	Alternately during night
Hydrotherapy Mud pack-abdomen and eyes	20 min	Regularly on 30 days
Steam bath	25 min	4 sitting (once a week)
Acupuncture Bilateral needling at UB-40,GV-6,UB-30, Sp-6,Liv- 13,SI-11,K-3, GB-30,GB-31	20 min	Regularly for 15 days
Meridian massage Kidney channel and Back Shu points	40 min	Alternately for 15 days

 Table 1: Treatment module.

Time	Diet with quantity	Servings	
6.30 am	Plantain pith juice/ashgourd juice/leomon juice (250 ml)	1/day	
	Fruits (papaya, guava,banana,orange)-100 g		
9.00 am	Green gram/ground nut sprouts(50 g)	1/day	
5.00 am	Vegetables-bottle gourd, cucumber,carrot, beetroot -100 g	i/day	
12.00 pm	carrot/ grapes/watermelon juice -250 ml	1/day	
1 20 pm	Fruits (papaya, guava,banana,orange)-100 g	1/dov	
1.30 pm	Green gram/ground nut sprouts(50 g)	i/day	
4.30 pm	Lemon juice/curry leaves juice-250 ml	1/day	
	Fruits (papaya, guava,banana,orange)-100 g		
7.00 pm	Vegetables-bottle gourd, cucumber,carrot, beetroot-100 g	1/day	

Table 2: Diet module for 30 days.

Discussion

Our present case report was aimed to explore the effect of integrated yoga and naturopathy treatment in reducing the severity of pain, spinal disability and to improve the lumbar spine flexibility, psychological wellbeing in patient with Lumbar spondylolisthesis. In our study we used Visual analog scale, Oswestry low back pain disability questionnaire and Short form McGill Pain Questionnaire 2 (SF-MPQ-2) to assess the pain intensity. When compared to the pre data there was a drastic decrease in the post pain score, which is in corelation with a previous study suggested that motion style acupuncture therapy helps in alleviates pain around 30% among 58 patients by increasing the endorphins in the nervous system [6]. Yoga practice increases the BDNF (Brain derived neurotropic factor) level, and in turn enhances the serotonin norepinephrine reuptake inhibitors (SNRIs) which is widely used in the treatment of pain and psychiatric symptoms [7]. A study conducted in 2015 indicated that yoga increase the flexibility of the hamstring and thereby improves the forward and backward bending of the spinal segments [8]. The findings of this case is in connection with the above evidences which shows that integrated voga and naturopathy therapies helps in relieve pain, improve the joint mobility and overall wellbeing of the individual (Table 3).

Variables	Baseline	Post data
Height (cm)	155	-
Weight (kg)	60	58
BMI (kg/m^2)	25	24
VAS	9.2	1.3
ODI	79	20
SF-MPQ-2	149	72
	DASS	
Depression	30	9
Anxiety	25	7
Stress	29	11
	10 m Walk test	
Self-selected velocity (m/s)	0.22	0.55
Fast velocity (m/s)	0.31	0.7
	ROM	
Lumbar flexion	26°	49°
Lumbar extension	15°	23°
PHQ 9	22	5

Abbrievations: VAS: Visual Analogue Scale; ROM: Range of Motion; DASS: Depression Anxiety Stress Scales; ODI: Oswestry Disability Index; SF-MPQ-2: Short Form-McGill Pain Questionnaire-2; PHQ: Patient Health Questionnaire

Table 3: Pre and post data.

Conclusion

Our findings suggest that, yoga and naturopathy when employed together, there was a significant reduction in spinal disability, pain intensity and improving quality of life in patient with Lumbar Spondylolisthesis.

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