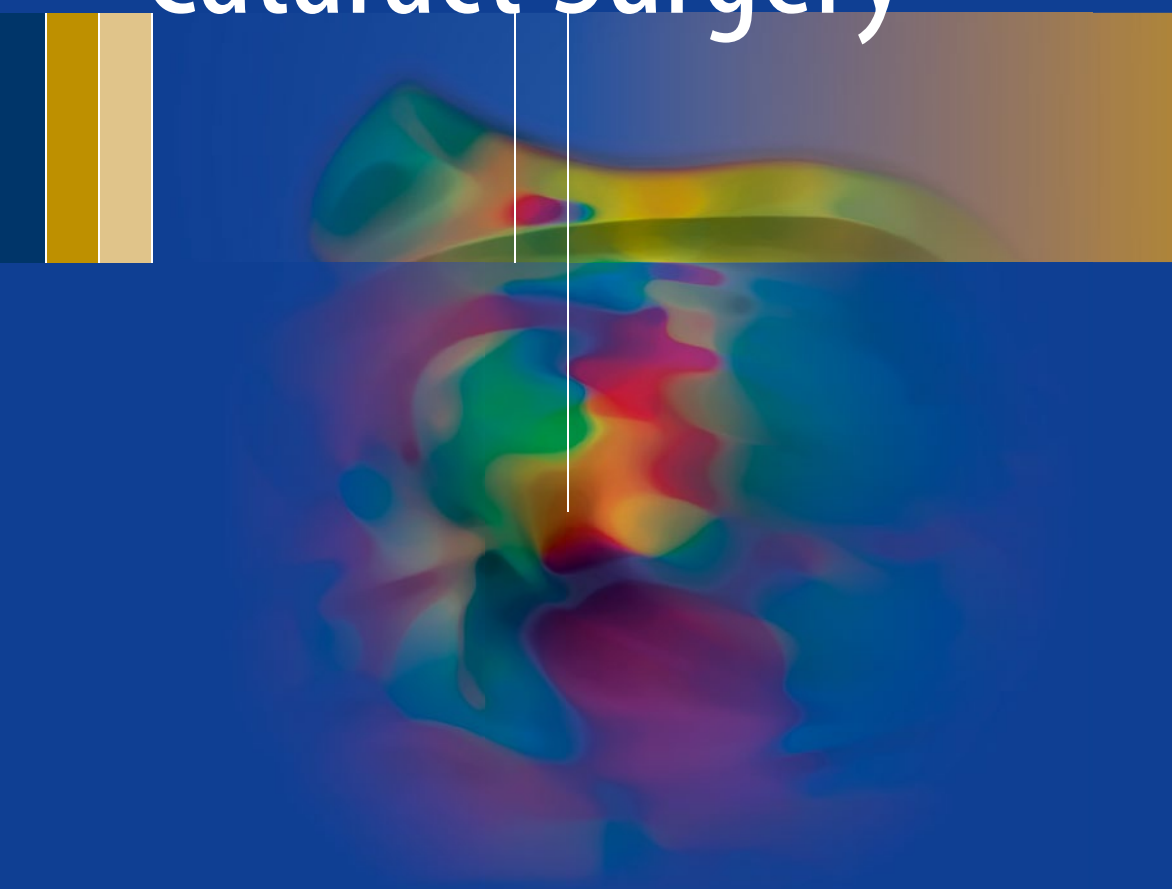
Rajen Gupta

Phacoemulsification Cataract Surgery



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Preface

Good, Better, Best.
Never will I rest,
until my good Phaco is better and
my better Phaco is deemed my best.
Adapted from T. Duncan

Learning how to safely perform phacoemulsification is one of the key surgical techniques for an ophthalmologist. Training on how to master the art of removing a cataract independently in an efficient, slick manner with a low overall complication rate and produce good visual outcomes takes practice. Initial cataract training can be hindered by a combination of factors including the lack of surgical opportunities, a change in required technique, setback induced by perceived poor technique or surgical complications. Training may be stressful not only for the trainee but also for the trainer, theatre staff and the patient during the novice training stage.

This book is not intended to describe cataract assessment, biometry evaluation or machine settings, nor the complications that may occur during surgery. It does not attempt and is not meant to be a complete guide on managing the plethora of different types of cataract encountered surgically or the different techniques used for such cases. Instead, this book is primarily aimed at the novice surgeon and as a companion teaching guide for the supervising ophthalmologist.

A *Manual for Cataract Phacoemulsification Surgery Training* was adapted from a series of handouts developed over many years of supervising the novice surgeon new to surgery and surgeons struggling to make progress. Common technique issues were identified and each chapter written to fill the void in cataract surgery understanding. Although comprehensive, the overall emphasis is to explain cataract surgery steps in a simple fashion, with clear terminology rather than an encyclopaedic attempt to cover every technique.

The specific technique during a procedure will remain the responsibility of the trainer; however the chapters serve as examples of how a trainer's own particular technique could be broken down into bite-sized surgical learning points.

The framework and order of chapters will serve as a curriculum guide for training for the complete novice. For the surgeon who has some experience, but still

lacks confidence in certain parts of the procedure, the chapters will serve to explain the fundamentals to aid understanding. As skills are developed, the techniques suggested can be adapted and refined. Most of all however, I hope the book will serve as a useful ad memoir to teaching and learning phacoemulsification surgery in an enjoyable fashion.

Newcastle upon Tyne, UK Rajen Gupta
2017

Acknowledgements

I am grateful to all of my trainers during my career who have helped me develop my skills. Many of the phacoemulsification techniques I use and teach today were passed verbally to me and I fully acknowledge that the original source of the technique may not be referred to.

I am indebted to all my consultant colleagues at the Newcastle Eye Centre (NEC) for their helpful comments and to the theatre staff at the NEC for helping acquire the side profile corneal images and draping preparation images in Chaps. 14 and 15. The images in Chap. 7 were all taken with the assistance of Sally Gupta.

My friend Martin Beed deserves a huge acknowledgement. Without his initial encouragement and proofreading of all the chapters, this book undoubtedly would have remained a series of handouts.

Finally, I need to say thank you to my wife Sally and my children Tara and Roshan. I have only been able to compile all the images and chapters with your support.

Abbreviations

AC	Anterior chamber
BSS	Balanced salt solution
CCC	Continuous curvilinear capsulorhexis
IA	Irrigation aspiration
IOL	Intraocular lens implant
LH	Leading haptic
Phaco	Phacoemulsification
Rhexis	Capsulorhexis
SLM	Soft lens material
TH	Trailing haptic

Contents

Understanding the Phacoemulsification Surgical Learning Process

1

Cataract phacoemulsification training poses a unique challenge of learning a delicate, complex task in which only one person can operate at any given time. The majority of patient's remain awake during surgery and training usually has to proceed in a setting of service provision [1].

Not only is an understanding of how the process of phacoemulsification surgery will be taught is important for the novice surgeon, it is equally important for the experienced surgeon embarking on a phacoemulsification teaching role to determine how to teach the novice surgeon. Given the plethora of techniques possible for every stage of the cataract procedure, the Trainer may no longer perform surgical steps in a basic fashion. Instead advanced skills, developed over years of practice will be applied to complete their own cases. Though important to ensure acquisition of a broad repertoire of skills by the end of training, the novice surgeon needs to be taught basic, fundamental phacoemulsification skills initially. The novice surgeon may fail to perform advanced intraocular movements if their confidence or skill level has not developed sufficiently, consequently it may not be appropriate to mimic such techniques. Surgical steps should not be 'challenging' but rather remain well within the Trainee's competency and comfort level. The book aims to provide a framework for phacoemulsification training: concepts are introduced over the course of the book and a training program for the Trainer to follow. Important concepts will be repeated in successive chapters to reiterate the concept for the Trainee.

The Trainer and novice surgeon need to be aware of preconceived assumptions that may influence training progress (Tables 1.1 and 1.2. Such assumptions are easily overlooked and both Trainer and Trainee need to agree on a surgical development plan before training commences.

The Trainer and novice surgeon should clarify terminology that will be used during training, as misunderstanding instructions can lead to operating being stressful. This can be avoided by developing a common language for instruction. Suggested terminology will be covered in each chapter.

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