Inadvertent intrachoroidal silicon oil injection: a 5 y.o. follow-up

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Introduction:
Silicone oil is an important adjunct for intraocular tamponade in treating retinal detachment. Since many years, silicon oil toxicity is pointed out, either on retinal micro-architecture as demonstrated by OCT and microperimetry or on IOP due to direct trabecular blockade. However, one of the worst complication in mind is the presence of S.O. into the cerebral ventricles, for unknown reasons. One possible explanation would be a passage through the optic nerve sheath.

Aim:
We wanted to present the case of a 55 y.o. male who developed an inadvertent silicon oil injection into the choroidal space during a vitrectomy for RRD and the resultant 5 y.o. follow-up.

Case report:
A patient presented in 2010 in our consultations, reporting the presence of floaters and a decreased VA since 3 days in the LE. Examination demonstrated the presence of a bullous rhegmatogenous retinal detachment extending from 9 to 7 o’clock, macula OFF, with a hypotonia, a choroidal detachment, and vitreous haemorrhages. The causative break was a huge superior break extending from 10 to 3 o’clock involving the superior vascular arcades, associated to multiple breaks from 5 to 7 o’clock and a giant macular hole. Unfortunately, even with an appropriate management using a SF6 tamponade to obtain a repositioning of the retina, this giant MH did not initially closed and, 5 weeks after the initial procedure, the patient developed a redetachment due to a PVR C12A. He thus underwent a second surgery that required a superior 180° retinotomy to relax the anterior PVR associated to a silicone oil (SO) injection. Postoperatively, retina was flat and MH closed but with a huge central atrophy. However, the patient redetached following a recurrent superior PVR and thus underwent a new 23G vitrectomy.

During the PFCL-Silicon oil exchange, the infusion line has moved back from its normal location following an inadvertent movement from the surgeon assistant who did not measured the danger of this incident and did not mentioned it. Silicone Oil was indeed injected in the choroidal space until surgeon observed a choroidal detachment progressing per-operatively. Infusion line was thus switched to another trocar and the causative trocar was removed, conjunctiva opened, and sclerotomy enlarged to allow the passive extrusion of SO. Silicone oil was thus injected again from another trocar to increase intraocular pressure in order to remove SO from the choroidal space.

PFCL was then completely aspirated from the posterior pole with the flute needle. However, a small layer of presumed persistent SO was left in place in the choroidal space due to its impossibility to extrude it. The sclera was sutured and the surgery was finalised.

From the following day, the patient presented a “scleral-like” indentation superiorly due to a small, peripheral, choroidal persistence of SO in the extreme periphery. The retina is stabilised without any further PVR development but the eye has a poor visual prognosis and accordingly to patient decision, the SO was left in place in the choroidal space. Last MRI and CT scans did not show any problem in the brain.

In conclusion:
Like for any other sort of liquid infusion into the choroidal space, SO can be extruded through an enlargement of the sclerotomy associated to an increased intra-ocular pressure to flush out the intrachoroidal Oil. A follow-up of 5 years allows us to say that it is not associated to side effects in our case, either in the eye or in the brain.

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