

Diplopia and Work: A Case Report

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Abstract

Diplopia is a frequent symptom in ophthalmology and has many causes. It may be binocular or monocular, the latter reflecting ocular damage. The study of the interaction between diplopia and the workstation is often neglected in therapeutic management; however, diplopia at work can have consequences for the health and safety of the worker concerned and therefore for clinical and socio-professional prognosis. We report a case of monocular diplopia due caused by a nuclear cataract in a radiologist. The purpose is to illustrate and explain the interaction between diplopia and work and the repercussions on fitness for work. This case underscores the need for effective, multidisciplinary medical and occupational strategies to manage diplopia in the workplace.

Keywords: Diplopia, Workplace, Fitness for Work, Occupational Medicine, Interaction between Diplopia And Work.

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INTRODUCTION

Diplopia is a common symptom in ophthalmology with multiple causes. It can be either binocular or monocular, with the latter usually related to refractive media abnormalities[1, 2].

The nature of the work performed is often neglected in therapeutic management. However, diplopia at work can have negative effects both on the worker's health, as the work may worsen the condition, and on their socio-professional outlook, as the condition may reduce their professional capabilities.

To our knowledge, the interaction between diplopia and work is rarely reported in the literature. We present a case of monocular diplopia in a radiologist with the aim of explaining the relationship and interaction between diplopia and work, and its implications for job fitness.

PATIENT AND OBSERVATION

Patient Information

A 48-year-old woman, who has been working as a radiologist for 13 years, was seen at the occupational health consultation for a diplopia issue related to a cataract in her right eye (RE), which had led to functional discomfort.

She had a history of severe myopia, a RE retinal detachment surgically treated via an intraocular approach in 2015, and a macular haemorrhage in the left eye (LE) which spontaneously resolved in 2016.

Clinical Findings

The patient complained of decreased visual acuity (DVA) in the RE associated with bothersome monocular diplopia and even triplopia at work.

Diagnostic

Table 1 summarises the main results of the ophthalmological examination. The patient notably had grade 1 nuclear cataract in the RE with minimal sequela macular syndrome, dry eye, and an increased myopia on refraction. Additionally, ocular motility was preserved in all 9 gaze positions. An orbital-cerebral MRI was also performed and was normal.

Table 1: Summary of the results of the ophthalmological examination

Examination type	Right eye	Left eye
Corrected visual acuity	3/10 (Far Vision) and PE (Near Vision)	6/10 (Far Vision) and P6 (Near Vision)
Slit lamp	Mild to moderate dry eye Lens affected by grade 1 nuclear cataract	Minimal eye dryness Clear lens
Eye fundus	Chorioretinal atrophy, normal macula and papilla 3-mirror lens: multiple peripheral lesions lasered on a vitrectomised eye	Transparent vitreous Chorio-retinal atrophy Normal macula and papilla 3-mirror glass: multiple lasered peripheral lesions.
Eye tone in mmHg	16	15

Medical and Occupational Expertise

Workstation Assessment:

We conducted a workstation study to assess the interaction between work and the patient's medical condition. Our patient was involved in a variety of technical and administrative tasks, including the analysis

and interpretation of medical images (Table 2) and the drafting of detailed reports related to these images. Besides diagnostic radiology, she also performed interventional radiology procedures like ultrasound- or CT-guided biopsies and ultrasound-guided aspirations.

Table 2: Types of medical imaging exams performed

Type of examination	Average per day
Chest X-ray	5 examens
Mammography	01 examen
Abdominal ultrasound	10 examens
Breast ultrasound	01 examen
Doppler ultrasound	01 examen
<i>Other standard X-rays are performed but not every day: abdomen without preparation, bones, bone age, dental X-ray..."</i>	

It should be noted that our patient was the only radiologist in the radiology department, where she was assisted by radiology technicians and was in charge of its management.

Various occupational hazards were identified during the workstation assessment, including environmental risks, ergonomic and organisational issues such as constrained postures, and safety concerns. In addition to ionising radiation, the physical hazards included screen work, insufficient lighting, and non-ionising radiation.

In summary, the workstation entails a significant visual workload, with visual constraints related particularly to screen work and precision tasks. The patient experienced difficulties in determining the dimensions and limits of images during precision tasks, with decreased contrast sensitivity and a glare effect made worse by dry eye.

Intervention

Based on the patient's health status (diplopia, fragile ocular condition...) and the workstation assessment, and to prevent further deterioration of her health and potential worsening of her remaining visual capacity while awaiting appropriate medical and surgical care, we recommended adjustments to her workstation. This included the avoidance of precision tasks and screen work, and a reduction in activities with a high visual load. She also received regular follow-up to evaluate

how well the workstation adjustments were accommodating her health condition.

Patient's Perspective: The patient was satisfied with her workstation arrangements while awaiting surgical treatment.

Informed Consent: the patient has freely and knowingly given consent for the execution and publication of this manuscript.

DISCUSSION

Eye health is a significant concern in occupational health. According to both international and Moroccan laws, everyone has the right to a job that is suited to their health condition, qualifications, and abilities [3]. Visual fitness is important and depends on the nature of the job occupied.

Fitness for work seeks to ensure that the worker has the necessary visual capabilities for their job to safeguard their general health and specifically their ocular health. Some eye conditions can reduce this fitness and potentially cause unfitness for work, while the demands of the job may also exacerbate these conditions. This situation emphasises the importance of a collaborative approach between the occupational physician and the treating ophthalmologist.

While DVA is the most common symptom, cataracts can rarely present with additional clinical signs

such as monocular diplopia [1–6]. In our case, the patient exhibited diplopia due to a nuclear cataract of the right eye, along with DVA, dryness, contrast perception disturbances, and glare sensitivity, which adversely affected her work performance.

Our patient had difficulties, especially in analysing and interpreting medical images (such as image contours and dimensions). Additionally, the job-related risks identified during the workstation assessment, such as screen work, insufficient lighting, and precision tasks, typically cause visual fatigue even without pre-existing eye conditions, and thus have the potential to worsen her ocular health.

Our patient faced difficulties mainly in analysing and interpreting medical images, especially concerning contours and dimensions. Additionally, job-related risks identified in the workstation assessment, such as working on screens, inadequate lighting, and precision tasks, generally cause visual fatigue even without pre-existing ocular pathology [7–9], and could therefore aggravate her ocular health condition.

It is worth noting that diplopia can negatively affect the work quality and may therefore compromise patient safety and health (through diagnostic errors). Problems with task performance and the risk of errors can also create stressful work conditions. Vision is integral to safety and productivity at work [10].

Our objective was initially to avoid any worsening of our patient's health as a result of work or the working environment. The patient was temporarily unfit for tasks requiring precision, and therefore received a workstation adjustment and regular follow-up.

CONCLUSION

Depending on the nature of the workstation, diplopia can seriously impact the worker's health and safety, potentially leading to decreased work fitness and affecting both clinical prognosis and socio-professional outcomes. It can also endanger the safety of others (such as patients, clients, or passengers ...), highlighting the need for occupational health physicians to evaluate the interaction between diplopia and work in order to assess job fitness and adapt medico-professional management. Thus, managing diplopia at work requires a well-suited medico-professional intervention that involves a multidisciplinary approach, particularly between the occupational health physician and the ophthalmologist.

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