



Universiteit
Leiden
The Netherlands

Advances in endothelial keratoplasty

Birbal, R.S.

Citation

Birbal, R. S. (2020, November 17). *Advances in endothelial keratoplasty*. Retrieved from <https://hdl.handle.net/1887/138387>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/138387>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/138387> holds various files of this Leiden University dissertation.

Author: Birbal, R.S.

Title: Advances in endothelial keratoplasty

Issue Date: 2020-11-17



Appendices

List of Publications

Acknowledgements

Curriculum Vitae

LIST OF PUBLICATIONS

1. Dockery PW, Parker JS, **Birbal RS**, Tong CM, Parker JS, Joubert KP and Melles GRJ. Clinical outcomes of Descemet membrane endothelial keratoplasty performed in eyes with comorbid keratoconus and corneal endothelial dysfunction. *Submitted for publication*
2. **Birbal RS**, Baydoun L, Ham L, Miron A, van Dijk K, Dapena I, Jager MJ, Böhringer S, Oellerich S and Melles GRJ. Effect of surgical indication and preoperative lens status on Descemet Membrane Endothelial Keratoplasty outcomes. *Am J Ophthalmol* 2020;212:79-87
3. **Birbal RS**, Parker JS, van Dijk K, Oellerich S, Dapena I and Melles GRJ. Hydrops after corneal perforation during manual deep anterior lamellar keratoplasty (DALK) for keratoconus. *Acta Ophthalmol* 2020;98:e522-3
4. **Birbal RS**, Ni Dhubhghaill S, Baydoun L, Ham L, Bourgonje V, Dapena I, Oellerich S and Melles GRJ. Quarter-Descemet Membrane Endothelial Keratoplasty: One- to two-year clinical outcomes. *Cornea* 2020;39:277-82
5. **Birbal RS**, Ni Dhubhghaill S, Bourgonje VJA, Hanko J, Ham L, Jager MJ, Böhringer S, Oellerich S and Melles GRJ. Five-year graft survival and clinical outcomes after Descemet membrane endothelial keratoplasty: Results of the first 500 consecutive cases. *Cornea* 2020;39:290-7
6. **Birbal RS**, Tong CM, Dapena I, Parker JS, Parker JS, Oellerich S and Melles GRJ. Reply to Comment: Descemet membrane endothelial keratoplasty in eyes with a glaucoma drainage device. *Am J Ophthalmol* 2019;208:440-1
7. Parker J, **Birbal RS**, van Dijk K, Oellerich S, Dapena I and Melles GRJ. Reply to Comment: Are Descemet membrane ruptures the root cause of corneal hydrops in keratoconic eyes? *Am J Ophthalmol* 2019;205:204-5
8. Tong CM, Parker JS, Dockery PW, **Birbal RS** and Melles GRJ. Use of intraoperative anterior segment optical coherence tomography for Bowman layer transplantation. *Acta Ophthalmol* 2019;97:e1031-2
9. Parker JS, **Birbal RS**, van Dijk K, Oellerich S, Dapena I and Melles GRJ. Are Descemet membrane ruptures the root cause of corneal hydrops in keratoconic eyes? *Am J Ophthalmol* 2019;205:147-52
10. **Birbal RS**, Tong CM, Dapena I, Parker JS, Parker JS, Oellerich S and Melles GRJ. Clinical outcomes of Descemet membrane endothelial keratoplasty in eyes with a glaucoma drainage device. *Am J Ophthalmol* 2019;199:150-8
11. **Birbal RS**, van Dijk K, Parker JS, Otten H, Belmoukadim M, Ham L, Baydoun L, Dapena I and Melles GRJ. Manual mid-stromal dissection to stabilize progressive corneal ectasia in keratoconus. *Eye Vis* 2018;11:5:26
12. Miron A, Spinozzi D, Bruinsma M, Lie J, **Birbal RS**, Baydoun L, Oellerich S and Melles GRJ. Asymmetrical endothelial cell migration from in vitro Quarter-DMEK grafts. *Acta Ophthalmol* 2018;96:828-33
13. Zygoura V, **Birbal RS**, van Dijk K, Parker J, Baydoun L, Dapena I and Melles GRJ. Validity of Bowman layer transplantation for keratoconus: visual performance at 5-7 years. *Acta Ophthalmol* 2018;96:e901-2
14. Dragnea DC, **Birbal RS**, Ham L, Dapena I, Oellerich S, van Dijk K and Melles GRJ. Bowman Layer transplantation for progressive keratoconus. *Eye Vis* 2018;12:5:24

15. Baydoun L, Zygoura V, Hsien S, **Birbal RS**, Spinozzi D, Lie J, Ham L, Oellerich S and Melles GRJ. Clinical feasibility of using multiple grafts from a single donor for Quarter-DMEK. *Acta Ophthalmol* 2018;96:e656-8
16. **Birbal RS**, Hsien S, Zygoura V, Parker JS, Ham L, van Dijk K, Dapena I, Baydoun L and Melles GRJ. Outcomes of Hemi-Descemet membrane endothelial keratoplasty for Fuchs endothelial corneal dystrophy. *Cornea* 2018;37:854-8
17. **Birbal RS**, Parker JS, Dirisamer M, Janicijevic A, Baydoun L, Dapena I and Melles GRJ. Descemet membrane endothelial transfer (DMET): Ultimate outcome. *Cornea* 2018;37:141-4
18. **Birbal RS**, Sikder S, Lie J, Groeneveld-van Beek E, Oellerich S and Melles GRJ. Donor tissue preparation for Descemet membrane endothelial keratoplasty (DMEK): An updated review. *Cornea* 2018;37:128-35
19. Livny E, Groeneveld-van Beek E, Lie J, Mangundap K, Bruinsma M, **Birbal RS**, van der Wees J and Melles GRJ. Minimizing graft preparation failure in Descemet membrane endothelial keratoplasty (DMEK). *Cornea* 2017;36:1452-7
20. Ham L, van Luijk C, Dapena I, Wong TH, **Birbal R**, van der Wees J and Melles GR. Endothelial cell density after descemet membrane endothelial keratoplasty: 1- to 2-year follow-up. *Am J Ophthalmol* 2009;148:521-7
21. Balachandran C, Ham L, **Birbal RS**, Wong TH, van der Wees J and Melles GR. Simple technique for graft insertion in descemet-stripping (automated) endothelial keratoplasty using a 30-gauge needle. *J Cataract Refract Surg* 2009;35:625-8
22. Lie JT, **Birbal R**, Ham L, Dapena I, van der Wees J and Melles GRJ. Reply to Comment by Athanasiadis I et al on: Donor tissue preparation for Descemet membrane endothelial keratoplasty. *J Cataract Refract Surg* 2009;35:408
23. Lie JT, **Birbal R**, Ham L, van der Wees J and Melles GR. Donor tissue preparation for Descemet membrane endothelial keratoplasty. *J Cataract Refract Surg* 2008;34:1578-83

Books/ Book chapters

1. Dockery PW, Parker JS, **Birbal RS**, van Dijk K, Tong M, Ambati B, Baydoun L, Dapena I and Melles GRJ. Bowman layer transplantation. In: *The Keratoplasty - Practical guide. Submitted for publication*
2. Tong M, Parker J, van Dijk K, **Birbal RS** and Melles GRJ. The Melles technique. In Jacob S (ed.): *Mastering DALK - A video textbook on Deep anterior lamellar keratoplasty*. 2019; Chapter 7
3. Parker JS, **Birbal RS**, van Dijk K, Tong M, Ambati B, Baydoun L, Dapena I and Melles GRJ. Bowman Layer Transplantation for Advanced Keratoconus. In Barbara A (ed.): *Controversies in the management of keratoconus*. 2019; Chapter 27
4. Parker J, **Birbal R** and Melles GRJ - *Picture Perfect DMEK: A visual guide to a beautiful operation*. 2018

ACKNOWLEDGEMENTS

It is with great pleasure that I am writing what will arguably be the most meaningful and most read chapter of this dissertation. I am greatly indebted to everyone who has, in some way, contributed to my personal or professional development, and would like to thank a few people in particular.

First and foremost, I wish to express my deepest gratitude to my greatest mentor Dr. Gerrit Melles. Dear Gerrit, I admire you for your creativity, perseverance, and vision, and would like to thank you for all the growth that I was privileged to experience under your tutelage. You truly inspire me.

I would like to acknowledge Professor Dr. Martine Jager. Dear Martine, I have been incredibly fortunate to have you as my adviser. Thank you for your invaluable guidance and support, not only throughout this endeavor but also beyond.

My sincere gratitude goes to all of our patients at the Melles Cornea Clinic Rotterdam who have generously shared their time, patience, and experiences, as well as to all our tissue donors and their families. Without them, corneal transplantation would not be possible.

I would like to extend a heartfelt thank you to the whole NIIOS team. Dr. Silke Oellerich, thank you for your invaluable guidance with all NIIOS research projects. Dr. Isabel Dapena and Dr. Lamis Baydoun, thank you for laying the foundation on which this thesis was built. Dr. Ruth Quilendrino, thank you for your kindness and warmth throughout this entire process. I feel honored to have you standing beside me as my paranymph on this special day. Professor Dr. Sorcha Ní Dhubhghaill, thank you for being a great mentor to me, and Dr. Jacqueline van der Wees, thank you for welcoming me back in the eye bank and for allowing me to advance my dexterity and eye banking knowledge.

Thank you to Dr. Stefan Böhringer and Dr. Laurence Frank for your help with the statistical analyses. Dr. Vincent Bourgonje, thank you for your assistance with cell counting and image acquisition. Dr. Hans Frank, working together again reminded me of old times. Thank you! Gertrude Kort, Kristin Mangundap, Katja Immerzeel, and Esther (Groeneveld-) van Beek, thank you for your friendship and for all that I was fortunate to learn from you.

It has truly been a privilege to work alongside and learn from the NIIOS fellows. I admire all of you for your wisdom, kindness, and taste for adventure. I have worked very closely with Dr. Vasiliki Zygoura and Dr. Diana Santander García and would like to thank the both of you for always teaching me in the clinic and beyond, and for all the fun moments that we were fortunate to share.

Dr. Shameema Sikder, thank you for your friendship and constant support. Dr. Maya Tong, thank you for being a trusted friend whom I can rely on for advice and fantastic colleague for our projects together and throughout the writing of this thesis.

I would like to express my deepest gratitude to Dr. and Mrs. John Parker, to Dr. and Mrs. Jack Parker, and to Allison Parker for welcoming me in their clinic and homes. Thank you for your endless kindness and Southern hospitality. Roll tide!

My deep appreciation also goes out to my most kind and knowledgeable colleagues from Visser Contactlenzen: Henny Otten, Dieuwke van de Wiel-van Ooik and Marieke Carsouw.

I would like to acknowledge my mentor Dr. Michel J.W. Zaal and all my other colleagues at the Ophthalmic Medical Center Zaandam and Jongsma Medical. Thank you for your kindness and your endless willingness to teach me. Frédérique Bak, thank you for introducing me into the world of ocular prostheses, and for your constant encouragement.

To my dear friends: thank you for your endless support for my research, and for continuously reminding me of all the beautiful things in life outside of ophthalmology. Thank you for dragging me away from my books so I wouldn't miss out on some of the best times we have had together. I am lucky to have you!

Dear Mala mousie, I have been blessed to have had you as my second mother and wish you were still here to experience this special day with me. Shanice, I am so proud of the beautiful young woman that you have become and feel honored to have you standing beside me as my paranymph today. Dear Robby, thank you for our culinary adventures and other exciting endeavors. Dear Vinod bhai and Mala bhaudjie, thank you for your spiritual guidance.

My dear parents, thank you for your endless love, support and encouragement; and for teaching me the value of hard work and perseverance. To my beloved father: You have been, without a doubt, one of the greatest blessings in my life. I miss you. My sister and brother, Roshnie and Gregory, thank you for continuously encouraging and supporting me to follow my dreams. Dear Martijn and Shivani, I am happy that you have both become irreplaceable parts of our family. To my sweet little nephew and niece, Shayan and Gia: You are my little rays of sunshine.

CURRICULUM VITAE

Rénuka Sadhna Birbal was born on October 24, 1987 in The Hague, The Netherlands. She graduated from secondary school (Atheneum, Segbroek College, The Hague) in 2005, after which she started her medical training at the Erasmus University Rotterdam. During the first few years of her medical training, Rénuka worked as an eye bank technician at the Amnitrans EyeBank Rotterdam (AER) and a research student at the Netherlands Institute for Innovative Ocular Surgery (NIIOS) in Rotterdam (supervisor: Dr. G.R.J. Melles). She completed clinical and research minors with the Department of Obstetrics and Gynecology at the Singapore General Hospital in Singapore and the Department of Trauma Surgery at the Groote Schuur Hospital in Capetown, South-Africa. After obtaining her medical degree in 2015, Rénuka worked as a medical doctor at the Department of General Surgery at the Haaglanden Medical Center in The Hague. In 2016, Rénuka returned to NIIOS as a medical doctor and a research fellow, where she was responsible for specialized cornea consultations and assisting corneal surgeries at the Melles Cornea Clinic Rotterdam, and processing donor tissue at the AER. She participated in multiple research projects on the topics of eye banking and advanced lamellar keratoplasty techniques designed and implemented at NIIOS. These include projects with Parker Cornea in Birmingham, AL, USA. As part of the NIIOS Academy, Rénuka contributed to regional and international instructional and wetlab courses on eye banking and lamellar keratoplasty. In August 2017, she was accepted for a joint PhD-position at the Leiden University Medical Center and NIIOS (advisors: Prof. Dr. M.J. Jager and Dr. G.R.J. Melles). During this period, she continued her clinical and teaching duties. Renuka has presented her research at various national and international conferences, including as an invited expert speaker for an American keratoconus symposium. In January 2019, she was a member of the organizing committee for the annual meeting of the European Eye Bank Association in Rotterdam. In the summer of 2019, Rénuka completed a clinical observership at the Anterior and Refractive Surgery Department of the Adolphe de Rothschild Hospital Foundation and Institut Laser Vision Noémie de Rothschild in Paris, France (supervisor: Dr. D. Gatinel). She subsequently worked as a medical doctor in General Ophthalmology at the Ophthalmic Medical Center Zaandam, The Netherlands (supervisor: Dr. M.J.W. Zaal). Rénuka started as a medical doctor at the Department of Ophthalmology at the Radboud University Medical Center in Nijmegen, The Netherlands, on November 1, 2020, and will commence her residency at the same institute in January 2021 (residency program director: Dr. S. Keijser).

