

Two hypothetical nystagmus procedures: augmented tenotomy and reattachment and augmented tendon suture (Sans tenotomy).

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Abstract

PURPOSE:

To review the hypothetical mechanism and therapeutic benefits of the four-muscle tenotomy and reattachment (T&R) procedure using knowledge accrued over the 10 years since its proposal; to describe an augmented tendon suture (ATS) technique to improve the procedure based on one of the originally suggested alternative methods (mechanical); and to hypothesize a new ATS procedure to achieve the same therapeutic benefits without extraocular muscle tenotomy or reattachment to the globe.

METHODS:

Standard surgical methods were used.

RESULTS:

The T&R procedure damps and improves infantile nystagmus syndrome (INS) waveforms, improves extended Nystagmus Acuity Function (NAFX) values, broadens the NAFX peak versus gaze angle, and damps slow eye movements but not saccades. The T&R procedure also damps acquired pendular and downbeat nystagmus, decreasing the patients' oscillopsia, and lowers the target acquisition time in INS.

CONCLUSION:

The T&R procedure directly affects only the enthesis of the tendon; there is idiosyncratic variation in the distribution of afferent fibers in the tendons. The ATS technique consists of placing several additional sutures in the tendon proximal to the tenotomy. Based on the hypothetical proprioceptive mechanism for the beneficial effects of the T&R procedure, the authors hypothesize that the ATS technique will maximize the therapeutic benefits and that an ATS procedure, using only tendon sutures without tenotomy, will duplicate the therapeutic effects of T&R. Eliminating the tenotomy component results in a simpler procedure more suitable for single-session, multi-muscle surgery that may be required for improving the waveforms of multiplanar nystagmus and less prone to cause complications.