

CATARACT SURGERY IN SPECIAL CASES

Hypermature Cataract

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Hypermature cataract (hypermature, white cataract, or Morgagnian cataract) represents an end stage in the process of aged cataract formation, in which the cortical lens fibers become liquefied to produce a milky fluid, which, due to hypertonicity, imbibes fluid and leaves a very tense capsule with a nucleus often suspended in a gelatinous and fluid cortex.^{1,2} In addition to severe visual impairment, serious sequelae such as phacolytic glaucoma may occur in these patients and cause irreversible visual damage. Therefore, hypermature cataracts should be operated on as soon as possible.^{1,3} The capsule may also leak lens proteins and cause phacotoxicity characterized by signs of iritis often accompanied with phacolytic glaucoma. The first signs of intraocular inflammation should be considered semiemergent and a reason to do cataract surgery within days.

There are potential pitfalls and considerations when performing cataract surgery on hypermature cataracts, which include the following:

1. Lack of red reflex causes difficult visualization of the anterior capsule against the white background.
2. The release of milky cortex obscures the surgeon's view as the capsulorrhexis is initiated.
3. The liquefied, swollen cataractous material places pressure on the capsule, and thus extension of the capsulorrhexis to the lens equator or beyond can occur by just opening the capsular bag.

Preoperative A-scan ultrasonography can provide a clue to the presence of liquefied cortex with high internal acoustic reflections within the lens profile. Anterior segment optical coherence tomography (OCT) can show multiple fluid interfaces. In the presence of indocyanine green (ICG) capsular staining, this has been called the dreaded *Argentinian flag sign*, signifying the 2 stained flaps of capsule split down the middle with white liquefied cortex emerging in between. The run out may zip across the posterior capsule.

4. A freely mobile nucleus is hard to hold in place and hard to perform typical removal maneuvers such as divide and conquer.
5. A hard nucleus with no protective cortex or epinucleus can result in a high rate of posterior capsule rupture during phacoemulsification.
6. With the leakage of lens protein in the anterior chamber (AC), these eyes may present with uveitis and characteristic white particulate in the AC and/or elevated intraocular pressure (IOP). Frequent topical steroids and IOP-lowering medications should be used preoperatively, and surgery should be performed expeditiously in these situations. Postoperatively, once the offending cataract is removed, the uveitis and IOP rapidly resolve with short-term postoperative medical therapy.