



Surgical approach to type i duane syndrome together with head position and upshoot: a case report

Baş pozisyonu ile birlikte yukarı vuruşu olan duane tip i olgusuna cerrahi yaklaşım: olgu sunumu

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Abstract

A 13-year-old girl was told by her parents to have had strabismus since she was 6-months-old. Her corrected visual acuity was 20/20 in the right eye and 20/63 in the left eye. Anterior segment and fundus examinations were normal. Cycloplegic refraction was +1.0 (+0.5*80) in the right and +3.75 (+1.0*110) in the left. She had a 20° leftward face turn. Tests showed that her left eye had limitation of abduction, retraction of the globe, narrowing of palpebral fissure, and upshoot on attempted adduction. The patient underwent recession of the left medial rectus muscle and lateral rectus muscle recession of 7.0 mm with Y-splitting. On postoperative first day and after one month and then six months, the patient was checked for follow-ups. In the follow-up after 6 months, head turn and upshoot were found to be eliminated.

Keywords: Type I Duane's Retraction Syndrome; Upshoot; Head Turn, Surgical Approach.

Öz

On üç yaşında bayan hasta, 6 aylıktan beri sol gözde kayma şikâyeti varmış. Muayenesinde düzeltmeli görme keskinliği snellen eşeline göre sağ gözde tam (10/10), sol gözde 0.5 (5/10) saptandı. Biomikroskopi ve fundus muayenesi doğal olarak değerlendirildi. Skloplejik refraksiyon sağ gözde +1.0 (+0.5*80), sol gözde +3.75 (+1.0*110) dioptri (D) idi. Yapılan şaşılık muayenesinde; Sola dönük yüz pozisyonu (20 derece) mevcut. Sol gözde abduksiyonda kısıtlılık (-4) ile abduksiyonda kapak aralığında hafif genişleme mevcuttu. Ayrıca addüksiyonda yukarı vuruş (upshoot) ve addüksiyonda kapak aralığında daralma tespit edildi. Bu bulgularla yukarı vuruşlu Duane Tip I tanısı kondu. Hastaya cerrahi planlandı. Yapılan cerrahide lateral rektusa (LR) geriletme ile kombine Y-split prosedürü, medial rektusa (MR) ise geriletme yapıldı. Ameliyat sonrası 1. gün, 1. ay ve 6. ay da kontrolleri yapıldı. 6. Aydaki kontrolünde hastanın ameliyat öncesine göre sol yüz dönüklüğü düzelmiş. Sol göz addüksiyon da oluşan yukarı vuruşun kaybolduğu saptandı.

Anahtar Kelimeler: Duane Tip I Retraksiyon Sendromu; Yukarı Vuruş; Baş Pozisyonu; Cerrahi Yaklaşım.

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INTRODUCTION

Duane's retraction syndrome is a congenital disorder characterised by limitation of the horizontal ductions, globe retraction, upshoot, downshoot, and narrowing of the palpebral fissure on attempted adduction (1). In Duane's retraction syndrome, the globe can move upwards or downwards while the eyes are adducted (2, 3). It was reported that this abnormal vertical movement arise from escaping of the stretched lateral rectus muscle to under or over the globe (4).

We aimed to evaluate the results of surgical procedures of a Duane Type I case who had upshoot and head turn at the same time. We aimed to evaluate the result of surgical procedure of a patient who had upshoot and head posture with Duane Type I syndrome

CASE REPORT

A thirteen-year-old female patient was admitted with complaints of left eye shift. We were told that the patient had this condition since she was 6 months old. The patient's personal and family history had no significant details. On examination, the corrected visual acuity was full (10/10) in the right eye and 0.5 (5/10) in the left eye according to the Snellen scale. Slit lamp and fundus examination were normal. Cycloplegic refraction was +1.0 (+0.5*80) diopters in the right eye and +3.75 (+1.0*110) diopters in the left eye. The strabismus examination showed leftward face turn (20 degrees). There was abduction limitation in the left eye (-4), slight expansion in lid range on abduction, upshot on adduction, and slight contraction lid range on adduction (Figure 1).



Figure 1. Pre-operative photographs show in primary position, a marked upshoot, and limitations to abduction and adduction of the left eye.

After obtaining her consent, the patient underwent surgery. Initially, the patient was applied traction test in the lateral rectus (LR) of the left eye. The test result was (+). Then, the left eye medial rectus (MR) was administered a recession of 6 mm. Next, without cutting it from the area of insertion, LR was divided into two by 10 mm (Y-shaped). Then LR was removed from the insertion area and recessed by 7 mm. After this process, we sutured the area so that the two ends of the Y-shaped opening had a distance of 20 mm from

each other; for this, the upper end was applied superotemporal suture while we applied inferotemporal suture for the lower end.

The patient was followed on postoperative day 1 as well as in the 1st and 6th postoperative months. In the follow-up examination after six months, we observed that the leftward face turn was improved and the upshoot of the left eye on adduction was cured (Figure 2).



Figure 1. Post-operative photograph shows in primary position and improvement in the upshoot

DISCUSSION

The main indications for surgical treatment in Duane's syndrome are significant horizontal ocular deviation and abnormal head posture. Besides, noticeable globe retraction during adduction and cosmetically unacceptable upshoot or downshoot are also among indication for surgery.

After the frustration caused by the use of weakening one of the inferior or superior oblique muscles in the treatment of the upshoot and downshoot, it was realised that these abnormal eye movements were not associated with oblique muscle dysfunction (5); it was reported that upshoot and downshoot were caused by the simultaneous contraction of the medial and lateral rectus and the tension in the lateral rectus muscle (2, 6).

Mohan and Saroha's (7) study has shown that recession applied to the superior and inferior rectus muscles in Duane's retraction syndrome with upshoot and downshoot eliminated upshoot and downshoot in all their cases. This method was reported to be safe and effective in such cases. Other studies have shown that the regression of two horizontal rectus muscles decrease globe retraction in adduction (8, 9).

Dividing the lateral rectus in Y-shape was first advocated by Jampolsky (10). However, lateral rectus muscle recession alone cannot fix the position of the muscle on the globe or give the desired results. Globe retraction in adduction, especially in patients with tense lateral rectus, is an expected result of Duane's retraction syndrome. So, the lateral rectus recession procedure with the Y splitting procedure is more suitable than applying Y-shaped splitting alone (10). We combined lateral rectus recession and Y-shaped splitting with medial rectus recession in our case. This led to the improvement of both the head posture and the upshoot at the same time.

Rogers and Bremer (11) had applied medial rectus recession and Y-shaped splitting of the lateral rectus in five patients with Duane's retraction syndrome. Postoperatively, they reported that upshoot and downshoot decreased without any vertical deviation. In our case, both the head posture and the upshoot improved. However, we believe that the improvement in the head posture was due to the medial rectus recession.

In conclusion, we believe that applying surgery for head posture and upshoot at the same time could be useful in a case with Duane Type I which has both head posture and upshoot. Also, in Duane Type I we found out that using a combination of lateral rectus recession and Y-splitting technique for treatment of upshoot was successful.

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