

Training a Cataract Surgeon

Requirements of a Trainee

- A trainee cataract surgeon should have, at least, basic knowledge of the eye and some experience in ocular surgery
- A commitment to improvement which should provide the necessary motivation, enthusiasm and determination that is required
- A trainee cataract surgeon should have binocular single vision
- Should be comfortable with the use of the microscope
- A trainee in cataract surgery should be able to master and practise the safest and simplest techniques.

Equipment and Training Materials

A trainee should be given a kit containing the following:

- A curriculum of the cataract surgery training attended with information on sterilization, pre-operative assessment,

- operating room management and post-operative evaluation
- Videos of the surgery they have performed themselves
- A video on standard cataract surgical techniques
- A microscope
- Two cataract surgical sets
- 100 IOLs.

A Cataract Training Centre

A Centre should have:

- Adequate physical space
- Adequate equipment, good quality instruments and consumables, as requested and required
- 'Wet' laboratory for the trainees to familiarize themselves with the instruments and microscope
- Audio-visual system for the recording of surgeries, for learning, monitoring and further reference
- Careful ophthalmic instrument maintenance and care by a trained

ophthalmic technician / assistant / nurse who is also trained in the use of the microscope and other equipment maintenance and operating room management.

Requirements of a Surgical Instructor/Trainer

A trainer should be or have:

- A highly skilled surgeon
- An aptitude for teaching and training
- The necessary time and patience needed for surgical skills transfer
- Ready to take over the moment a patient's safety is at risk.

References

- 1 Rao G N. Human Resource Development. *J Comm Eye Health* 2000; **13**: 42-43.
- 2 Thomas R. Kuriakose T. Surgical Techniques for a Good Outcome in Cataract Surgery: Personal Perspectives. *J Comm Eye Health* 2000; **13**: 38-39.
- 3 Cook C. How to Improve the Outcome of Cataract Surgery. *J Comm Eye Health* 2000; **13**: 37-38. □

Review Article

Training in Trichiasis Surgery

Sidney J Katala CCEH

*Senior Ophthalmic Nursing Officer
Trichiasis Surgery Trainer*

*Senior Technical Advisor for Eye Health
Helen Keller International
PO Box 192
Kongwa, Dodoma Region
Tanzania*

Introduction

It is estimated that each village in central Tanzania has between 5 – 25 persons with in-turned eyelashes due to trachoma. Half of these people constantly epilate their eyelashes to ease the irritation and pain from in-turned eyelashes.

Aims

The aims of training in trichiasis surgery are to teach:

- Identification of patients needing trichiasis surgery
- A good and safe surgical procedure
- The principles and practice of competent follow-up.

Selection of Trainees

Trainees are recommended by their respec-

tive Health authorities. They are required to have:

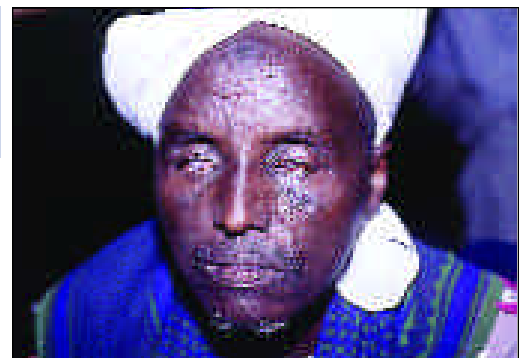
- Previous experience in eye examination
- Experience in giving injections
- Knowledge of sterile surgical techniques
- Previously observed eye surgery.

Two weeks is the minimum time recommended to train a trichiasis surgeon.

Objectives of Training in Trichiasis Surgery

At the end of the course the trainee should be able to:

- Perform the tarsal rotation method for trichiasis
- Complete at least 5 supervised operations to receive certification
- Follow-up trichiasis patients and recognise any complications
- Complete reports and keep records of trichiasis surgery
- Assess competence and improve surgical skills, under supervision
- Recognise the barriers to trichiasis surgery and how these can be overcome
- Assist in the planning and implementa-



Trichiasis surgery might have prevented blindness....

Photo: Murray McGavin

tion of mobile eye clinics (community-based)

- Demonstrate trachoma assessment methods
- Demonstrate skills in trachoma grading
- Implement SAFE interventions as part of comprehensive eye care.

Handouts

Handouts on the following topics, to support teaching sessions, are distributed to participants during the training period:

1. Primary Health Care.
2. The 8 Elements of Health Care.
3. The 5 Principles of Primary Health Care.
4. Anatomy of the Eye (main emphasis on the upper eyelid).
5. Checklist of Supplies and Materials.
6. Sterilization Methods.

7. Record Keeping.
8. The SAFE Strategy.

Incision and Stitching Exercises

The trainer demonstrates the procedure. It is then practised on oranges and bananas.

The steps include:

- Incising the 'eyelid'—orange peel or banana
- Everting and incising the 'conjunctiva and tarsal plate'—inside of orange peel
- Completing the incision with scissors
- Suturing the 'eyelid'.

Handling Surgical Instruments

The key skills in which each participant must be competent are:

- Holding the needle holder in the dominant hand



Stitching exercises on an orange

Photo: Sidney Katala

- Mounting the needle (with suture) on the needle holder
- Making sure the needle holder holds the needle one-third away from the tip
- Holding the toothed dissecting forceps with the other hand
- Holding the edge of the distal skin edge and inserting a needle with suture
- Holding the skin on the proximal side, and pushing the needle through the skin
- Pulling the suture and making the first, second, and third knots
- Cutting the two ends of the suture material (about 0.5mm long above the wound; this helps when removing sutures).

After everyone has successfully mastered incision and suturing skills, they each receive their own surgical kits for the field visits.

The trainer reviews the schedule for the field visits and reviews the sterilization procedures for surgical kits during the visits and at the end of each day.

Mobile Eye Clinic: Procedure for Trichiasis Patients

During the mobile eye clinic, priority should be given to:

- patients with trichiasis
- people who are blind
- patients with painful red eyes.

Patients with trichiasis are sent immediately for visual acuity testing. These patients are then guided to the operating area. The outpatient form is carried with the patient into the operating area.

Numbers are written on the outpatient form so that surgical teams will know how many patients to expect.

The following procedures are followed:

- Identify who will take the patient home and make sure all the procedures are understood, the need for return in 7 days clearly stated, and verbal consent given
 - Written consent is advised
 - Before the patient lies on the operating table, the surgical team checks the fitness of the patient for surgery (checking blood pressure, allergies to drugs, shortness of breath, heart problems, mental state...)
 - The patient is asked if they have consumed any alcohol that day. If so, trichiasis surgery should be postponed
 - Community health workers and/or the advance team should advise patients of this requirement during the preparation screening, before the days of the clinic
- After surgery, the patient takes the outpatient form and follow-up requirements are explained to the patient.

Normally, trichiasis surgery is performed on one eye at a time. The second operation can take place when the sutures of the first eye are removed after eight days. Some patients may choose to delay the second operation until the first eye is completely healed.

The Trichiasis Surgical Procedure: Bilamellar Tarsal Rotation Procedure (BTRP)

With sterile instruments and other supplies at hand, the procedure should be done following these steps:



Bilamellar tarsal rotation procedure (BTRP) training in session

Photo: Sidney Katala

Preparations:

- a) Clean the skin surrounding the eye with an antiseptic solution.
- b) Amethocaine eye drops instilled on the eye (or similar topical anaesthetic).
- c) Scrub the hands with soap and water for at least 5 minutes.
- d) Put on sterile gloves (gloves must be worn).
- e) Clean the patient's face and eyes.

Surgical procedure:

- a) A local anaesthetic injection is given into the upper lid (ask the patient to look down).
- b) Usually 3 mls are sufficient (never inject more than 5 mls in any single operation).
- c) An operation is performed seated at the head of the patient.
- d) For better visibility, a magnifying loupe is used and a flashlight held by an assistant.
- e) The eyelid is 'fixed'.
- f) The upper eyelid is incised (incision of the skin and muscle must be parallel to the lid margin and 3 mm above it, the entire distance between the haemostats).
- g) Eversion of the eyelid is then done.



Trichiasis screening with the aid of a magnifying loupe in rural central Tanzania

Photo: Sidney Katala



Severe trichiasis

Photo: Murray McGavin

Trichiasis Surgery for Trachoma

A previous issue of the Journal (*J Comm Eye Health* 1994; 7: 21–26) describes in detail the surgical BTRP – based on the **World Health Organization/ Edna McConnell Clark Foundation** publication (WHO/PBL/93.29) by **Mark Reacher, Allen Foster, Janey Huber & Brent Bauer**.

Some copies of this issue of the Journal are still available and will be sent on request while stocks last.

Editor

Summary of Follow-up Care

Day 1: Lid surgery patients advised of time to return for follow-up care.

Day 2: Patient returns to meet health worker, who removes eye patch, cleans wound and applies tetracycline eye ointment. Any patient with excessive bleeding, swelling and/or severe pain should be referred immediately.

Day 3–7: Patients continue to see health worker on daily basis – to have the wound cleaned and to have tetracycline eye ointment applied.

Day 8: Mobile eye team returns – sutures are removed.

At the end of the trichiasis operation day, the principal trainer reviews follow-up procedures for patients who have undergone community-based trichiasis surgery with community health workers or their equivalents. Each community health worker should receive a list of the trichiasis patients.

Each patient is given tablets of paracetamol to be taken as needed for pain relief, once in the morning and once in the evening.

Overcoming Fears

Patients who are afraid of having trichiasis surgery receive counselling. Fear of the injection, cutting, pain and bleeding are most often the concerns expressed. Patients are asked to speak to someone who has had the operation and will talk about his/her experience.

Constraints to Surgery

1. People do not know that this is a problem that can be solved.
2. People are afraid of the operation.
3. Communities lack transport to take patients to the hospital or clinic.
4. The number of people who are able to do the surgery is limited.
5. Bad service by service providers, e.g., bad language, etc.
6. The cost of surgery in some hospitals is not affordable to most patients.

Graduation and Certification

Each participant is given:

1. A Certificate after successfully performing the operations – under supervision.
2. A copy of the WHO Manual 'Trichiasis Surgery for Trachoma – The Bilamellar Tarsal Rotation Procedure'.



Surgery for upper eyelid trichiasis

Graphic: Hugh Lugg

Photos: Mark Reacher & John DC Anderson

3. 100 tubes of tetracycline.
4. 24 sutures, a surgical set for minor operations, and other supplies as available.
5. A set of bi-monthly reporting forms to be used within their health system.

Further Reading

- 1 Johnson G J, Minassian D C, Weale R. *The Epidemiology of Eye Disease* 1998. pp 132–135.
- 2 Reacher M, Foster A, Huber J. *Trichiasis Surgery for Trachoma: The Bilamellar Tarsal Rotation Procedure*. WHO/PBL 1998.
- 3 Ballen P H. A simple procedure for the relief of trichiasis and entropion of the upper lid. *Arch Ophthalmol* 1964; **72**: 239 – 240.
- 4 Reacher M H, Munoz B, Alghassany A, Daar A, Elbualy M, Taylor H. A controlled trial of surgery for trichomatous trichiasis of the upper lid. *Arch Ophthalmol* 1992; **110**: 667– 674.

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Example of a Trichiasis Register

Date	No:	Name	Sex	Address	VR	VL	TT situation	Remarks



An outreach eye clinic in central Tanzania

Photo: Sidney Katala