

Ophthalmology

KEYWORDS: Surgical audit, quality, Trachomatous Trichiasis (TT), Hadiya and Yem, Southern Ethiopia

TRACHOMATOUS TRICHIASIS (TT) SURGICAL QUALITY OUTCOME AUDIT IN HADIYA ZONE AND YEM SPECIAL DISTRICT, SOUTHERN ETHIOPIA.



Volume-4, Issue-6, June - 2019

ISSN (O): 2618-0774 | ISSN (P): 2618-0766

Getachew

Orbis-International Ethiopia*Corresponding Author getgebr@yahoo.com

Gebreselassie***Dawit Seyum**

Orbis-International Ethiopia

Dr.Alemayehu Sisay

Orbis-International Ethiopia

Temesgen Kabeto

Orbis-International Ethiopia

Article History

Received: 11.12.2018

Accepted: 02.04.2019

Published: 10.06.2019

**ABSTRACT.**

Introduction: Trachoma is the leading infectious causes of blindness Worldwide. Trachomatous Trichiasis (TT) is a consequence of progression of conjunctival scarring caused by recurrent infection of Chlamydia Trachomatis.

Most attention has focused on increasing the quantity of Trachomatous Trichiasis (TT) surgery performed. A surgical audit by those performing Trachomatous Trichiasis (TT) surgery is not a routine part of any national trachoma control program, and no effective mechanism exists for identifying surgeons experiencing poor outcomes

Methods: Lot Quality Assurance Sampling (LQAS) methodology used to develop an audit tool for assessing the outcome of the TT surgery in terms of postoperative Trachomatous Trichiasis (TT).

Result: 59 (74%) Female and 21 (26%) Male were audited. 90% of the audited beneficiary from East Badwacho district has well corrected and most (95%) of the audit beneficiaries from Yem special districts have well corrected. Based on the finding, both TT surgeons were categorized under "a POST-OP TT recurrence < 10% (definitely acceptable).

Conclusion: TT surgeons with Post Op Trachomatous Trichiasis (TT) will guide a manager for remedial intervention such as retraining, Coaching/mentoring and supportive supervision

Introduction

Visual impairment from trachoma result from in-turning of eyelashes that scar the cornea that result Trachomatous Trichiasis (TT). It remains the leading infections causes of blindness Worldwide. Trachomatous Trichiasis is a consequence of progression of conjunctival scarring caused by recurrent infection of Chlamydia Trachomatis. It causes painful corneal abrasion, introduce infections, and alters the ocular surface, eventually leading irreversible blindness from corneal opacification. (1, 2)

Approximately 3.2 Million people have untreated TT, and 2.4 Million people are visually impaired from Trachoma worldwide of whom an estimated 1.2 million are irreversibly blind.

The World Health Organization (WHO) recommends corrective eyelid surgery to reduce the risk of impairment from TT. The surgery involves incision through the eyelid parallel to and few millimeters above the lid margin. The terminal portion of the lid is externally rotated is sutured in the correct position. In trachoma endemic countries surgery usually is performed in non-physician health workers. (2)

There is international commitment to eliminate trachoma as a public health problem by 2020. This requires, in all formerly endemic districts, both a low prevalence of active trachoma, and a prevalence of trachomatous trichiasis (TT) unknown to the health system of < 1 case per 1000 total population. (3)

Scale up of the overall program components in Ethiopia had been outstanding in recent years and demonstrated major achievement since 2015. In addition to scale up of the full SAFE implementation in all endemic Woredas, the renewed commitment of the Ministry of Health, Fast Track TT Initiative, to clear the TT backlog was a major step forward to achieve the national target and contribute for attaining the global target of eliminating trachoma as a public health problem by the year 2020. (3)

Increasing service accessibility by training of mid-level health care providers to perform TT surgery and using a combination of static, outreach and mobile team service delivery approaches are the major strategies for the Fast Track Initiative. Trained and certified mid-level health workers named integrated eye care workers (IECWs) are primarily responsible for delivering TT surgery.

Training of mid-level health workers for one month and certifying them to perform TT surgery at community level is a WHO recommended strategy. IECWs are professionally a nurse or health officer. Each IECW is carefully selected based on predetermined criteria, trained for 1 month in accordance with the FMOH's approved training manual and certified for demonstrating skills based on WHO's TT surgeon certification assessment criteria. The national TT Initiative resulted in improved government ownership of the program and a big success have been recorded in terms of geographical service accessibility, trained human resource, availability of TT surgical kits and consumables. Ultimately, this has contributed to a marked improvement in the number of people who have received TT surgery has been remarkable. (2,3)

Most attention has focused on increasing the quantity of TT surgery performed, and large numbers of non-doctor operators have been trained to this end. Surgical audit by those performing TT surgery is not a routine part of any national trachoma control program, and no effective mechanism exists for identifying surgeons experiencing poor outcomes. (4,5)

There are proven ways to improve productivity of Integrated Eye Care Workers (IECWs), quality of surgery and to reach all people affected by TT. Evidence and experience from trachoma control programs indicated three critical factors for improving service delivery and quality, namely, supportive supervision, outcome assessment and surgical audit. The aim of programs should not only to operate on TT cases in a timely manner, but also to ensure that the surgery is of good quality and the experience is not unpleasant for

the patient. Therefore, supportive supervision and clinical audit/quality assessment should be an integral part of all TT surgical services. Moreover, a surgeon's skill should be assessed periodically and, if required, "re-certification" or a system for skill improvement program should be in place for those not meeting the requirement of the periodic assessment. (5,6)

Methods

Lot Quality Assurance Sampling (LQAS) methodology used to develop surgical audit tool for assessing the outcome of the eyelid TT surgery in terms of postoperative recurrence of TT. This method does not estimate the actual recurrence rate experienced, but merely assigns the surgeon or group of surgeons performing the surgery to one of the two groups: "high post Op TT" or "post Op TT".

Classification system for LQAS

The classification system is criteria used to decide whether a surgeon is in the high POST-OP TT or low POST-OP TT category as the primary use of the LQAS system is to classify a surgeon as high POST-OP TT or low POST-OP TT.

Quality standard - the benchmark for TT recurrence rate (the highest "acceptable" rate of POST-OP TT) in Ethiopia is set at <10% at 3-6 months as documented in the national TT Initiative and previous evidence collected, these levels could set 10% ('definitely' acceptable) and a POST-OP TT recurrence above 10% needs quality improvement and 20% (unacceptable).

A POST-OP TT of 20% and above is set as definitely unacceptably high, and A POST-OP TT of 5% rate is set as acceptably low.

Utilizing Sample LQ v1.10: It is determined that sample (n) of 40 eyes would give around 95% confidence in correctly categorizing a sample if the threshold number of cases of recurrence (d) was set at 7. Thus, a sample of up to 40 operated eyes would need to be examined for recurrent TT until either: (i) 8 cases with TT recurrence have been found, or (ii) all 40 operated eyes have been examined with 7 or less recurrent TT cases found. Where 7 (d) or less have recurrent TT, the prevalence of TT recurrence in the sample population can be classified as 10% or less with a probability of 96%. When an 8th case of recurrent TT is found, the prevalence of TT recurrence in the sample population is classified as 20% or more with probability of 94%.

The risk of wrongly classifying a poorly performing surgeon, who is experiencing high TT recurrence rate (20% or more) as having a low recurrence rate (5% or less, False Positive) is 4%. The risk of wrongly classifying a surgeon with a low recurrence rate (5% or less) as having a high recurrence rate (False Negative) is 6%.

The audit criteria

The time between surgery and the follow-up is important. Therefore, efforts were made to ensure that the mean follow up interval was 3-6 months. Hence, it is very important to ensure sampling of patients with the appropriate follow up interval. A periodic audit of surgeries for TT can provide the surgeon and the program with data on the outcomes of surgeries provided. This information can be used to identify any necessary changes to training, supervision, and service delivery. Sampling for LQAS

1). Sampling Woredas or facility for surgical audit, we use purposeful sampling of health facilities for a surgical audit.

The following points were considered in sampling of the areas for surgical audit:

- Highest number of trichiasis backlog
- Low program achievement (surgical output or number of surgeries performed)
- Newly trained Integrated Eye Care Workers (IECWs) or TT surgeon

- High number of refusals for surgery
- Unacceptably high program achievement (surgical output or number of surgeries performed)
- Good surgical output in the past but dropped recently
- Areas that did not have surgical audit in the past

2). Sampling operated TT cases

Once the sample size determined, sampling of patient registers (compiled to reflect surgeries undertaken in the last 3-6 months) was undertaken.

To generate the sample was: (a). Compiled a list of all the surgical cases that are eligible for audit and count the total number. (b). Divided the total eligible cases by the sample size. This was the sampling interval. (c). Randomly selected the number between 1 and the total. This was the first case included in the audit. (d). Added the sampling interval to the first randomly selected number. This was the second case included in the audit. (e). Continued by adding the sampling interval to the previously selected case. Once we reached the end of the list of eligible cases, continued sampling from the beginning until it reaches the sample determined.

For this surgical audit two surgeons were selected purposely using the above stated criteria's. a minimum standard of 40 consecutive cases that tightly cluster around 3-6-month post-surgery, were selected for audit from each surgeon would give around 95% confidence in correctly categorizing, a sample the threshold number of cases of recurrence was set at 7. Therefore, a total of 80 (eyelid) TT surgery beneficiaries were assessed for the surgical audit from two TT surgeons from East Badwacho and Yem Special districts. Managing patient loss to audit.

Cases lost to follow up were replaced in the sample by a pre-determined method, by construction of a reserve list of a size sufficient to cover the anticipated number of cases lost to follow up. Removed the responsibility for case selection and follow-up examination from the surgeon being audited. This would help to ensure greater accuracy in the diagnosis of recurrent TT and to reduce selection bias.

The surgeon should not select the cases to avoid selection bias.

Data collection

Data collection done using structured checklist. Interviewing patient wellness and satisfaction of the service with physical examination of the eye are used as a means for getting the information needed.

Surgical audits were strictly done by experienced eye care workers from SECUs and who have received four days training on TT surgical services supportive supervision, Outcome assessment and Surgical audit. However, the surgeon and the woreda NTD focal were accompany the surgical team throughout the audit process.

Patient Record

The record included: name, contact information, age, pre-operative disease severity, date of surgery, surgeon name, type of surgery and complications and others

Data Interpretation/analysis

TT surgical audit findings were reviewed with the respective surgeon; if any actions are required, they should be discussed with the surgeon and supervisor. Surgeons with excellent outcomes were recognized for their work. Based on the finding the TT surgeon would be classified as "High Post Op TT" and "Low Post Op TT"

Quality assurance mechanism

Supervisors (Surgical audit team) received training on supervisory skills to ensure their performance is a high standard. The training and supervision of supervisors were emphasized supervision as a mentoring and supportive function that encourages two-way

communications between the supervisor and supervisee.

6. Predictor of Trachomatous Trichiasis Surgery Outcome, America Academic of Ophthalmology

A 4-day training provided for who are to supervise TT surgeons and Trachoma intervention activities. The selection of the supervisors was target experienced eye care worker who have the commitment, clinical knowledge, preferably are certified and have successfully performed trichiasis surgery themselves.

Result of the Surgical Audit.

All the selected TT surgery beneficiary from the two TT surgeons were assessed and audited to determine the outcome and quality of the TT surgery done by the surgeons. The mean interval for the follow up was 3-6 month from the last surgery they received. From the total audited TT beneficiary 59 (74%) were female and 21 (26%) were male.

90% of the assessed and audited TT beneficiary from East Badwacho district, the outcome of the eyelid is well corrected and most (95%) of the audit beneficiaries from Yem special districts have well corrected after the surgery. Of the assessed and audited TT beneficiaries from Yem Special districts 2 (5%) were have Eyelid contour abnormality (ECA).

In both assessed and audited TT surgeons, Granuloma, Over-correction, Under-correction and suture in place were not found Concurrently the quality of data reported on trichiasis surgery were verified and their satisfaction on the service provided, based on the finding all the assessed and reported surgery were truly benefited and served and they responded as they are satisfied on the service and progress of their eye health. Based on the finding, both TT surgeons categorized under “a POST-OP TT recurrence < 10% (definitely acceptable). Even if the TT surgeon one is under the categorized under acceptable rate, he would need close follow up, on job mentoring and support to provide more quality service to the patients.

Table 1. Summary of the surgical audit from East Badwacho and Yem special districts, 2018

Complication	TT surgeon One (East Badwacho district)	TT surgeon Two (Yem Special district)	Remark
Well corrected	36	38	
Granuloma	0	0	
Over-correction	0	0	
Under-correction	0	0	
Eye lid contour abnormality	0	2	
Suture still in place	0	0	
Post Op TT	4	0	
	40	40	

Conclusion

Identification of surgeons with Post Op TT will guide managers on the need for remedial intervention such as retraining, Coaching/mentoring and supportive supervision.

Recommendation

It will be important, to conduct and audit other TT surgeons working TT surgery in the area which enhance and improve the quality of the service and skill of the TT surgeons.

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