

From Black to Bright: Successful Management of Cataracta Nigra by Manual Small Incision Cataract Surgery

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Abstract: *Rock-hard (brunescant) cataracts remain among the most challenging cataracts because of dense nuclear sclerosis, poor red reflex, increased surgical manipulation, and risk of endothelial damage. We report the successful management of an 85-year-old diabetic and hypertensive male with cataracta nigra using manual small incision cataract surgery (MSICS). Pre-operatively, the patient had perception of light with accurate projection of rays in the right eye. Fundus visualization was not possible, and B-scan ultrasonography confirmed an attached retina. MSICS was performed by a consultant ophthalmologist with wire vectis-assisted nucleus delivery and implantation of a foldable posterior chamber intraocular lens. The surgery was uneventful. Visual acuity improved to 6/60 on postoperative day 1, 6/36 after one week, and 6/12 unaided at one month with an intraocular pressure of 18 mmHg. This case highlights the effectiveness of MSICS for advanced brunescant cataracts while minimizing intraoperative complications.*

Keywords: Cataracta nigra, Black cataract, Brunescant cataract, MSICS

1. Introduction

Advanced brunescant cataracts (cataracta nigra) continue to be encountered in elderly patients, particularly in developing countries. These cataracts are characterized by an extremely hard nucleus that makes surgery technically demanding and increases the risk of endothelial injury, posterior capsular rupture, zonular stress, and postoperative corneal edema.¹ Although phacoemulsification is widely accepted as the standard technique for routine cataract surgery, MSICS remains a valuable alternative for dense nuclei because it avoids prolonged ultrasound energy and permits safe delivery of the nucleus through a self-sealing scleral tunnel.

2. Case Report

An 85-year-old man with diabetes mellitus and hypertension presented with progressive painless diminution of vision in the right eye for six months. Best-corrected visual acuity was perception of light with accurate projection of rays in the right eye and 6/36 in the left eye. Slit-lamp examination revealed cataracta nigra in the right eye with adequate pupillary dilatation. The posterior segment could not be visualized because of the dense cataract. B-scan ultrasonography demonstrated an attached retina. The left eye showed grade 3 nuclear sclerosis with mild non-proliferative diabetic retinopathy without clinically significant macular edema.

Following informed consent, MSICS was performed. After creation of a scleral tunnel and capsulorhexis, careful hydrodissection was carried out. The dense nucleus was delivered using a wire vectis, followed by cortical aspiration and implantation of a foldable posterior chamber intraocular lens. Sutures were placed to secure the wound. No intraoperative complications occurred.

Postoperatively, visual acuity improved to 6/60 on day 1, 6/36 at one week, and 6/12 unaided at one month. Intraocular pressure at follow-up was 18 mmHg. Mild postoperative corneal edema resolved with routine medical treatment.

3. Discussion

Advanced brunescant cataracts are technically demanding because of dense nuclear sclerosis, minimal cortical support, and difficulty in nucleus fragmentation. These factors can increase surgical time and the risk of endothelial damage, wound burns, zonular compromise, and postoperative inflammation.² Careful surgical planning and meticulous technique are essential to optimize outcomes. The crater-and-chop technique was first described by Vanathi et al.¹ Park et al. found that phaco-chop caused less endothelial cell loss and improved surgical efficiency compared with divide-and-conquer and stop-and-chop techniques in hard cataracts.³ Upadhyay et al. later demonstrated that a modified endonucleation (crater) chop technique further reduced effective phaco time, balanced salt solution use, and endothelial cell loss compared with the conventional crater-chop method.⁴ In the present case, MSICS was selected because the dense nucleus could be delivered through a scleral tunnel without relying on prolonged ultrasound energy. This approach reduced intraocular manipulation while facilitating controlled extraction of the nucleus using a wire vectis. Adequate preoperative assessment, B-scan evaluation when fundus visualization is not possible, gentle tissue handling, and appropriate nucleus delivery are critical for success. In the present case, careful preoperative planning, wire-vectis-assisted nucleus delivery, and implantation of a foldable posterior chamber intraocular lens resulted in an uncomplicated surgery with progressive visual improvement from perception of light preoperatively to 6/12 unaided at one month.

The favorable visual outcome in our patient and the absence of intraoperative complications reinforce the role of MSICS as a safe and effective technique for managing advanced cataracta nigra.

4. Conclusion

Cataracta nigra is an uncommon form of advanced cataract that presents significant surgical challenges. Careful preoperative assessment, appropriate wound construction,

and meticulous nucleus delivery allow MSICS to achieve excellent visual outcomes even in extremely dense nuclei.

Figure Legends

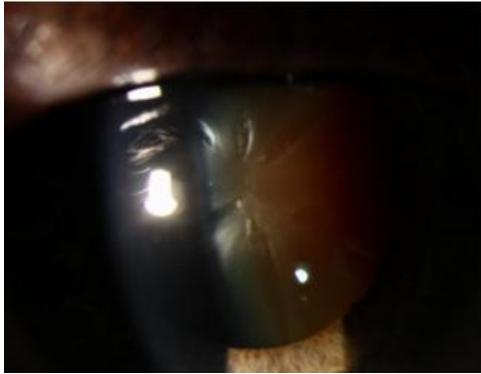


Figure 1: Slit-lamp photograph of the right eye demonstrating a dense brunescent (cataracta nigra) cataract with complete loss of the red reflex.

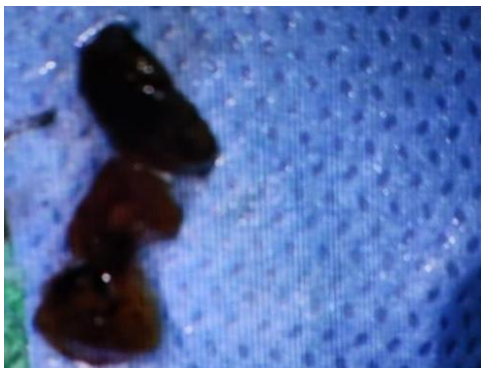


Figure 2: Extracted dense brunescent nucleus following manual small incision cataract surgery.



Figure 3: Intra-operative



Figure 4: One-month postoperative photograph showing a clear cornea and a well centered foldable posterior chamber intraocular lens.

References

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