Work-related upper limb disorder and cervical stenosis

Khalid Hamad Al Harbi[1], Lubna Tabassum[2*], Naureen Kanwal Satti[3]

European Journal of Medical Case Reports
Volume 4(6):198–201

https://doi.org/10.24911/ejmcr/173-1574593309

ABSTRACT

Background: This is an account of a patient working in an ophthalmology clinic in a tertiary care hospital, Riyadh, who initially presented with work-related musculoskeletal disorder of the upper limb. The primary complaint was pain in the right shoulder and arm for the past 6 months. She was diagnosed with tenosynovitis of the upper limb on the first presentation, but later investigations revealed cervical stenosis.

Case Presentation: A 42-year-old Indian female nurse, working in ophthalmology outpatient clinic at a university hospital in Riyadh, Saudi Arabia, presented with the complaints of pain in the right shoulder and arm for the past 6 months. She was transferred to another area with less work load and reduced exposure to occupational work manual exertion and sustained awkward exposure. The symptoms improved after 6 months of her transfer to the current unit.

Conclusion: Although the initial symptoms were in favor of work-related upper limb musculoskeletal disorder, the nature of symptoms led to extensive workup, magnetic resonance imaging, diagnosis of cervical stenosis, and referral to orthopedics and neurology for further management.

Keywords: Work-related musculoskeletal injury, cervical stenosis, disc herniation, upper limb pain, case report.

Received: 21 December 2019 **Accepted:** 18 May 2020

Type of Article: CASE REPORT **Specialty:** Orthopedics

Funding: None.

Declaration of conflicting interests: The authors declare that there is no conflict of interests regarding the publication of this case report.

Correspondence to: Lubna Tabassum
*Specialist Family Medicine, King Saud University, Riyadh, Saudi Arabia.
Email: drlubna.2007@gmail.com
Full list of author information is available at the end of the article.

Background

Work-related musculoskeletal disorders (WMSDs) are the work-related disorders resulting from or aggravated by work itself, affecting the muscles, joints, tendons, bones and nerves, and the blood vessels of the affected area. The WMSDs are quite common among healthcare workers [1]. Various studies have reported the correlation between manual exertion and abnormal posture at work with WMSDs [2]. The common risk factors are job stress, abnormal postures, prolonged work in static position, and repetitive actions related to a specific task. WMSDs not only affect the physical and emotional health of the worker but also affect the output leading to reduced productivity and efficiency. It is the major cause of employee absence from work and the financial burden for the institution and the employee himself [3].

Abnormal postures involving the neck shoulders and arms further aggravate the problem and have been identified as the predictor of WMSDs of the upper limbs. WMSDs have been reported among the office and factory workers in the literature, but the limited data are available on WMSDs among healthcare workers [4].

WMSDs of the upper limb affect the soft tissues of the upper limb along with the joints, bones, and tendons of the arms, shoulders, and hands. The symptoms vary from mild pain to severe pain and disability. The symptoms have a varying degree of impact. Some resolve with proper posture-related measures, whereas others lead to chronic problems [5].

Cervical stenosis is the narrowing of the cervical canal due to various reasons including bony overgrowth, disc herniation, thick ligaments, tumors, and cervical injuries. The symptoms vary from upper limb pain, paresthesia, weakness, and paralysis. Timely diagnosis is crucial because if cervical stenosis is left untreated, it may lead to worsening of the symptoms related to nerve injury. Cervical stenosis can be asymptomatic and is diagnosed only on imaging [6].

The purpose of this case report is to highlight the two important disorders: WMSDs and cervical stenosis. The patient had a primary complaint of WMSDs, and the symptoms were related to upper limb pain and disability. The nature of symptoms led to various investigations and imaging, and subsequently, the diagnosis of cervical stenosis was made.

After conservative management and changing the nature of work, the symptoms resolved completely; however, the patient was referred to neurology and orthopedics for the asymptomatic cervical stenosis diagnosed on magnetic resonance imaging (MRI).

Case Presentation

A 42-year-old Indian female nurse, working in ophthalmology outpatient clinic at a university hospital in Riyadh, Saudi Arabia, presented with the complaints of pain in the right shoulder and arm for the past 6 months.

Her occupational history revealed that she has been working as a nurse for the past 15 years in an ophthalmology outpatient clinic. The job-related work includes tasks involving sustained posture, manual exertion, sustained abnormal posture of the neck, shoulder, and upper limb, and reduced recovery time in between the tasks.

The patient has been having frequent appointments in occupational health clinic for the past 5 years with progressive pain in the neck and shoulder girdle muscles radiating to the right arm, forearm, hand, and inter phalangeal joints accompanied by tingling and numbness of the hands and fingers. She had a stiffness of the neck and restricted neck movements. Initially, the stiffness was at night and early morning later progressed to pain throughout the day. She was unable to lift her hand above the shoulder and do usual routine works. Pain caused disturbed sleep and inability to sleep on the right side. The patient also presented with the episodes of depression due to prolonged illness. Her duty timings were from 8:00 to 4:00 pm with 1-hour lunch break. During the duty hours, she was assisting the surgeons in laser room while standing most of the time.

She had no significant past medical history and no red flags. The patient appeared moderately nourished with no distress.

Extremities: right shoulder joint stiffness with a limited range of movements at shoulder girdle during flexion, extension, and circumduction. Tenderness over the lateral epicondyle of elbow.

Neurological examination: no signs of upper motor neuropathy.

The rest of the systemic examination was normal at presentation.

Laboratory: within normal limits

Electrophysiology: normal nerve conduction study of the upper limbs

Radiology: MRI cervical spine - Multilevel degenerative disc desiccation with no disc displacement or end plate spondylitis (Fig's 1-6).

She was advised to have arm rest with cervical collar and a sick leave for a couple of weeks. She was treated with nonsteroidal anti-inflammatory drugs (NSAIDs), gabapentin, and codeine with paracetamol and referred to physiotherapy. The patient underwent six sessions of physiotherapy with pain relieving modalities during the sick leave. She was further encouraged to contact the occupational health and safety clinic about her workplace for reducing the arm/shoulder/neck straining activities. There was an improvement in her pain scale but worsened when she returned from sick leave.

The occupational health clinic intervened by requesting the concerned department for a change in the work.

The patient was referred to the neurology department for further evaluation and was diagnosed as mild cervical canal stenosis with C5–C6 central disc bulge. Orthopedic advised to wean off the cervical collar and encourage a physical therapy. The patient was reassured. The case was discussed with the occupational health department and nursing department. Apart from the conservative management, a proposal for change in workplace was put forward to the concerned department.

The patient was given regular follow-up checkup with rehabilitation and occupational clinic.

Discussion

A work-based survey was done in the outpatient department of ophthalmology by the physicians of occupational health clinic. The survey concluded that several procedures posed a heightened risk of upper limb musculoskeletal disorder, including lifting and pushing of heavy instruments used for eye examination, holding and stabilizing the head of the patient for long duration, and repositioning of the light above the shoulder level.

A part of work was repetitive, forceful, and physically demanding tasks, leading to an increased risk of musculoskeletal disorder. A fundamental principal of case management in such situation is to reduce biomechanical exposures through organizational and technical solutions and individually—applied measures. This approach can hasten recovery, reduce sickness, and prevent job loss [3].

Marinating a posture in the normal human body is the result of many tensional relationships between various parts of the body including bones, muscles, and nerves of that area. An ideal posture is the one that maintains balance and the center of gravity over the base, reduces strain on muscles and bones, and reduces physical and mental stress. The maintenance of normal posture is not only important during the activity but also during static positions of the body [7].

A study reported a positive relationship between upper limb injury and work-related abnormal posture [8]. Another study discussed the association of posture with neck and back pain [9]. Musculoskeletal symptoms have been reported in a similar study affecting the upper limb [10]. Various mechanisms exist which can measure the work-related abnormal posture and physical workload. One of these is rapid upper limb assessment sheet. This tool analyses the mechanical and physical load, especially on the upper limb [11].

The work-related upper limb disorder not only affects the quality of life but also leads to poor attendance at work, thus affecting the productivity. It is one of the main reasons of financial burden on the healthcare system. The tools to measure the physical load and abnormal

Figure 1. *MRI cervical spine Sagittal view.*

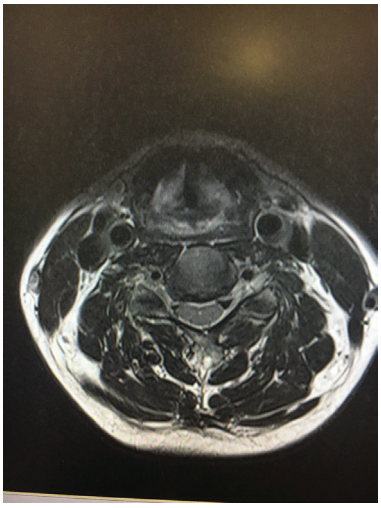

Figure 2. *MRI cervical spine axial view C4-5 level.*

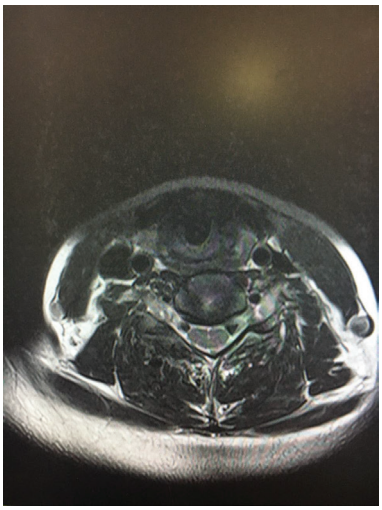

Figure 3. *MRI cervical spine axial view C5-6 level.*

Figure 4. *X-ray cervical spine—multilevel degenerative disease.*

Figure 5. *X-ray cervical spine.*

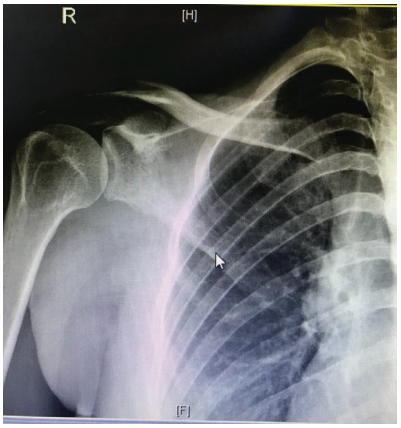

Figure 6. *X-ray right shoulder—normal.*

posture can be used to identify such cases among workers. Measures can be taken to reduce the stress and work-related injury by identifying the causative factors and offering solutions such as changing the sitting and standing postures, providing floor mats, assisting tables, devices, and backrests, and implementing trainings for the employees to identify stress and adopt individual strategies to prevent such injuries [1].

Conclusion

A detailed study is needed to find and understand the causative factors for WMSDs and the symptoms associated with such disorders. Multidisciplinary approach should be adopted for prevention, diagnosis, and treatment of such cases.

What is new?

The work-related upper limb disorder not only affects the quality of life but also leads to poor attendance at work, thus affecting productivity. It is one of the main reasons of the financial burden on the healthcare system. The tools to measure the physical load and abnormal posture can be used to identify such cases among workers. Measures can be taken to reduce the stress and work-related injury by identifying the causative factors and offering solutions such as changing the sitting and standing postures, providing floor mats, assisting tables, devices, and backrests, and implementing training for the employees to identify stress and adopt individual strategies to prevent such injuries.

List of Abbreviations

WMSDs	Work-related musculoskeletal disorders
MRI	Magnetic resonance imaging
NSAIDs	Nonsteroidal anti-inflammatory drugs
C5-6	Cervical spine level 5-6

Consent for publication

Written informed consent was taken from patient.

Ethical approval

Ethical approval granted from King Saud University Research Board.

Author details

Khalid Hamad Al Harbi[1], Lubna Tabassum[2], Naureen Kanwal Satti[3]

1. Consultant Family Medicine, King Saud University, Riyadh, Saudi Arabia
2. Specialist Family Medicine, King Saud University, Riyadh, Saudi Arabia
3. Specialist pediatrics, King Saud University, Riyadh, Saudi Arabia

References

1. Van Eerd D, Munhall C, Irvin E, Rempel D, Brewer S, Van Der Beek AJ, et al. Effectiveness of workplace interventions in the prevention of upper extremity musculoskeletal disorders and symptoms: an update of the evidence. Occup Environ Med. 2016;73(1):62–70. https://doi.org/10.1136/oemed-2015-102992
2. Antwi-Afari MF, Li H, Edwards DJ, Pärn EA, Seo J, Wong AY. Biomechanical analysis of risk factors for work-related musculoskeletal disorders during repetitive lifting task in construction workers. Automat Constr. 2017;83:41–7. https://doi.org/10.1016/j.autcon.2017.07.007
3. Macdonald W, Oakman J. Requirements for more effective prevention of work-related musculoskeletal disorders. BMC Musculoskelet Disord. 2015;16(1):293. https://doi.org/10.1186/s12891-015-0750-8
4. Rasotto C, Bergamin M, Simonetti A, Maso S, Bartolucci GB, Ermolao A, et al. Tailored exercise program reduces symptoms of upper limb work-related musculoskeletal disorders in a group of metalworkers: a randomized controlled trial. Man Ther. 2015;20(1):56–62. https://doi.org/10.1016/j.math.2014.06.007
5. Reis S, Almeida J, Figueiredo JP, Ferreira A. Prevalence of symptoms of musculoskeletal injuries related to the work of caregiver-case study of a social institution. Occup Saf Hyg IV. 2016;147. https://doi.org/10.1201/b21172-31
6. Park MS, Moon SH, Kim TH, Oh JK, Lyu HD, Lee JH, et al. Asymptomatic stenosis in the cervical and thoracic spines of patients with symptomatic lumbar stenosis. Global Spine J. 2015;5(05):366–71. https://doi.org/10.1055/s-0035-1549031
7. Pallotta OJ, Roberts A. Musculoskeletal pain and injury in sonographers, causes and solutions. Sonography. 2017;4(1):5–12. https://doi.org/10.1002/sono.12093
8. Dehdashti A, Mehralizadeh S, Mahjoubi Z. Workplace stresses and musculoskeletal disorders among nurses: a cross-sectional study. Middle East J Rehabil Health Stud. 2017;4(3). https://doi.org/10.5812/mejrh.57480
9. Chaiklieng S, Suggaravetsiri P. Ergonomics risk and neck shoulder back pain among dental professionals. Procedia Manuf. 2015;3:4900–5. https://doi.org/10.1016/j.promfg.2015.07.620
10. Browne A, O'Sullivan L. Ranking the effects of cycle time parameters, shoulder posture and load, on shoulder discomfort in a single experiment using Taguchi methods. Cogent Eng. 2017;4(1):1290191. https://doi.org/10.1080/23311916.2017.1290191
11. Samadi H, Rostami M, Bakhshi E, Garosi E, Kalantari R. Can educational intervention be useful in improvement of body posture and work related musculoskeletal symptoms? J Human Environ Health Promotion. 2018;4(2):81–6. https://doi.org/10.29252/jhehp.4.2.7

Summary of the case

1	**Patient (gender, age)**	Female, 42 years
2	**Final diagnosis**	Work-related upper limb disorder with cervical stenosis
3	**Symptoms**	Pain in the right arm and shoulder for 6 months
4	**Medications**	NSAIDs, muscle relaxants, proton pump inhibitors
5	**Clinical procedure**	Nil
6	**Specialty**	Orthopedics/occupational medicine