Stasis In Ophthalmic Artery: A Rare Complication Post Intra-Arterial Chemotherapy For Retinoblastoma

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Disclosure

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Retinoblastoma (Rb) is the most common primary intraocular tumor in children, 90% of them are diagnosed before the age of 5.
- In Latin America, the diagnosis is typically at an older age.
- Rb represents 4% of all pediatric cancers. In Mexico, the incidence is of 24 cases per one million inhabitants.
- Survival rates for early-diagnosed patients with Rb range between 90-95%.
- We describe the case of a 3-year old female patient who presented to the hospital with a 3-week history of leukocoria in the left eye. The diagnosis of unilateral Rb was made and treated with intra-arterial chemotherapy (IAC) using melphalan. During treatment, ophthalmic artery (OA) developed stasis, which was managed using acetylsalicylic acid.
Methods

- External examination:
  - Leukocoria in the left eye (OS).
- Magnetic resonance imaging (MRI) findings exhibit an irregular border lesion in vitreous cavity.
- Intraocular mass of OS; heterogeneous with calcifications that present acoustic shadow.
- According to the International Classification of Retinoblastoma (ICRB), the tumor was classified as a group C and D unilateral retinoblastoma.
Figure 1. Carotid angiography without superselective canalization of the ophthalmic artery.

a. Complete filling of the ophthalmic artery is observed (arrow) in the arterial phase, at normal filling of the internal carotid artery.

b. and c. At the beginning of the venous phase a delay in the emptying of the ophthalmic artery is observed.

d. In late venous phase, contrast is still detected within the ophthalmic artery.
Figure 2. 3rd angiography. Superselective canalization of the ophthalmic artery.

a. and b. Normal filling and emptying (respectively) of the ophthalmic artery is observed.


Results

- IAC was the choice of treatment considering the type of tumor, limited side effects and low enucleation rates this option entails.
- During the procedure, Melphalan with additional topotecan was infused by superselective left OA canalization.
- First dose of IAC was successful; no complications developed.
- A month later, the patient revealed a delay in the emptying of the ophthalmic artery; impeding the continuation of treatment with succeeding IAC as scheduled.
Results

- Substituting second IAC, the patient received intravenous chemotherapy (IVC).
  - Simultaneously, a dose of 3mg/kg of ASA was initiated to manage stasis in OA.
- At the third month of treatment (a month post IVC), OA returned to exhibit a normal flow, enabling the administration of the second IAC, followed by three more cycles to conclude treatment.
- Since the patient received “bridge” therapy (IVC), the use of ASA continued to prevent stasis in OA during the remaining treatment.
The most common complications of IAC are madarosis, periocular edema, neutropenia, reduction in oxygen saturation during treatment and vitreous hemorrhage.

The use of acetylsalicylic acid in pediatric patients is linked with a greater risk of developing Reye's syndrome; a rare but severe disorder that causes swelling in the liver and brain.
Summary points

- In order to safely administer IAC, it is necessary to verify a normal flow of the OA.
- Stasis in OA post IAC is an infrequently described complication.
- Acetylsalicylic acid treatment for pediatric use may be a viable alternative to be employed to avoid flow alterations in the ophthalmic artery.
- Additional studies are fundamental to assess the long-term effects of the use of ASA in children, as treatment for this rare complication.