Serous retinal detachment secondary to intra-arterial Melphalan chemotherapy for retinoblastoma.

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Purpose

To report a case of a patient treated with intra-arterial Melphalan because a bilateral retinoblastoma, with envolved to serous retina detachment.

Methods

Review the medical records of the patient and describe his case report.

Case report

A 2-year-old male patient was referred to the Ocular Oncology sector due to leukocoria associated with divergent strabismus in both eyes. Fundoscopy and documentation with Retcam was performed during examination under anesthesia (EUA) (Image 1).
Group D retinoblastoma lesions were verified and treatment with cryotherapy and systemic chemotherapy was indicated.

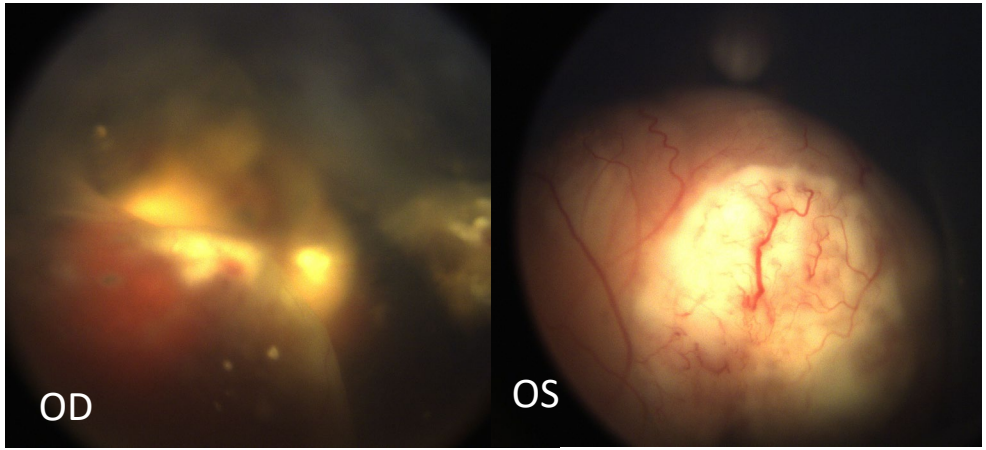

Image 1: Shows an endophytic lesion in the upper region associated with extensive retinal detachment and vitreous seeds in the right eye (OD) and a single, large lesion in the lower nasal region associated with retinal detachment in left eye (OS).

After the 6 cycles of sistemic chemotherapy there was there was important regression of the lesions (Image 2). However, after 8 months, patient showed signs of disease activity in the left eye (OS) with the presence of subretinal seeds (Image 3), and intra-arterial chemotherapy (IAC) with Melphalan was indicated in the OS, the eye that had a completely preserved macula.

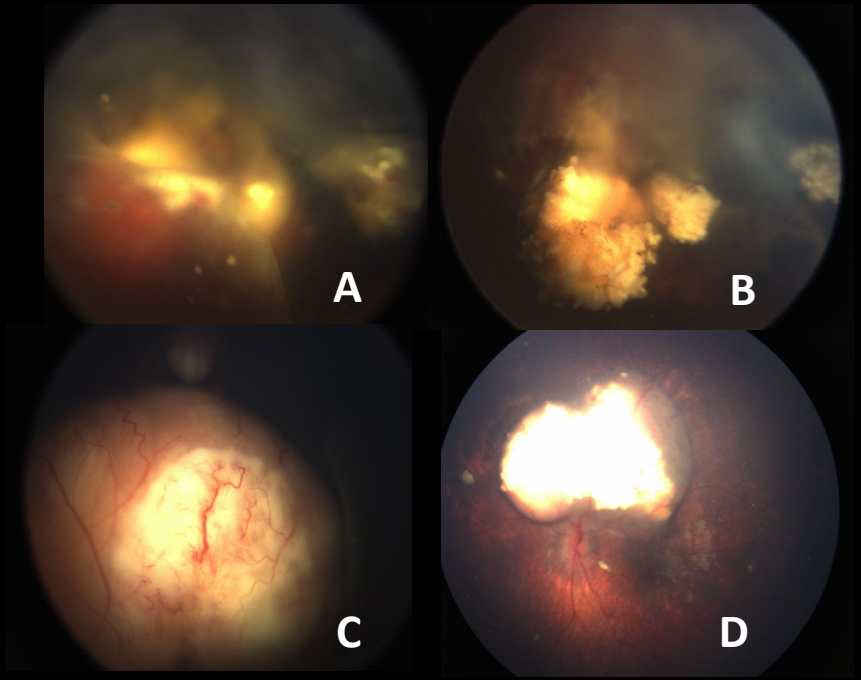

Image 2: shows the right eye before (A) and after (B) the treatment, and the left eye before (C) and after (D) the treatment, with improvement of the lesions after the sistemic chemotherapy and ocular cryotherapy.

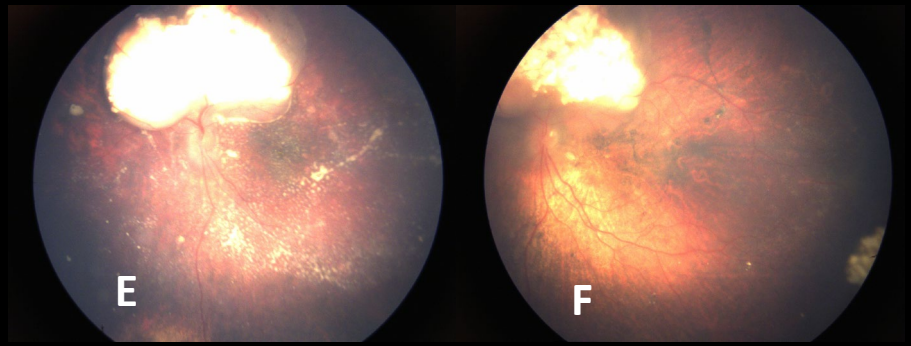

Image 3: shows the difference betwen the left eye before (F) and after (H) intra arterial chemotherapy with Melphalan.

Four weeks later, the mother notices worsening vision as the child was falling down more frequently. A new exam was carried out and evidenced subretinal and intraretinal fluid in OS (Image 4 - G), and media opacity in the OD bacause the cataract. Topical and oral corticosteroid was prescribed, with improvement of the subretinal fluid, despite the presence of new vitreous seeds at fundoscopy (Image 4 – H).

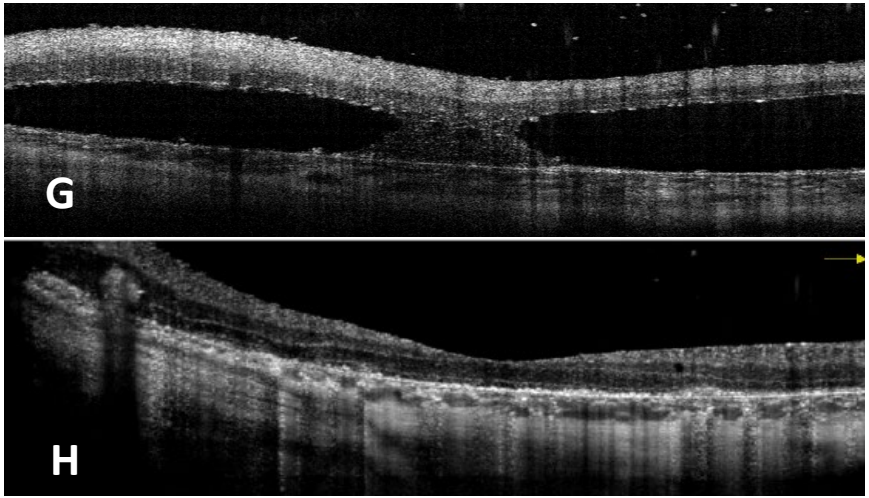

Image 4: Optical coherence tomography (OCT) of the OS, which showed edema in the inner layers of the retina and serous detachment in the macular region (G). After corticotherapy, improvement oh tomographic aspect (H), besides the atrophy of retinal layers.

Then, it was indicated a second cycle of IAC without Melphalan, so Carboplatin and Topotecan were used. After 4 months, in a follow-up EUA, there was important RPE and neurosensory retina atrophy in OS. There was also a new small Retinoblastoma lesion in the lower nasal quadrant of the right eye, close to the pars plana (Image 5).

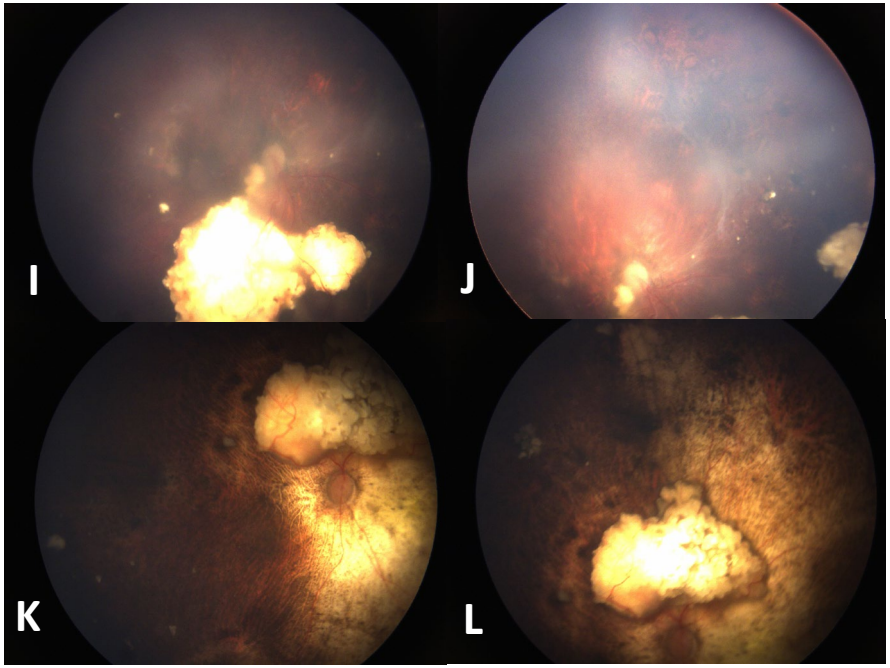

Image 5: In the right eye, we can see in the lower nasal region whitish área, considered a lesion suspected of recurrence (I and J).

This time, only local treatment with cryotherapy on the lesion was performed and the patients is currently now under monthly follow-up with no recurrences.

Discussion

Despite its minimally invasive nature, intra-arterial chemotherapy can present potential complications. Among the most commonly presented are hyperemia and periocular edema (28.5%), neutropenia (11.9%), bronchospasm (10.9%), ptosis (5.6%), chorioretinopathy (2.8%) and skin rash (2.5%).

Few ocular complications include extraocular muscle weakness, ophthalmic artery occlusion, choroidal atrophy, macular hemorrhage, avascular retinopathy, Purtscher-like retinopathy, cataract formation, retinal artery obstruction, optic neuropathy, and phthisis bulbi.

Conclusion

So far, no reports of macular edema and serous retinal detachment associated with intra-arterial chemotherapy with melphalan have been found in the literature. Our study draws attention to a possible complication of this therapeutic modality, which may lead to a reduction in the child's visual acuity, directly impacting their quality of life.

References

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2- Shields CL, Lally SE, Leahey AM, et al. Targeted retinoblastoma management: when to use intravenous, intra-arterial, periocular, and intravitreal chemotherapy. Curr Opin Ophthalmol. 2014;25(5):374–385.