5. Greenberg AK, Yee H, Rom WN. Preneoplastic adductive movements simulta-
eously. Exotropia was observed in the primary position and abduction of the left eye was limited on left gaze (Figure 1B and C). Upgaze and downgaze were normal. No ptosis or enophthalmos were correlated with these findings. Pupillary function was normal, with no unusual changes in eye movements. Right-eye motility was eminently normal with no history of ptosis or enophthalmos.

Comment. Congenital ocular misinnervation can occur in a variety of forms. It typically involves the sixth cranial nerve. Most common is the Duane, or congenital retraction, syndrome, which consists of hypoplasia of the sixth nerve (nucleus) and innervation of the lateral rectus muscle by a branch of the oculomotor nerve. Depending on the relative contribution of third nerve fibers to the medial and lateral rectus, the patient is first with either predominant limitation of abduction or adduction. Some of our patient’s clinical features can be explained by an extreme form of the Duane syndrome, where most, if not all, oculomotor nerve branch fibers originally directed to the medial rectus innervated the lateral rectus, thus leading to simultaneous abduction on attempted adduction (also referred to as synergistic divergence).

Interestingly, although no left eye adduction could be elicited on lateral gaze or convergence, we observed additive movements during sucking. Missing innervation of the medial rectus by oculomotor nerve fibers was replaced by fibers, most likely originating from a motor branch of the trigeminal nerve. Thus, the lack of innervation of the lateral rectus (Figure 2A) appears to have triggered a sequence of aberrant nerve sprouting, resulting, initially, in a shift of fibers originally meant for the medial rectus toward the lateral rectus (Figure 2B). Second, and possibly as a consequence of lack of innervation of the medial rectus muscle, a shift of trigeminal nerve motor fibers to the medial rectus took place (Figure 2C), leading to a trigemino-ocular synkinesis between the lateral pterygoid or one of the suprathyroid muscles and the medial rectus. The slight narrowing of the palpebral fissure observed during sucking can be explained by synkinetic contraction of the medial muscle against a tight lateral rectus muscle in that specific situation, which led to discrete retraction of the globe.

The combination of the Duane and Marcus Gunn syndromes or other misinnervation syndromes involving the sixth, third, and fifth cranial nerves recurs. Other cases with synergistic divergence and a trigemino-ocular synkinesis have been reported (also...
Figure 1. A, Synergistic divergence occurs on attempted right gaze with the left eye abducting instead of adducting. B, Exotropia of the left eye in primary position. C, Left-eye abduction is limited on left gaze. D, On sucking, the left eye shows adductive movements leading to convergence. The left palpebral fissure is slightly narrowed.

Figure 2. Schematic representation of multiple misinnervations stimulated by the lack of innervation of the lateral rectus (A), leading to the misrouting of oculomotor nerve fibers to the lateral rectus, which results in insufficient innervation of the medial rectus (B), thus possibly inducing the misrouting of trigeminal motor nerve fibers to the medial rectus (C). LP indicates lateral pterygoid muscle; LR, lateral rectus muscle; MR, medial rectus muscle; mV, motor fibers of the fifth cranial nerve. Roman numerals are cranial nerve numbers.
associated with the congenital fibrosis syndrome\(^5\)). The recurring combination may lead to the assumption that these miswirings coincide and are precipitated by the same teratogenic disturbance during the second month of pregnancy, when extraocular muscle innervation develops.\(^6\) However, the apparent sequence of misinnervations seen in our patient and a similar patient who was previously reported\(^7\) prompt us to postulate that, in some cases, such miswirings not only happen simultaneously, but that one provokes the other to make a sufficient innervational stimulation possible at the motor end plate in the absence of original nerve sprouting.

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**From the Archives of the Archives**

Many authors, and particularly de Wecker, have believed that the efficacy of sclerotomy in cases of increased tension consisted in the development of a peculiar permeable scar—a filtration scar. . . The scar is broadest in the outer layers of the sclera, then becomes narrower in the middle layers, and again becomes broader in the most internal portion of the sclera. . . The choroidal scar is much more extensive than the scleral scar. . . With the choroidal scar is intimately connected that of the retina.