Letters to the Editor

Improving the Sun Safety of Bicycle Helmets

To the Editors:

The incidence of sun-induced skin cancer is rising and the eyelid and face are frequent sites of involvement.¹,² Sun exposure can also predispose to pterygium, climatic droplet keratopathy, cataracts, and perhaps macular degeneration. The majority of the skin’s lifetime sun damage occurs during childhood.² More than 70% of American children ages 5 to 14 years (27.7 million children) ride bicycles and this age group rides 50% more than the average bicyclist.³ Thus, significant sun exposure can occur when children ride a bicycle. Improvements to helmet design can supplement the facial sun protection offered by wide-spectrum sunscreens and sunglasses. Sunscreen is useful but suboptimal because it cannot be applied near the eyelid margin, should be ideally applied 30 minutes before going outside, and should be reapplied after sweating.⁴ Sunglasses provide excellent periocular protection, but do not protect the rest of the face.

Many children’s bicycle helmets do not have visors (Fig. A). When clip-on visors are available on a bicycle helmet, they usually do not provide optimal shade protection.

Hats or visors worn underneath helmets usually offer more effective shade protection than helmet-clipped visors that are positioned higher on the helmet (Fig. B). The lower position of the hat or head-worn visor usually does not impede vision in children who ride at slower speeds in an upright position, but occasionally the hat or visor may slip. The use of hats or visors under helmets may compromise the fit of the helmet, and the helmet padding may have to be altered to retain the proper fit. Hats may decrease ventilation, making children feel hot. Children may complain of ear discomfort if the edges of the hat or visor are pushed down by the helmet.

A better alternative to hats or visors is specially designed helmet covers with a low-riding front edge to protect the eyes and face and a back flap to protect the ears and neck (Fig. C). The central mesh fabric does not impede helmet ventilation as much as a typical hat and will not affect the fit of the helmet. The helmet cover is available in high-visibility colors for safety. However, this helmet cover costs more than many children’s helmets (Adventure Cycling Association; http://www.adventurecycling.org/store/index.cfm).

The paramount safety concern with bicycle helmets is to protect against head trauma, and much thought has gone into the design of bicycle helmets for crash protection.⁵ However protection from the sun is a neglected helmet safety consideration, likely because of the long latency before skin cancer or eye damage occurs.

Sun safety education can do much to prevent skin cancer and solar eye damage in our pediatric patients⁶ and is advantageous from a cost–benefit and cost-effectiveness perspective.⁷ The combination of sunscreen, sunglasses, protective clothing, and minimizing outdoor activities during times of...
peak sun exposure should supplement the use of sun-safe bicycle helmets.

REFERENCES

Edsel Ing, MD, FRCSC¹
Sabrina Ing, MD, CCFP²
¹University of Toronto and
²Private Practice
Toronto, Ontario, Canada

The authors have no financial or proprietary interest in the materials presented herein.

Downbeat Nystagmus as the Sole Sign of Chiari Malformation in Goldenhar Syndrome

To the Editors:

Oculoauriculovertebral spectrum (OAVS), also known as Goldenhar syndrome, is a complex congenital condition with wide heterogeneity in phenotypic expression that includes auricular maldevelopment, facial hypoplasia, ocular, cerebral, and vertebral deformities, congenital heart defects, hearing impairment, and learning difficulties.¹ We report a case of OAVS that presented with downbeat nystagmus as the sole sign of a previously undiagnosed Chiari malformation. The presence of nystagmus in patients with OAVS is currently not recognized in the literature.

A 14-year-old boy was referred to our department with previously undocumented nystagmus. He had been diagnosed as having OAVS at the age of 10 years when found to have right-sided microtia, facial hypoplasia, preauricular skin tags, neurosensory hearing loss, and a missing right thumb knuckle. Further investigation at that time found an absent right kidney and patent ductus arteriosus.

Visual acuity was 20/30 in the right eye and 20/60 in the left eye. The patient was asymptomatic and reported a good level of vision that did not limit activities of daily living. The only positive ocular examination finding was downbeat nystagmus with a downward quick phase and no associated strabismus. There was an abnormal head posture of left face turn and chin depression to accommodate a null point. The remaining ocular and neurological examination was normal. Magnetic resonance imaging of the brain showed herniation of the cerebellar tonsils through the foramen magnum with compression of the cervicomедullary junction is seen with the presence of syringomyelia at the level of C4/S. There is a normal-appearing ventricular system with no evidence of a hydrocephalus.

Figure. Magnetic resonance imaging of the head, sagittal view. Herniation of the cerebellar tonsils through the foramen magnum with compression of the cervicomедullary junction is seen with the presence of syringomyelia at the level of C4/S. There is a normal-appearing ventricular system with no evidence of a hydrocephalus.
Letters to the Editor

type I Chiari malformation. OAVS is known to be associated with Chiari malformations in addition to other cerebral abnormalities.²

Chiari malformations are also associated with several other types of nystagmus and ocular movement disorders that include pendular, gaze-evoked, see-saw, periodic alternating, rotational, upbeat, and convergence nystagmus, skew deviation, and ocular flutter.³ Therefore, any patient suspected of having OAVS found to have any form of nystagmus should have an ophthalmological assessment and imaging of the brain and cervicomedullary region.

Downbeat syndrome is a sign localizing the causative lesion to the posterior fossa.⁴ The cervico-medullary junction is a critical transitional area with neurological structures essential for movement and respiratory and cardiovascular function.⁵ Any neurological dysfunction of this area has potential to impair such functions and cause significant morbidity and mortality. Timely identification and treatment of any abnormality may be a life-saving action.

This case illustrates the importance of recognizing the link between nystagmus, OAVS, and its related neurological manifestations, hitherto unreported in the literature. It also highlights the importance of all patients suspected of OAVS having an ophthalmic assessment. This would allow identification and management of ocular conditions and recognition of subtle neurological signs such as nystagmus that could denote potentially life-threatening neurological maldevelopment.

REFERENCES

Douglas A. M. Lyall, MRCOphth
Katherine Martinek, MBChB
Zachariah Koshy, DNB
Department of Ophthalmology
Ayr Hospital
Ayr, United Kingdom

doi: 10.3928/01913913-20100106-15