NORMOSENSORIAL LATE CONVERGENT STRABISMUS

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ABSTRACT

104 children with convergent squint cured after surgery will be discussed. Criteria of cure are a negative unilateral cover test and stereopsis with random dots. The clinicals picture of normosensorial late convergent squint is studied in relation to onset of squint, refraction, pre- and postsurgical treatment and differential diagnosis. Average of onset was at 3 years 7 month, often already in the morning, mostly acute and intermittent at the beginning. No child starting to squint before age 1 1/2 could be cured. It results that normal binocular vision can only be reached, when this is already present before the onset of squint.

The question of real cure in esotropia is a highly controversial one. Reports of cure vary from 10% to 95%.

For many years I have been interested in the simple question, which children with convergent strabismus I had really cured by surgery (Lang 1968). Some years ago I presented 50 (Lang 1978), later on 70 such cases (Lang 1981). At that time I was using the unilateral cover test as a negative criterion of cure. When after treatment the unilateral cover test still showed a manifest deviation, and be it only a microtropia, no orthotropia and therefore no real cure was reached.

Some authors advocate that only orthophoria is a cure. Orthophoria means no deviation on the alternating cover test. But we should bear in mind, that even in normal subjects orthophoria is a rare condition and that we should not try to do better than nature itself.

A positive criterion of cure is full stereopsis for distance and near. But we all have experienced, that in microtropia there may be excellent stereopsis on the Titmus test in spite of a manifest deviation.

The situation has changed with random dot stereotests which do not allow stereopsis in microtropias. I now define as a positive criterion of cure, "full vision in both eyes and stereopsis with random dots". For this purpose, I use my stereotest which, due to the technique of cylinder gratings does allow examination without using dissociating polarised or red-green glasses, and is quickly performed in 5 to 10 seconds.
Let us now look at 104 children collected during 28 years in my private practice. All ended up with an orthotropia in all directions of gaze. 91% had random dot stereopsis.

In studying those cases the importance of case history is revealed again, and the old saying that in medicine the case history already means half of the findings proves to be true again.

The most striking feature in our patients is the late onset of strabismus: on an average at the age of 3.7 years. We were not able to cure one case starting to squint below 18 months.

![Bar Chart](image)

**Fig.1:** Onset of strabismus in 104 cured children, average 3.7 years.

In almost all of the cases the onset was not gradual, but acute or sudden. At the beginning the strabismus was usually intermittent and then became constant. The children with the earliest onset we could cure had a long intermittent phase.

Another peculiar feature was that often strabismus did not start in the evening or with fatigue, but in 25% was observed immediately on waking up in the morning or after a nap. Those children seem to wake up as squinters, but after one or two hours the eyes may return to orthotropia. Sometimes the intermittent phase resembles the rhythm of alternate day squint.

Another symptom in these children is diplopia. Some children complain about diplopia, others may close one eye spontaneously or may cover it with their hand. 32% showed these symptoms or signs.

You must always ask specifically for this information because it tends to get forgotten quickly by the parents. Let me quote the case of a boy aged
3 with onset of squint three weeks ago. At the first consultation he was accompanied by his father, a school teacher who denied the question of diplopia and closing one eye. When the same question was put to the mother accompanying the boy at the next consultation, she answered that of course the boy sometimes closed one eye, and had said to her that he could see her in two different places.

Fig.2: sudden onset at age 3.4, closes left eye.

Fig.3: sudden onset Monday morning age 2.6, cannot close one eye, covers with hand.
Sometimes these children are moody and irritated, and the parents often believe that the children squint on purpose, because they do so when angry. In reality they are angry because they squint and are irritated by diplopia and by the loss of stereopsis. They are unhappy and may stop drawing or running around and may even be afraid of sitting on a chair.

On examination the two pencil test shows their loss of stereopsis. On the synoptophor sometimes normal binocular vision at the angle of squint can be shown. Refraction shows almost normal distribution for this age.

In all cases full correction was given and in most cases prismatic correction was tried. But not in all cases could a prismatic orthotropia be reached. Surgery then all the same was carried out. My surgical procedure of choice in these cases has become a unilateral recession of 4 mm combined with a resection of 7 mm. Some cases switched to orthotropia immediately after surgery, other cases had to be helped by postoperative prisms or bifocals. In 10 cases I had to operate twice, in one patient three times.

Fig.4a: Sudden onset age 2.9, 4b: glasses and prisms, 4c: 5 years after operation: orthotropia and random dot stereopsis without glasses.

Differential diagnosis must be made with concomitant esotropia due to raised intracranial pressure, where no paresis can be detected in the beginning. I have seen two such cases: a pseudotumor cerebri and a subdural hematoma. One must always bear in mind this danger and not hurry immediately into surgery. On the other hand surgery should not be delayed longer than 6 months.

Neglected cases and failures are very depressing. Almost half of my cases have first been treated elsewhere without success in a nonsurgical way by glasses, prisms or orthoptics.

I feel that the clinical picture of normosensorial late convergent squint is not sufficiently known. I once saw an orthoptists daughter who at the
age of 3 years started an acute squint one morning, and her mother told me that she, as a doubting orthoptist had never really believed in similar case histories until she had seen it illustrated by her own daughter. Ophthalmologists also tend to suppress this clinical picture, be it that they do not like to admit that real cures are so rare, or be it that they prefer to attribute the cure to a special form of treatment they are performing and not just to the favourable prognosis of this condition.

This clinical entity is rare. It makes up about 11% among the group of esotropic children under the age of 11 operated on by me. I must add that as a surgeon I am cautious in many other cases, but quite aggressive in normosensorial ones. There is rarely a more satisfying experience for the parents, for our small patients and for the ophthalmologist than the cure of a normosensorial late convergent squint.

LITERATURE:

