**Supplement 1.** Two additional cases of hypovitaminosis and presumed ONM.

The first patient concerns a 38-year-old woman who presented with complaints of an oblique diplopia upon downgaze. The diplopia would begin abruptly during sports or work and would stop spontaneously after a few minutes. There was no significant past medical history.

On orthoptic examination, a left hypertropia of 1 PD was found. No diplopia could be provoked. After one month, there was no improvement. A trial with a Fresnelprism of 1PD base down on the left eye was prescribed without result.

Again, one month later, the patient informed us that a vitamin B12 insufficiency had been recently discovered. A blood sample obtained in our department confirmed the vitamin B12 deficiency (168 ng/L, normal range 197-771 ng/L) together with insufficient vitamin D (10.9 ng/mL, normal range 30-80 ng/mL). Although the diplopia could never be provoked, the complaints were highly suggestive and the diagnosis of ONM of the left inferior rectus muscle due to moderate hypovitaminosis was made. Vitamin B12 and D supplementation was started.

Four months later, there were nomore episodes of diplopia and vitamin levels were normal.

The second patient concerns a 28-year-old man who complained of horizontal (heteronym) diplopia while playing sports. He mentioned that after playing about half an hour of tennis, he would suddenly develop a weird feeling in his eyes followed by diplopia that lasted the entire match and stopped 5 minutes after the match was ended. At the time of the consultation, he had almost no complaints. His medical history was non-significant, and he had no history of strabismus as a child.

An MRI had already been performed and showed no abnormalities.

He consulted a neurologist who first suspected an inflammation of the n. VI, but after performing a blood examination high homocysteine was diagnosed (21 µmol/L, normal range < 13-14 µmol/L),which led to a low intake of vitamins such as vitamin B12 (87 ng/L, normal range 197-771 ng/L). Orthoptic examination showed no abnormalities and no underlying strabismus could be provoked. A presumed diagnosis of ONM of the lateral rectus muscle was made, but one that had already resolved at the time of consultation after taking the vitamin supplementation.