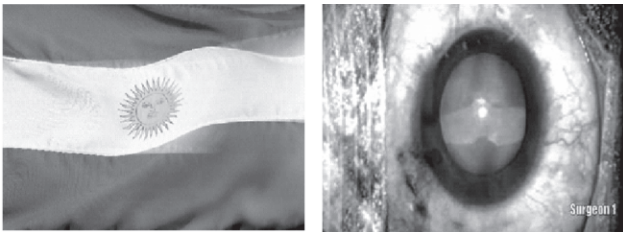


MANAGEMENT OF ARGENTINIAN FLAG SIGN IN INTUMESCENT CATARACTS

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Introduction :

The Argentinian Flag Sign occurs during capsulorhexis construction in white cataracts and intumescent cataracts. Due to the overbearing pressure of the cataract, the anterior



capsule tears and extends to the periphery. When this occurs, the appearance of the stained blue anterior capsule beside the white cataract mimics the blue-white-blue pattern of the Argentinian flag and was named the Argentinian Flag Sign (Figure 1). Daniel Mario Perrone, M.D. coined the term, and his video won awards at the 2000 American Society of Cataract & Refractive Surgery and the European Society of Cataract & Refractive Surgeons annual meetings. Once this occurs, the remainder of the cataract extraction can become extremely difficult and can lead to many complications, such as posterior capsule rupture, vitreous loss, retained nucleus, and endothelial damage due to prolonged surgery time.

Intumescent cataract has 2 rather than 1 pressurized compartments within the crystalline lens, the anterior and the posterior. The pressure that pushes the nucleus upward, which is the movement responsible for a radial tear of the anterior capsule, does not come from the

vitreous but from the posterior intralenticular pressurized compartment.

Techniques :

Steps to avoid it :

1. To avoid this complication, first of all, choose the correct viscoelastic agent to maintain a deep anterior chamber during the capsulorhexis process, because anterior displacement of the irido-lens diaphragm produces centrifugal forces that lead the tear toward the periphery.

2. A second issue is to avoid creating outer and inner tension on the lens. External tension can be caused by the speculum, especially in narrow orbits. Another cause may be excess in parabolbar anesthesia. The main reason is the high tension on the lens capsule due to hyperhydration of lens fibers.

3. One method for preventing the Argentinian Flag Sign is by introducing a 27-gauge needle on a syringe into an intact anterior capsule. The needle is used to aspirate the liquefied cortex, thereby depressurizing the nucleus, which facilitates a controlled capsulorhexis.

4. Alternatively, a CCC can be created using a two-stage technique, which can help prevent unexpected radial tears.

5. The phacocapsulotomy technique, in which introduce the phacoemulsification tip through the center of an intact anterior capsule and aspirates a portion of the lens. This simultaneously creates the initial anterior

capsule puncture and removes some of the liquefied cortex and nucleus. Phacocapsulotomy debulks and depressurizes the entire lens/capsule apparatus, and removes the impetus for the capsule to tear outward. Once enough of the cortex is aspirated, OVD is injected and a leaflet of the capsule can be grasped with a forceps, and the capsulorhexis can be completed without complication.

Management :

Whenever the tear leads toward the periphery, we should begin a new tear to correct it. But in this case, we have two tears - one anterior to the other. Therefore, we will have to finish the rhexis in a can-opener style or re-grasp the tear after creating a new one. This can be done with a bent needle, forceps or micro-scissors.

The next step is nucleus management. It is a must to avoid perpendicular forces against the capsular tear because of the high risk of extending the tear toward the posterior capsule. The nucleus can be cracked or divided into two heminuclei with a soft vertical chop or with a sculpting technique. Phacoemulsification should be done in the iris plane. Fortunately, these cataracts are not too hard.

IOL implantation may be done in the bag, taking care not to enlarge the existing tear and placing the haptics perpendicular to it.

Discussion :

Argentinean flag sign is the most common complication when performing capsulorrhexis in intumescent cataracts stained with trypan blue. AFS can occur in the hands of even the most skilled surgeon. At that point, it is crucial to remember not to panic and calmly prevent the tear from extending around the equator. AFS occurs because pressure between the

anterior chamber and the posterior chamber is not stable. To avoid AFS start with a small rehexis, choose the right viscoelastic and avoid tension on the lens. Phacocapsulotomy is an effective technique to debulk the lens and remove the impetus for the AFS to occur. But in some white cataract cases it is too problematic for phaco. In those cases, manual small incision surgery is best.

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