

**Case Report**

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# Pathogenesis of Duane's Retraction Syndrome



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## Aetiology

The most accepted theories until now are: Agenesis or partial development of the 6<sup>th</sup> cranial nerve nucleus in the brain stem and Branches from the 3<sup>rd</sup> nerve are redirected to innervate the lateral rectus. So lateral rectus has both Subnormal

or no innervations from the 6<sup>th</sup> cranial nerve and anomalous innervations from the 3<sup>rd</sup> nerve. According to the amount of anomalous innervations going to the lateral rectus; different presentations and patterns of Duane's syndrome results (Figure 1).

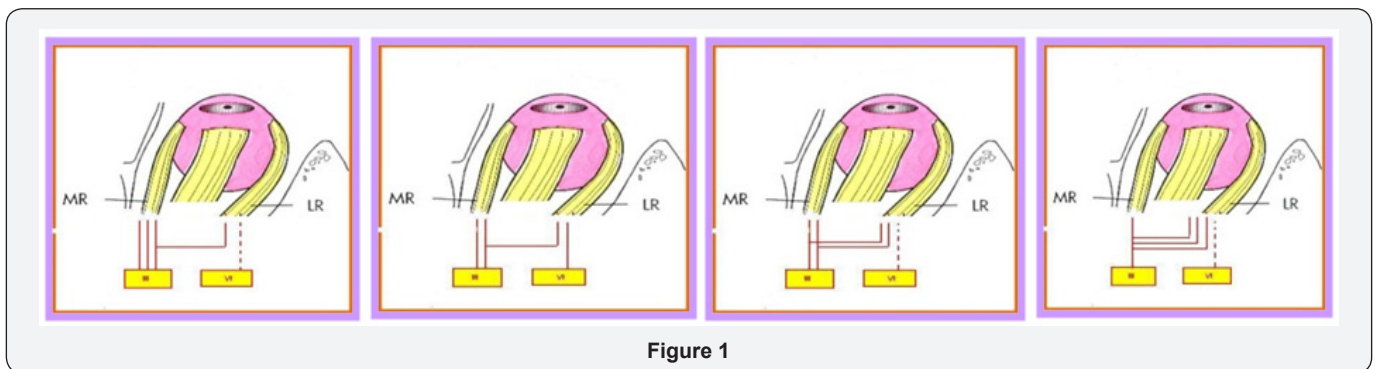


Figure 1

## Duane Type 1

No innervations from the 6<sup>th</sup> nerve. Mild anomalous innervations from the 3<sup>rd</sup> nerve so the clinical picture is that limited abduction and mild narrowing of the palpebral fissure in adduction (Figure 2).

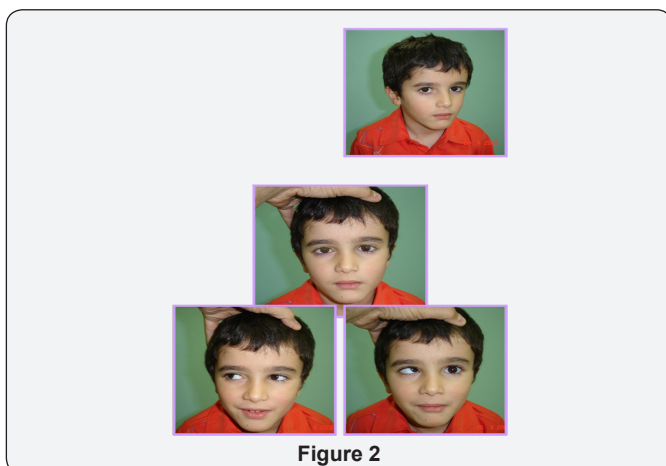


Figure 2

## Duane Type 2

Normal innervations from the 6<sup>th</sup> nerve. Moderate anomalous innervations from the 3<sup>rd</sup> nerve so the clinical picture includes normal abduction and limited adduction together with narrowing of the palpebral fissure in adduction (Figure 3).

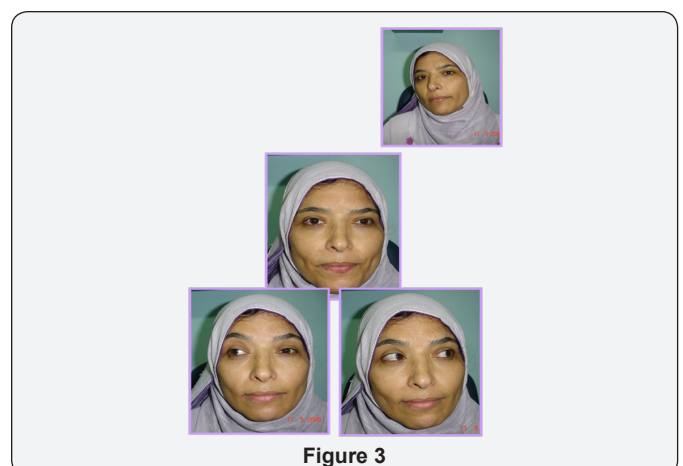


Figure 3

**Duane's Type 3**

No innervations from the 6<sup>th</sup> nerve. Nerve fibers to the medial rectus is divided 50/50 between medial rectus and lateral rectus so; the clinical picture is that limited abduction (no innervations from the 6<sup>th</sup>), limited adduction due to equal contraction of both medial and lateral recti on adduction (Figure 4).

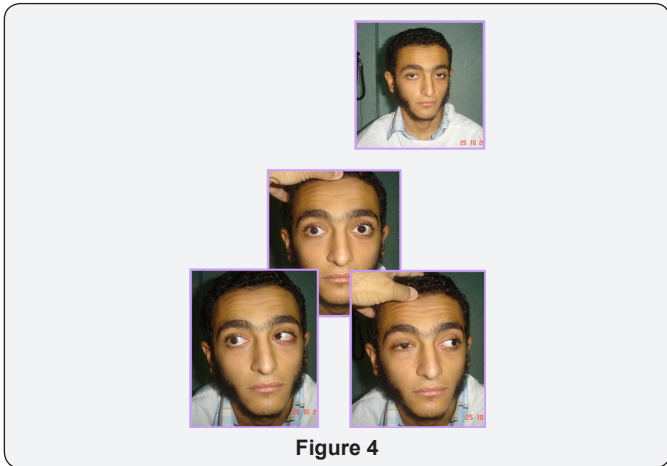


Figure 4

**Duane's Type 4**

No innervations from the 6<sup>th</sup> nerve. Most of the fibers of the medial rectus go to the lateral rectus so that with attempted adduction, abduction occur (simultaneous divergence) (Figure 5).

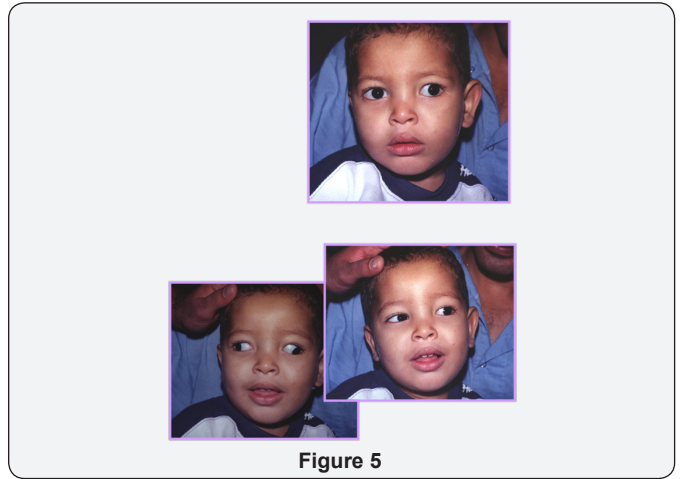


Figure 5



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