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CASE NOTES

INCOMITANT STRABISMUS OF UNUSUAL ORIGIN*

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Case Reports

Case 1, a 16-year-old Hindu girl, was admitted to hospital on March 14, 1955, complaining of diplopia and turning in of the left eye for the last 10 months. The symptoms followed a wasp sting on the lid below the inner canthus (by the common wasp *Polistes habreus*). Acute, intense oedema of the lids and conjunctiva lasted for 3 days, during which the eye was completely closed. When the swelling subsided and lids could be opened, the patient experienced diplopia, particularly on looking to the left, and the left eye was turned in. Injections of vitamin B_1, cod liver oil by mouth, and an occlusive bandage over the right eye were ordered, but she gave up treatment after 30 days, and the symptoms persisted.

There was nothing relevant in the past history. Symptoms of asthenopia had been relieved by a −2D sph. correction 5 years previously. Nothing significant was noted in the family or personal history.

Examination.—The left eye was convergent 25°, as tested with the pen-torch. There was slight limitation of laevo-version with increase in diplopia on looking to the left.

The visual acuity in each eye was 6/36 J.1, and 6/9 J.1 with −2 D sph.

Synoptophore

Major Amblyoscope	15° to left	Ahead	15° to right
Fixing right	26°	25°	24°
Fixing left	30°	27°	26°

The Hess screen test showed limited action of the left external rectus muscle.

Diagnosis.—Left external rectus paresis.

Operation.—Advancement of the left external rectus muscle, with 5 mm. recession of the left internal rectus muscle.

Result.—On the 15th day after operation the eyes were parallel, but there was slight diplopia on extreme laevo-version

Synoptophore

Major Amblyoscope	15° to left	Ahead	15° to right
Fixing right	3°	1°	1°
Fixing left	5°	2°	2°

The range of fusion at this time was only 4°. After fusion exercises for about 6 weeks this increased to 25°.

The patient has not reported back for further examination.

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Comment

The case was clearly one of left external rectus paresis following a sting. The formic acid thus injected results in an acute allergic and inflammatory reaction in the tissues (probably due to liberation of histamine) leading to accumulation of a toxic transudate in the affected areas. The transudate, in this case, diffused into the conjunctival sac, and the conjunctival tissues shared the inflammatory reaction. The abducens nerve endings were affected by the toxic contents of this transudate, and this led to paresis of the external rectus muscle. This nerve has a peculiar predilection for giving up its function on the slightest pretext. Probably this is the weakest nerve and cannot stand as much strain as the others, which would account for the solitary involvement of the external rectus in this case. The deficient range of fusion may have been a contributory factor.

Case 2, a 25-year-old man, a record keeper in a local office, had had aches and pains in the outer part of left eye for the last 6 months. The symptoms increased on dextro-version, and the effort produced diplopia which increased with the increased attempt to move the eye in this direction. About a year ago there had been an episode of acute conjunctivitis, with acute redness and swelling of the conjunctival sac and lids for 4 to 5 days. Though antibiotic therapy gave appreciable relief, a patch of congestion remained at the outer canthus under the outer part of the upper lid. A nodular swelling had started to develop at this site and in the last 4 months had assumed the size of a large pea, and an outward deviation of the left eye was noted. The patient had eaten pork about 10 years before and again one year ago.

Examination.—There was a 7° divergent strabismus in the left eye. Beneath the outer third of the upper lid, above the outer canthus, was a tense, pinkish-grey, sub-conjunctival swelling the size of a pea. It was tender to the touch, and around it the conjunctiva was congested for an area of about 4 mm. (Fig. 1).

The other ocular structures and the fundus were normal. The visual acuity was 6/6 J.1 in each eye and there was no error of refraction. The eye movements were normal in all directions, except for the difficult and painful extreme dextro-version.

FIG. 1.—Appearance of Case 2 before operation.

Synoptophore

Major Amblyoscope	15° to left	Ahead	15° to right
Fixing right	L/R 1Δ	L/R 1Δ	L/R 1Δ
Fixing left	L/R 1Δ	L/R 1Δ	L/R 1Δ
	−2°	−3°	−7°

The Hess screen revealed limitation of action of the left internal rectus and over-action of the right external rectus.

The total leucocyte count was 8,700 per cent., polymorphs 69 per cent., lymphocytes 24 per cent., monocytes 1 per cent., eosinophils 6 per cent.

Operation.—The cyst was removed under local anaesthesia. It was found embedded

in Tenon's capsule, lying in contact with the upper border of the left external rectus muscle. It was ovoid, pearly-white in colour, about 4 mm. across, with a dense white spot near the narrow end resembling a typical cysticercus cellulosæ; a probable diagnosis was made on the operation table.

Histological Report (by Dr. Gurbachan Singh of the Pathology Department).—Microscopic examination of the cyst showed a typical characteristic appearance of a double-walled connective tissue capsule. The outer wall of the capsule showed infiltration with chronic inflammatory cells. Its inner surface was lined with the continuation of the epithelium of the tortuous canal of the body of the larva (Fig. 2).

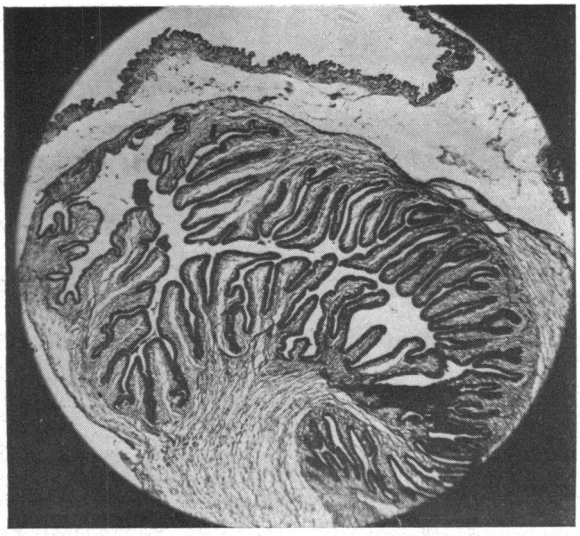

FIG. 2.—Histological appearance of cyst in Case 2, showing body of larva. In this section, the head and the neck of the larva were not discernible.

Radiological examination of the other parts of the body revealed no calcified cysts.

Result.—There was marked relief of the diplopia on the seventh post-operative day, and on the 15th day the following measurements were made:

Synoptophore			
Major Amblyoscope	15° to left	Ahead	15° to right
Fixing right	L/R 2½Δ	L/R 2½Δ	L/R 2½Δ
Fixing left	L/R 2½Δ	L/R 2½Δ	L/R 2½Δ
	−1°	−1°	−1°

3 months after the operation the eyes were parallel in all directions of gaze, with unrestricted movement in all directions. There was no diplopia and a normal Hess chart.

Synoptophore			
Major Amblyoscope	15° to left	Ahead	15° to right
Fixing right	L/R 2½Δ	L/R 2½Δ	L/R 2½Δ
Fixing left	L/R 2½Δ	L/R 2½Δ	L/R 2½Δ

Comment

Ocular cysticercus cellulosae is a rare condition. Duke-Elder (1952) refers to 372 cases of ophthalmic infections by such cysts in the ocular structures.

The lesion may appear as a localized hemispherical swelling anywhere in the ocular structures, commonly at the lower inner angle of the eye in the

lower fornix, and is sometimes intra-ocular. There is a severe inflammatory reaction with chemosis of the conjunctiva, oedema, and much pain. Ptosis, optic neuritis, and paresis of external muscles may also occur.

In the case reported above the symptoms came on one year after eating pork. The initial severe inflammatory reaction subsided leaving behind a congested patch at the outer canthus. At operation the cyst was found embedded in Tenon's capsule and adherent to the sheath of the external rectus muscle. This muscle was consequently in a state of irritation, and this resulted in constant overaction and consequent paresis of the internal rectus leading to a divergent strabismus of 7°. This theory of the cause of the strabismus is proved by the relief of the strabismus and diplopia which resulted from the removal of the cyst.

The constant hyperphoria of 2△ may probably have been a pre-existing one. This was probably reduced by the effect of the cyst weighing down on the eye.

Summary

(1) Two cases of incomitant strabismus are reported.

(2) In one case, the cause was a toxic neuritis of the sixth nerve caused by toxins in the inflammatory transudate produced from a sting of the common wasp. Surgery was followed by relief of both diplopia and strabismus.

(3) In the second case, the strabismus was due to an irritative spasm of the external rectus muscle caused by a cysticercus cellulosae which was embedded in Tenon's capsule in relation to the sheath of the muscle. Removal of the cyst was followed by a relief of both strabismus and diplopia, the main subjective symptoms in the case. A pre-existing hyperphoria had been diminished by the weight of the cyst.

We are grateful to Dr. G. S. Malhotra, for giving fusion exercises to Case 1.

REFERENCE

DUKE-ELDER, S. (1952). "Text-book of Ophthalmology", vol. 5, p. 5476. Kimpton, London.