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Diagnosis: miner's nystagmus

Nystagmus is described as involuntary, rapid rhythmic movement of the eyeball, which may be horizontal, vertical, rotatory or mixed, that is of two varieties. In terms of motion, we can distinguish jerky nystagmus with a slow and a quick phase, and pendular nystagmus with both phases of the same velocity, amplitude and direction (3). Jerky nystagmus can be evoked physiologically (optokinetic nystagmus), for instance, while following objects from car window – a quick phase in the direction of car movement. Pathological jerky nystagmus is attributed to lesions in cerebellum and vestibular system. Pendular nystagmus, the so-called ocular nystagmus, develops in the course of sight defects, especially in young children.

One of the conditions, that cause pendular nystagmus, which has been rarely mentioned either in current neurological or ophthalmological literature is underground miners' work.

CASE DESCRIPTION

The patient was a 40-year-old male, who had been working in "Bogdanka" coal mine for more than 20 years. He was referred to clinical neurological ward in order to determine the cause of nystagmus seen in routine examination in his working place. The subject had been totally healthy before admission. He was in good general condition and reported no complaints during his stay. Physical examination revealed no abnormalities either in cardio-vascular, pulmonary, digestive or musculo-skeletal system. Neurological evaluation showed horizontal, synchronized, pendular nystagmus, intensified by right and left gaze, with no apparent movement impression. Audiometry elicited receptive hypoacusis in the right ear and mixed type of hypoacusis in the left ear. Arterial blood pressure was 120/80 mmHg. Sedimentation rate was 2 mm/h. Results of blood and urine analysis did not show any abnormalities. Head MRI was performed (Picker Eclipse 1.5 T; FSE, FAST, FLAIR; before and after intravenous injection of paramagnetic contrast medium) showing no signs of pathology instead of cortical atrophy in frontal and parietal regions. The patient was dismissed with the cause of nystagmus attributed to his working conditions – diagnosis: miner's nystagmus.

DISCUSSION

Since the 19th century, there had been many reports of nystagmus in otherwise healthy coal miners, but the cause of this phenomenon remained unclear. It should be underlined that the condition widely described in Europe's previous century literature, was unknown in other parts of the world, probably because of better working conditions – the use of acetylen lamps in Japan or forehead lamps in the USA. Non-physiological head position in bad light conditions was blamed for miners' nystagmus.

Underground employees had to work bent, with head tilted posteriorly. At first, nystagmus disappeared in comfort and especially in daylight. Interesting enough, they could control nystagmus by posterior head tilt. Initially they reported no subjective complaints but continuously experienced the impression of apparent motion. This kind of nystagmus was always pendular and synchronized, with rotatory component and appeared not earlier than after long-term work underground (2). Similar nystagmus can be observed in children with sight defects, which supports the idea of the cause being connected with inappropriate light conditions and inability to maintain macular vision – eyeballs oscillate around observed objects. Pendular nystagmus also happened to appear in other professionals, e.g. jewellers and engravers, which seems to underline the role of sight effort in pathology of the described conditions. Additionally, miners with nystagmus expressed neurotic symptoms (4). This coincidence brought about an attempt to classify pendular nystagmus as neurastenic kind of disease. Neurosis seemed to be secondary to subjective impression of apparent movement caused by nystagmus and chronic stress factors being present underground. Anyway, organic background of miner's nystagmus was declined (1). Mixture of toxic gases, always present in coal mines, consisting of methane, carbon dioxide and carbon monoxide, is also supposed to be a factor in pathology of miner's nystagmus (5).

CONCLUSIONS

All symptoms were due to long-term work as a coal miner. Additionally chronic pressure and acoustic trauma had to play the role in the course of nystagmus as inner ear defects were diagnosed.

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SUMMARY

We present the patient with pendular nystagmus. The condition is secondary to long-term work as an underground coal miner. The issue is worth describing because of its rare presence in contemporary either neurological or ophthalmological literature.

Oczopląs górnik

Przedstawiamy opis pacjenta z oczopląsem wahadlowym, którego przyczyną była długoletnia praca pod ziemią w kopalni węgla kamiennego. Temat jest interesujący ze względu na brak opisów tego typu dolegliwości we współczesnym piśmiennictwie.