Pediatric Experience in Surgical Treatment of Acquired Esotropia Associated With High Myopia

To the Editors:

Acquired progressive esotropia in patients with high myopia is caused by conversion of lateral rectus muscle function from abduction to infraduction, leading to impaired abduction and supraduction. Imaging techniques have revealed abnormal extraocular muscle position in these patients; the lateral rectus muscle is displaced inferiorly and the superior rectus muscle is shifted nasally, which is due to superior, posterior, and lateral protrusion of the myopic cone.

We report our first limited experience of the Yokoyama procedure, described as looping the superior rectus and lateral rectus muscles together using a 5-0 non-absorbable polyester suture, in two pediatric cases of acquired esotropia with severe myopia, one of which had an accompanying motility dysfunction.

The first case was a 5-year-old boy with a 2-year history of esotropia. Visual acuity was 20/50 in both eyes with a refraction of -7.50 -1.00 × 90 in both eyes. He had 65 prism diopters (PD) esotropia at near and distance with glasses. Magnetic resonance imaging demonstrated a nasally deviated superior rectus muscle and an inferiorly deviated lateral rectus muscle in both eyes. The Yokoyama procedure was performed on both eyes, followed by bilateral 5.75-mm medial rectus recessions with hang-back sutures. Postoperatively, deviation was 8 PD at near and 10 PD at distance and reached up to 16 PD at near and distance with -1.25 diopters myopia progression in both eyes at 36 months.

The second case was a 15-year-old boy presenting with a 8-year history of esotropia. Visual acuity was 20/20 in both eyes with -14.00 diopters myopia in both eyes. He had 85 PD esotropia at near and distance with his glasses. Abduction was moderately limited (-2) in both eyes. Magnetic resonance imaging demonstrated a nasally deviated superior rectus muscle and an inferiorly deviated lateral rectus muscle in both eyes. The Yokoyama procedure was performed for both eyes with medial rectus recession with hang-back technique in both eyes. At the first postoperative week, there was 8 PD of residual esotropia, which reached up to 12 PD at near and 14 PD at distance with spectacle correction. Motility gradually improved and by 3 months there was only mild limitation in abduction (-1); these findings together with the degree of myopia remained stable throughout the 25 months of follow-up.

The Yokoyama procedure has been used successfully alone or as the first-line treatment of a staged approach. All of the patients described were adult cases and there has been no published data on pediatric age group.

Although seen more commonly in adults, progressive esotropia with high myopia can occur in the pediatric age group. The Yokoyama procedure combined with medial rectus recessions proved to be an effective and durable treatment option for our pediatric patients to restore restrictive motility and ocular alignment.

REFERENCES


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