

# Adult strabismus – a case associated with Dissociated Vertical Deviation

Paduca Ala PhD<sup>1</sup>, Boergen K. P. PhD Professor<sup>2</sup>

<sup>1</sup>State Medical and Pharmaceutical University "Nicolae Testemitanu" Republic of Moldova

<sup>2</sup>Ludwig Maximilians University Munich

## Keywords

congenital esotropia,  
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## Abstract

Dissociated vertical deviation (DVD) is an enigmatic strabismus entity commonly seen in association with infantile esotropia, it responds unpredictably to surgical intervention. We report a case of monolateral congenital esotropia with bilateral inferior oblique overfunction associated with unilateral Dissociated Vertical Deviation.

Patient: Mr. A.M a 21 years old man. Chief complaint: deviation of the right eye nasally. History of present illness Onset- from childhood, treatment- only glasses ( but inconstantly wear). Past ocular history- no hx of ocular surgery, trauma. Medication (ocular and general) – none. Past medical history - prematur born (7 month). Other active medical problems: none. Past Family Ocular History- negative. Allergies – none.

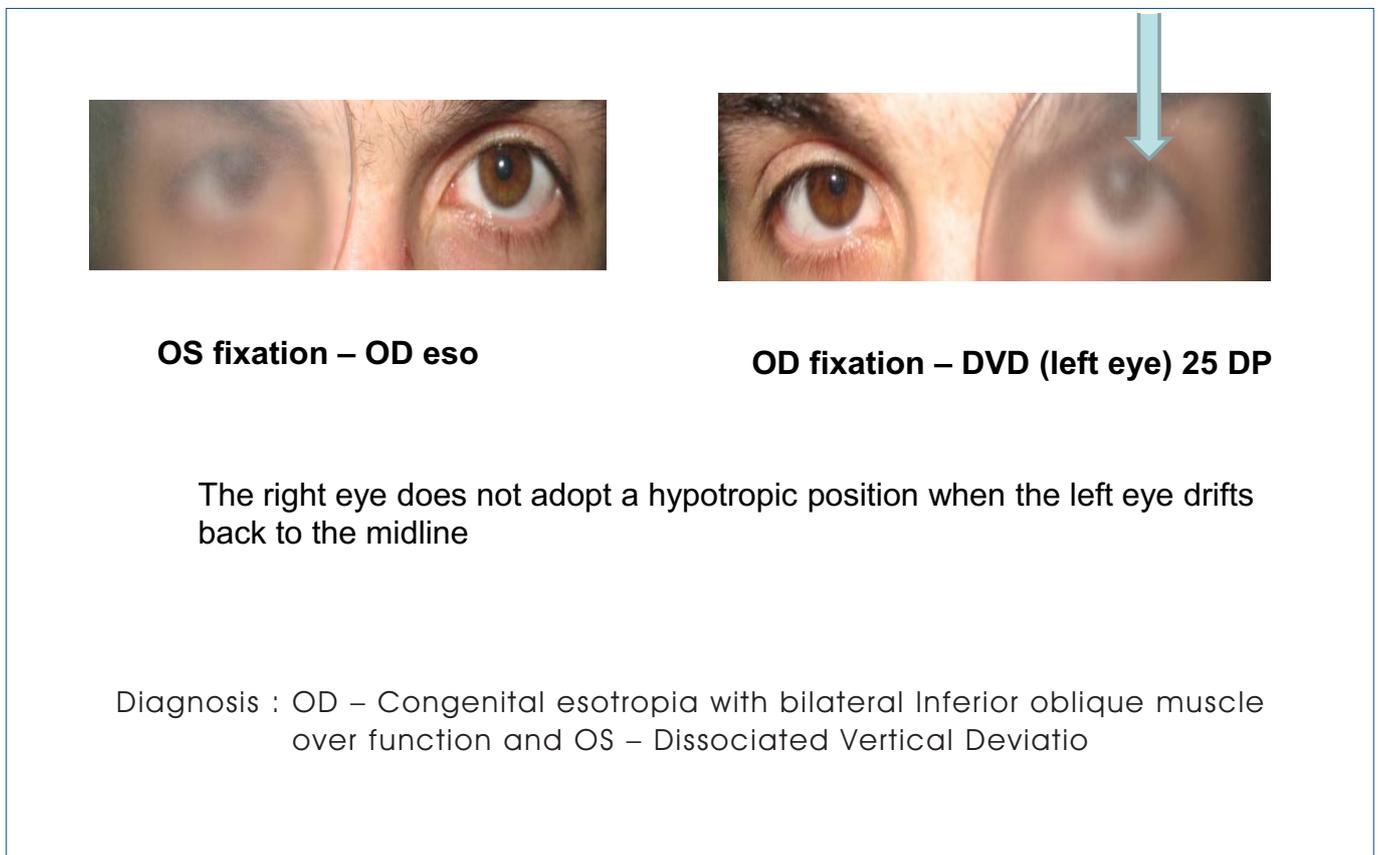
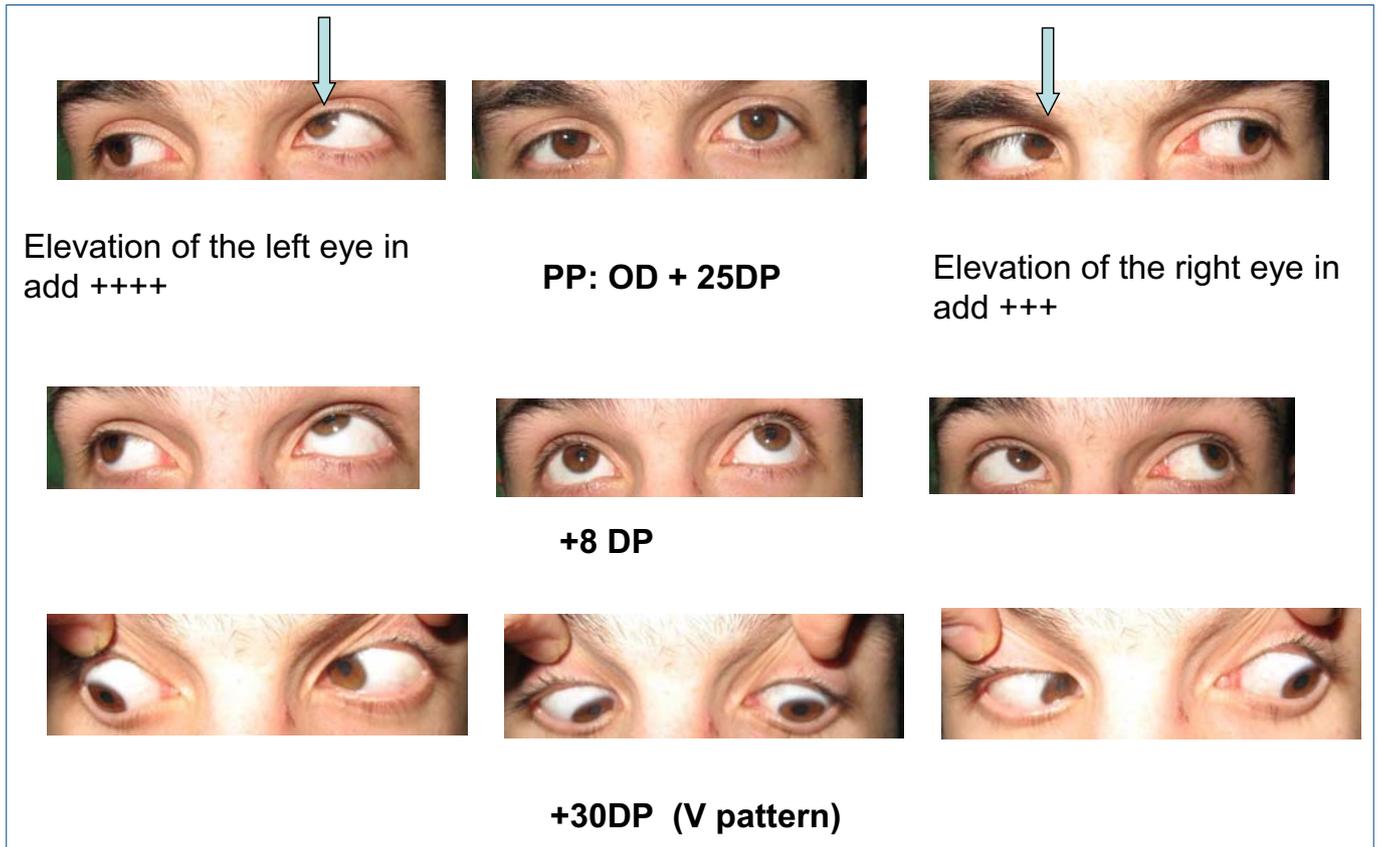
Ocular examination: Vis (OU) – 20/20s.c.

Rx: OD sf +0,5D OS sf + 0,25 D

- Biomicroscopic and ophthalmoscopic examination – normal
- IOP (Maklakov tonometer) – OU 18 mmHg

Pupils:

- Equally reactive, OU.
- No relative afferent pupillary defect (– RAPD)
- Ortoptic Examination Binocular Vision Examination – Bagolini test – negative: Stereo test (Lang, Titmus) – negative
- Corneal reflex test (Hirschberg) – convergent deviation (+13°) of OD
- Ocular motility – revealed an elevation of both eyes in adduction. (OD 4+ and OS 3+) (Images 1)
- Prism cover test - revealed a constant right convergent strabismus for near and distance fixation of 25 PD base out, which becomes larger when the patient tries to look down -30PD base out and smaller in down gaze- 8 PD (Images 1).
- Cover test – esodeviation of OD when OS is fixating eye and hyper deviation of OS when OD is fixating eye (image 2)



## Treatment

Surgical: OD Recession of Medial rectus (-4) and Resection of Lateral rectus (+4,5). Bilateral Recession of Inferior Oblique (14mm)

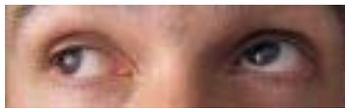
At 3,5 month of follow-up the orthoptic examination revealed no deviation in PP and in upgaze and a residual esodeviation of 12 PD in downgaze (Image 3)  
Ocular motility – only 2+ elevation in adduction of OD (Image 3)



Sursumadduction ++



0 DP



+ 12 DP

Cover test – shows the presence of hyper deviation (DVD) of OS  
(Movie)



## Discussion

- Dissociated vertical deviation (DVD) was described by George Stevens in 1895.
- DVD is a poorly understood eye motility disorder of unexplained etiology (8).
- Dissociated vertical deviation is an innervational disorder found in more than 50% of patients with infantile esotropia and in other forms of strabismus. It is usually first noted between 2 and 5 years of age. (1,2)
- The amplitude of the hyperdeviation is often asymmetrical in the 2 eyes, and DVD may be unilateral measuring more than 20 prism diopters.(1)
- The amount of drifting may vary during the course of the day. It is possible that the up drift in either eye is unequal and the main problem in DVD is quantification of its magnitude (1,8)
- Dissociated vertical deviation (DVD) is a poorly understood vertical deviation which may remain latent (compensated) or manifest (decompensated). (1)
- The dissociated eye not only elevates but excycloducts. When the fellow eye is covered, the dissociated eye returns to primary position with a corrective incycloduction movement. (1)Placement of a vertical prism before 1 eye will induce a corresponding vertical divergence (1).
- The amplitude of the vertical deviation is incrementally related to the asymmetry of visual input in the two eyes. This effect is most clearly shown by the Bielschowsky phenomenon, in which filters of increasing density placed before the fixating eye cause the hypertropic eye to descend incrementally, sometimes into a hypotropic position (1).
- DVD is accompanied by a manifest head tilt in approximately 35% of cases (1, 3).
- Differential diagnosis is quite difficult in individuals with inferior and superior oblique overaction with or without co-existing DVD (9).
- In our case, taking into consideration the fact that from functional point of view (binocular vision) any further improvement can not be obtained, we decided that surgical correction of DVD is not reasonable. It is well known that surgical treatment of DVD is only moderately successful and is definitely a subject of discussion and debate among strabismus surgeons.

Some surgical options include:

- 'large' superior rectus recession,
- maximal 'hang back' superior rectus recession,
- superior rectus posterior fixation suture with or without recession,
- inferior rectus resection,
- inferior rectus tucking (4) and
- inferior oblique anterior transposition (7).

Superior rectus recession is the most commonly employed procedure for most patients who have DVD requiring surgery (5).

- Brodsky M. (1) argues that it must be made perfectly clear that the mere presence of DVD is not reason for surgery. More than half of all congenital esotropia patients have some DVD after surgery, including those with the best results (1; 8). Surgery for DVD usually is indicated only if a hyperdeviation is manifest sufficiently often and the deviation large enough to compromise appearance (1).

## Conclusion

- It is important to remember that Dissociated Vertical Deviation and inferior oblique overaction often co-exist, making the differentiation and contribution of each difficult to determine.
- Eye muscle surgery is usually indicated when the DVD is large and/or frequently present.

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### Sites:

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