



Case report

36-Years-Old Male with Cervical Disc Protrusion and Postural Deviations**Lakkadsha Tasneem, Ashish Bele*, Singh Nivedita, Qureshi Mohd.Irshad, Kovela Rakesh Krishna**

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ABSTRACT

Structures around the cervical spine are a common source of neck pain and have numerous aetiologies. One of the aetiologies considered here is the sustained abnormal posture; this type of presentation can be seen in the population which works tirelessly in the same position for hours like the patient in our case who works as a technician. Patient's main concerns were pain in right shoulder radiating till the elbow, the severity of the pain kept the patient awake for nights. Clinical findings include severely restricted extension of neck and reduced lateral flexion and rotation of the affected side; Spurling's test positive for the affected side and distraction test positive. MRI revealed cervical intervertebral disc protrusion at multiple levels (C3-C4, C4-C5, C5-C6, and C6-C7). This case report concluded that poor cervical posture responsible for overloading on cervical spine leads to disc protrusion in people who work for long hours in abnormal posture.

Keywords: Cervical Disc Protrusion, Radiculopathy, Forward Head Posture, Thoracic Kyphosis, Physiotherapy.

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INTRODUCTION

Currently world is with more cervical problems because of the routine of occupational and/or electronic instruments usage [1]. In young male patients, cervical spinal injury occurs most often at the median age of 35 years [2]. Cervical spine injuries in children are uncommon [3]. Numerous causal factors for impacting spinal canal diameters such as sex, height, age and race which is still a contentious issue [4]. Lack of physical activity, severe stress levels and inactive lifestyle are the reasons for this condition and hampered body mechanisms which leads to spinal and core muscles debility [5]. Falls and motor vehicle injuries, accompanied by sports-related injuries and aggression, are the most common aetiologies of injury. Around 20 percent of patients with cervical spinal cord injury have either no cord or just root lesions, 40 percent have complete spinal cord injuries and 40 percent have incomplete injuries. Cervical radiculopathy is identified as pain in the neck with symptoms of radiation in upper extremity, including neck and arm pain in the clinical presentation. Usually, arm pain and motor weakness is followed by a myotome pattern, while the sensory symptoms like tingling and burning are followed by a dermatome pattern, reflex changes of the upper limb can also be associated with these radicular symptoms [6] depending on the nerve root involved. Nerve root inflammation results in radiculopathy and narrowing of the intervertebral foramen secondary to disc

protrusion, osteophytes, cervical spondylosis (along with zygapophyseal joints and uncovertebral), tumour or trauma [7].

Most cervical disc herniation patients with radiculopathy have reported major changes within 4-6 months of initiation. In majority of patients, complete recovery time ranges from 24-36 months. Cervical disc herniation greater than 4 mm is considered inappropriate for physiotherapy interventions such as manipulation and traction; although the retraction of protruded cervical discs by effective physical therapy intervention is likely [8]. Surgery should be taken into consideration when pain continues after conservative treatment for 6-12 weeks or when there is evidence that a functionally relevant motor deficit is progressing [6].

While several studies have supported the negative impact that on the nervous system due to forward head posture, there is a limited number of evidence and a relative absence of controlled trials that examine the impact of forward head posture correction on cervical nerve root function. The aetiological factor for this abnormal posture is the shortening of pectoralis muscles, opposing cervical extensors and weakening of cervical flexors (deep) and scapular retractors of mid-thorax (i.e. lower and middle trapezius fibres, serratus anterior, rhomboids). Biomechanical dysfunction correction is important in the treatment of spondylosis cervical radiculopathy, especially in terms of

forward head posture was suggested by a randomized controlled study.⁹ Poking chin, a name given to forward head posture is found to be associated with poor sitting and working conditions. The weakened or extended deep cervical flexors keep struggling against hyperactive or shortened posterior extensors, like the trapezius, to maintain an erect posture.¹⁰ The restoration by non-surgical means of cervical lordosis has been documented in the manual therapy literature and was lately proven to be efficacious treating cervical radiculopathy. This non-surgical approach for the management of cervical radiculopathy reflects the accomplishment of surgical fusion in the effective management of radiculopathy patients, i.e. the restoration of cervical lordosis.¹¹ A research shows that in addition to IIR and ultrasound, posture corrective exercise for 10 weeks decreases pain severity and improves the craniovertebral angle along with peak-to-peak amplitude of dermatomal somatosensory-evoked potential for C6 and C7 levels in patients with cervical spondylosis radiculopathy.

This case report is of a patient practicing as technician suffering from cervical disc protrusion at multiple levels and forward head posture at the same time along with cervical spine deviation towards right and mild thoracic kyphosis.

In this case study, correction of forward head posture can be accomplished by restoring the normal muscle balance by stretching the tight and simultaneously strengthening weak muscles. It may be aided by mobilization techniques and electrotherapy modalities like Infra-red radiation (IRR), Interferential therapy (IFT) and Therapeutic Ultrasound^[9].

Case presentation

A 36 years old male technician visited to orthopaedic department with complaints of right shoulder pain with radiation till the elbow since one day, the pain was 9 on Ten point Numerical Pain Rating Scale (NPRS) and sudden in onset and severe enough to keep the patient awake at night, it was aggravated by reach activities, sitting or standing for more than 5 minutes, lying down (supine, side lying & prone) and relieved by walking. He also showed forward head posture on presentation. He was prescribed pain killers and topical analgesic gels by an orthopaedic but the symptoms were the same after completing the course. He was then advised to do an MRI, which revealed multiple levels of cervical disc protrusions. He was advised rest period of 10 days and a course of neurobion forte and home remedies like hot pack application around the shoulder region and referred to physiotherapy after completion of the rest period.

Patient had no past history related to the present condition, patient was not on any sort of medications for any illness, and never went through any surgery.

Clinical Findings

After taking informed consent from patient, he was examined in sitting with shoulders at equal level and foot kept on a stool. On inspection, his built was mesomorphic, he kept his head

forward than normal (forward head posture- figure 1 & 2), his shoulders were protracted; thoracic spine was moderately kyphotic, arms resting on the plinth and legs outside the plinth over a stool, no evidence of muscle wasting was seen around the shoulder and elbow. On palpation, local temperature was normal with presence of tenderness (grade 2) and right trapezius spasm. On examination, pain on activity (9/10 on NPRS), superficial and deep sensations were intact (grade 4 MRC) over all cervical dermatomes, triceps, biceps and supinator reflexes were normal (grade 2+ MRC), special tests revealed Spurling's test for foramina compression positive on right side, cervical foraminal distraction test positive.

Table 1: Timeline

Date of onset of symptoms	16/12/2020
First orthopaedic visit	17/12/2020
Date of MRI	22/12/2020
Rest period	23/12/2020 – 03/01/2021
First physiotherapy visit	19/01/2021
Date of examination	21/01/2021

Diagnostic Assessment

Diagnostic investigation: MRI was done which showed at C4-C7 vertebral levels: posterior osteophytes, at C3-C4 to C6-C7 disc levels: left disc osteophyte complexes and narrowing of cervical canal, at C3-C4 & C4-C5 disc levels: central disc protrusion posteriorly causing indentation of anterior thecal sac causing narrowing of right neural foramina and compression of left exiting nerve roots, at C5-C6 disc level: central protrusion and left lateral annular tear causing indentation of anterior thecal sac causing obliteration of left neural foramen and narrowing of right neural foramen and compression of left exiting nerve roots, abutting the right exiting nerve roots, at C6-C7 disc level: disc protrusion postero-laterally on right side causing indentation of anterior thecal sac and spinal cord.

Diagnostic challenges: Due to lack of judgement of the practitioner at patient's village his investigations and treatment were delayed. Patient visited physiotherapy department behind time which led to delay in initiation of his rehabilitation and his pain was same as that on the day of onset (NPRS 9/10).

Treatment protocol

Aim: To reduce current intensity of pain (from NPRS 9/10 to 0/10) along with radiculopathy and muscle spasm, correction of forward head posture, kyphosis and cervical spine deviation. Treatment: IIR, IFT, isometrics for cervical flexors and lateral flexors for a week then adding TENS, stretching of trapezius and cervical extensors, and active exercises within pain free range. Later addition of therapeutic ultrasound over tender points; continuation of stretching; correction of forward head posture and kyphosis by active exercises like chin tucks, shoulder bracing; mobilization of cervical spine, facet joint and ULTTs, and lastly further progression of strengthening exercises and home exercise programs.

DISCUSSION

This case report documents a case of 36-year-old suffering

from cervical disc protrusion with radiculopathy to right elbow, forward head posture, mild kyphosis and deviation of C-spine to right side. Mechanical distress of the cervical spine is assumed amongst the major deteriorating elements for cervical spondylosis, even though age proves being the significant risk factor for degenerative alterations [9]. Different literature studies have suggested that age, head posture, skeletal growth patterns and congenital anomalies seem to affect the morphology of C-spine vertebrae [10]. Corticosteroids usage is supported by pathophysiologic studies of cervical disk herniation. While as planning of non-traumatic cervical spondylotic foraminal stenosis and cervical disk herniation, observational studies have supported cervical epidural injections [3]. Anterior cervical discectomy and fusion in cases of cervical disc herniation and cervical canal stenosis are attributed with a favourable result [10]. Since modern non-surgical procedures have developed to demonstrate steady refinement in cervical lordosis patients having radiculopathy, these should be pursued prior to succumbing to surgical intervention containing potential consequences, even reoperation [11]. Re-establishing cervical lordosis and reducing the forward head posture and is believed to reduce cervical radiculopathy by lessening the length of the spinal canal thus decreasing stress in the pons-cord neurological tissue tract [11]. It is vital to correct the forward head posture while managing the cervical radiculopathy [9]. In the literature, there is a general consensus that the use of manual therapy techniques in accordance with physical exercise is efficient in enhancing AROM and functions, thus decreasing disability and pain levels [10]. An analysis indicates that in reaction to exercise training programs, there is clear evidence showing a change in forward head position, there was also mild indications of exercise contributing in pain betterment.

A number of therapeutic exercises have been studied to alleviate the effects of forward head posture, most of the therapies have concentrated on deep neck flexors, as a major role is being played by them in maintaining cervical spine alignment. Another research indicates that thoracic spine mobilisation (both the oscillatory mobilization of Maitland and the sustained stretch mobilization techniques of Kaltenborn [7] enhances the biomechanics of the cervical spine and should be considered in all painful situations of the cervical spine in combination with other treatments [8].

Keeping the evidences in mind the patient will be treated with an appropriate treatment protocol for pain management, restoring the natural cervical spine lordosis and thoracic spine kyphosis with the help of electrotherapy modalities, manual therapies and various active exercises [12].

CONCLUSION

This case report concluded that poor cervical posture responsible for overloading on cervical spine leads to disc protrusion in people who work for long hours in abnormal posture.

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Patient's Consent

Proper consent was taken from patient for writing case report.

List of abbreviations

IIR: infra-red radiation

IFT: interferential therapy

NPRS: numerical pain rating scale

MRI: magnetic resonance imaging

MRC: medical research council

AROM: active range of motion

PROM: passive range of motion

TENS: Trans cutaneous nerve stimulation

ULTT: upper limb tension test

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