A new technique for the diagnosis and follow-up of strabismus, and special surgical solution in complicated cases of strabismus

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Strabismus is a common condition, and is often challenging for the orthoptist and surgeon, as well as the patient. This condition, in which the eyes are not properly aligned, may present at any time during childhood or adulthood; it may also present occasionally or constantly, or appear abruptly or slowly. Presenting during childhood, there is a risk of amblyopia, while if onset occurs during adulthood, it is more likely to result in double vision. Strabismus can be caused by many factors, including trauma, infection, inflammation, tumours, or other problems concerning the brain or the region around the eye.

In the present work, two different studies have been carried out on the diagnosis and follow-up of strabismus, and the surgical results in patients undergoing surgery for strabismus at the University Hospital in Skåne have been evaluated.

In the first study, a digital KM screen test, a novel computerized eye motility test, was introduced and compared to the Lees and Hess tests (1). The majority of the patients (83%) preferred the digital KM screen test to the other two methods (p=0.008). The KM screen test was less time-consuming than the Hess and Lees tests (p≤0.003), and Bland-Altman plots showed that the results obtained with all three tests were similar. These findings indicate that the digital KM screen test would be of benefit in the clinical setting.

The second study led to two publications. The first is a short communication that describes a novel surgical technique employing donor sclera in complicated cases of strabismus surgery (3)*, while the second presents the evaluation of the clinical outcome of the use of donor sclera in patients with complicated strabismus (2)*. Retrospective analysis was carried out on the results of surgery on 117 patients with endocrine ophthalmopathy and childhood strabismus, who had received donor sclerae during strabismus operations from 1994 to 2014. Most of the patients were satisfied with the surgical results. The angle of deviation was substantially reduced in cases of exotropia, esotropia and vertical strabismus, and minor complications were observed in 4 patients. The results therefore support the use of donor sclerae in strabismus surgery.

In conclusion, the digital KM screen test appears to offer advantages over the Hess and Lees screen tests in the clinical setting. The use of donor sclerae in complicated cases of strabismus has no adverse effects, and results in good outcome.
Original publications
1. Comparison of a new digital KM screen test with conventional Hess and Lees screen tests in the mapping of ocular deviations

2. Clinical Evidence Supporting the use of Donor Sclera as Spacer Material in Complicated Cases of Strabismus Surgery – Retrospective Evaluation of Surgical Results in 117 Patients with Thyroid-Associated Ophthalmopathy or Congenital Strabismus
Thorisdottir RL, Blohmé J, Malmsjö M. Acta Ophthalmologica. Accepted for publication. In press.

Short communication
3. A novel surgical technique employing donor sclera in strabismus surgery