

Double vision baseball player

Abstract

Basic Esophoria can have significant visual effects on a patient, but what happens when they pass their vision screenings? This case reports details a patient with a decompensating phoria that was undetected until double vision was disrupting. One needs to consider sports, hobbies, and occupation when treating binocular vision ailments as well.

Keywords: esophoria, double vision, binocular vision

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Abbreviations: EP, esophoria; BI, base in; BO, base out; AC/A: accommodative convergence/accommodation ratio

History

An 8-year-old white boy presented to the clinic for his first eye exam with a chief complaint of double vision especially when playing on his Nintendo DS (handheld). He reported that school work was ok but general eye fatigue would seem to set in at the end of the day. His systemic and ocular histories were noncontributory. He had no known allergies of any kind. It was also noted that he is an avid sports player (especially baseball).

Diagnostic data

His best-uncorrected entering visual acuity measured 20/20-1 OU. There was no evidence of afferent papillary defect or visual field involvement OU. Internal and external examination findings were within normal limits. A cover test revealed esophoria (EP) at distance with exacerbated EP at near. A subjective refraction revealed very mild astigmatism prescription with correctable vision of 20/20 OU. Von Graefe phoria was measured at distance as 12 EP and near at 13 EP. Base IN (BI) Ranges at distance were measured to break at 14 and recovered at 5. BI Ranges at near were measured in the patient to break at 12 and recovered at -3 (base out (BO)). The patient did not report any blur range.

Treatment

Based upon the nearly equal AC/A ratio, intermittent diplopia, and worse symptomatology with extended near work, the diagnosis of basic EP was derived. In a typical basic EP case, the treatment can consist of prismatic correction, vision therapy, and educating the patient.^{1,2} In his case, after taking into consideration his clinical data, daily activities, near work demand, and activity in competitive sports, we took the approach to start by putting corrective lenses on him with a prismatic correction (horizontal relieving prism) as well as a flat-top bifocal.³ In order to calculate the proper prismatic correction, clinically we used Shead's Criteria (more often for Exo Deviations but calculates easily in clinical setting) to derive the amount of prism required. Knowing that we want the reserve to be double the demand,³ we can quickly derive the appropriate prism to be approximately 5 BO prism (2.5 BO per eye). Since this patient was primarily diplopic at near, we added a +1.00 flat top bifocal to relax the accommodative vergence component as well. Since this was a patient wearing lenses for the first time and a low add, we opted for a flat top bifocal as

opposed to a progressive lens. Meanwhile, we set the seg ht for flattop to split his lower pupil to get the patient into the flattop powers quicker.

Finally, his sports activities had to be addressed with respect to the new lenses. Since there was going to be a bifocal portion to the new lenses, we had to address the image jump especially when batting. We recommended that the patient hit off a baseball tee into a net everyday for 15 minutes for the next month, in addition to normal baseball activities, with varying heights to adapt his eyes and brain to the image height. This way his eye hand coordination would equilibrate to the new image jump. We aided the patient in setting the height of the tee to be just above the image jump, right at the image jump, and just below the image jump to adjust accordingly. The patient returned 6 weeks later for a follow-up appointment with no more double vision and reported that baseball and school activities had been improving since the corrective lenses were being worn full-time.

Conclusion

This patient had passed every single vision screening in the past, including his own pediatrician. We cannot stress enough the importance of assessing the full binocular vision as well as the anatomy rather than solely relying on a vision screening. In our office, we often hear that it is not important to get an exam if they passed their school vision screening. The vision screening, while important, should never replace a comprehensive visual and medical evaluation of the eyes.

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None.

Conflicts of interest

Author declares that there is no conflict of interest.

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