

Orbital Dystopia Managed with Unilateral Brow Suspension

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Abstract

Patients with orbital dystopia present with symptoms of diplopia and/or facial asymmetry. Repositioning of the orbit requires multiple osteotomies around the orbit, which presents significant complications. The authors present an alternative method to restore facial symmetry in the case of a 14-year-old patient with congenital orbital dystopia due to fibrosis of the sternocleidomastoid muscle. The patient had no ocular symptoms but did have asymmetric descent of the ipsilateral brow. He refused box osteotomy and repositioning of the orbit. Unilateral brow suspension was performed using an endoscopic technique and suspension sutures fixed to resorbable screws. Adequate brow elevation was noted in the immediate postoperative period and at 6 months; it successfully restored facial symmetry.

Key Words: Orbit, dystopia, endoscopic, brow.

Case Report

A 14-YEAR-OLD MALE presented with orbital dystopia and periocular asymmetry. Parturition required forceps secondary to a transverse presentation. According to the patient's mother, the use of forceps resulted in a hematoma around the left side of the face and neck. Resolution of the hematoma yielded fibrosis and shortening of the ipsilateral sternocleidomastoid muscle. This was treated with early physical therapy, which was unsuccessful in preventing ultimate asymmetric growth of the facial skeleton.

Through childhood, the patient was followed to see if he was improving, but no surgical intervention was undertaken. He presented again as a teenager with concerns about the asymmetric appearance of his face. Notably, he had several millimeters of brow ptosis on the left as compared to the right (Fig. 1). There was also 1–2 millimeters of enophthalmos. However, the patient reported no



Fig. 1. Preoperative photograph of a 14-year-old male with orbital dystopia and malposition of the left brow.

problems with vision, including diplopia, and did not wear eyeglasses. On examination, he had full extraocular muscle excursion. His pupils were equal in size and shape and reactive to light. The nasal pyramid was midline and his occlusion was Angle class I.

A CT scan of the head was performed at 1.25 mm intervals and reconstructed as a three-dimensional image (Fig. 2). There was obvious asymmetry of the orbital shape and position. On the unaffected right side, the superior limit of the orbit extended higher than that on the left. This caused the soft tissue envelope of the left periorbita to remain

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Fig. 2. Preoperative 3-dimensional CT scan of the head.

suspended at a more inferior position than the contralateral side.

Informed of the procedure for realigning the orbits, the patient and his family chose unilateral brow elevation as a means of correcting the resultant ptosis and camouflaging the dystopia. He underwent a unilateral left endoscopic unilateral brow elevation. The periorbital area around the left orbit was detached from the orbital rim and the soft tissues of the eyebrow were re-suspended with Prolene sutures in the dermis. Resorbable screws in the skull (KLS, Jacksonville, FL), posterior to the hairline, were used to anchor the sutures. At 6 months (Fig. 3) the patient had improved symmetry of the face, as evidenced by a more symmetric appearance of the palpebral fissures and eyebrow position to the contralateral side.

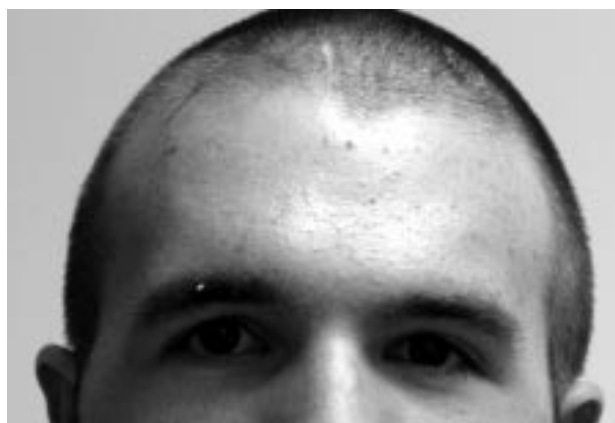


Fig. 3. Six-month postoperative photograph showing improved periorbital symmetry following left unilateral endoscopic browlift.

Discussion

Orbital dystopia is defined as an asymmetry in either the vertical or horizontal position of one or both hemi-orbits in at least one of the three-dimensional planes (1). As a result of the bony asymmetry, the soft tissues attached to the orbital margins mirror the underlying malposition. The condition may or may not be associated with visual problems, such as diplopia.

Treatment of orbital dystopia is arguably best addressed by reconstructing the underlying bony framework (2, 3). Multiple incisions (bicoronal, lower eyelid, gingivobuccal sulcus) and several osteotomies are required to mobilize and reposition the orbital rim to match the unaffected side. Hospital admission is required for postoperative monitoring of potential neurologic and ophthalmologic complications, which are not insignificant. Finally, the overall cost of treatment can be burdensome.

Endoscopic (or open) browlift, by contrast, is a less invasive and relatively straightforward procedure. This approach is presented here as an alternate means of addressing the facial asymmetry associated with orbital dystopia. While not addressing the underlying problem, the technique does offer improved symmetry with relative ease and minimal potential for complication. It may be performed on an outpatient basis and thus at a lower cost. Unlike the situation with orbital repositioning, the risk for intracranial and globe injury is relatively nonexistent.

The main disadvantages of brow lifting include the potential for residual asymmetry in brow position and for relapse in the later postoperative period. In the case described, the position of the eyebrow was set a couple of millimeters higher to allow for descent of the eyebrow in the immediate postoperative period, as occurred with healing and resolution of edema. Furthermore, it has yet to be determined whether the long-term results equal those in the early postoperative period. The procedure, however, does not preclude later orbital repositioning if less invasive procedures, such as the one described here, fail to adequately correct the problem over time.

References

1. DePonte FS, Fadda T, Rinna C, et al. Early and late surgical treatment of orbital dystopia in craniofacial malformation. *J Craniofac Surg* 1997; 8(1):17–22.
2. Mu X, Zhang R, Wei M, et al. Surgical correction of orbital and periorbital deformities using lamella and complex osteotomies in both orbital rim and wall. *J Craniofac Surg* 2005; 16(1):144–149.
3. Moore FO, Thornton BP, Zabel DD, Vasconez HC. Autogenous orbital reconstruction in a child with congenital abnormalities of the orbital roof and vertical orbital dystopia. *J Craniofac Surg* 2004; 15(6):930–933.