Asian Journal of Medicine and Health

15(4): 1-5, 2019; Article no.AJMAH.50845
ISSN: 2456-8414

Management of Lagophthalmos in a Patient with Hansen Disease

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Authors' contributions

This work was carried out in collaboration among all authors. Authors IOA and SAA designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors AOD and SUE managed the literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJMAH/2019/v15i430130
Editor(s):
(1) Professor, Darko Nozic, University of Belgrade, Serbia.
Reviewers:
(1) Engy M. Mostafa, Sohag University, Egypt.
(2) Nader Bayoumi, Alexandria University, Egypt.
(3) Tayo Julius Bogunjoko, Eye Foundation Hospital Group, Nigeria.
Complete Peer review History: http://www.sdiarticle3.com/review-history/50845

Case Report

Received 07 May 2019
Accepted 12 August 2019
Published 20 August 2019

ABSTRACT

Aim: To highlight the surgical management of Lagophthalmos in a patient with Hansen disease.
Case Presentation: We present a case of a 58-year old man who had bilateral lagophthamos. He had pre-operative physiotherapy for two weeks, Temporalis muscle transfer for the left eye and post-operative physiotherapy for three weeks. His post-operative period was uneventful and the outcome of the surgery was satisfactory.
Discussion: Lagophthalmos is a fairly common and extremely distressing condition. It is often found in association with corneal anesthesia, which is responsible for the development of the corneal trauma syndrome from keratitis and ulceration leading to blindness. Out of all the surgical methods used in treatment of Lagophthalmos, Temporalis muscle transfer according to the method of Gillies is considered the best procedure.
Conclusion: Surgical correction of Lagophthalmos usually leads to restoration of voluntary blinking and closure of the eye during sleep which effectively protect the eye against further damage. Our patient was able to close his eye during sleep after the surgical correction.

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Keywords: Lagophthalmos; hansen disease; granulomatous disease; Mycobacterium leprae.

1. INTRODUCTION

Hansen's disease is a chronic infectious granulomatous disease caused by *Mycobacterium leprae* and the organism affects mainly peripheral nerves and skin [1]. The deformities seen in Hansen's disease may result from the disease process or paralysis of some muscles due to damage to peripheral nerve trunk or injuries/infection to hands or feet [1,2].

In Hansen's disease, peripheral branches of the facial nerve are sometimes affected, in particular the zygomatic branch where it crosses the zygoma. This usually leads to paralysis of the Orbicularis oculi muscle and the individual will not be able to close the affected eye [3]. Initially, the paralysis is temporary and recovery is possible if the diagnosis is made on time and the individual is treated with steroids, physiotherapy and electrical stimulation of the muscle [3,4]. Because there is associated corneal anaesthesia with the eyelid paralysis, the individual is at a risk of developing exposure keratitis, due to drying of the cornea and corneal ulceration following injuries to the cornea. Both these conditions can lead to blindness [3,4]. Immediately after the diagnosis of Lagophthalmos is made, the individual is usually counselled on how to protect the eye by means of an eye shield, dark glasses, and repeated instillations in the eye of artificial tears or a sterile bland oil. If the paralysis still persists by three months after initiation of steroid and physiotherapy, it is quite likely that recovery may not occur [3,4]. All patients whose eyelids failed to recover will benefit from surgical management. Three different kinds of procedure are commonly used in the surgical management of Lagophthalmos. They are: (i) activating the eyelids by muscle/tendor transfer, (ii) Lid tightening procedures and, (iii) other procedures for narrowing the palpabral fissure like tarsorrhaphy or lid-loading. Activating the eyelids by muscle/tendor transfer is considered to be the most effective procedure [4]. Out of all the surgical methods used in treatment of Lagophthalmos, Temporalis muscle transfer according to the method of Gillies is considered the best procedure. We present a case of a 58-year old man who presented at Bowen University Teaching Hospital Damien Foundation Reconstructive, Ogbomoso, Nigeria with a case of bilateral lagophthamos.

2. CASE REPORT

58-year old man who presented with bilateral lagophthamos of ten-year duration. He was diagnosed to have leprosy when he was 30 years old and had multi-drug therapy (MDT) for a year. There was no history of the disease in the family. He did not complain of any visual impairment. He presented at our center because he was informed that reconstructive surgical service is available for patient with Hansen's disease. On examination, finger count at 6 meters was normal for both eyes. Light closure lid gap was 4 mm in the right eye while it was 5 mm in the left eye. The corneas were not exposed in both eyes during the light closure. He had pre-operative physiotherapy (chewing of chewing gum or bitting his teeth infront of a mirror) to strengthen the temporalis muscle for two weeks. He had temporalis muscle transfer using Gillies' procedure in the left eye. The post-operative period was uneventful and had post-operative physiotherapy for three weeks. The light closure lid gap was 0 mm in the left eye after the surgery. He is to have the surgery for the right eye after 6 months.

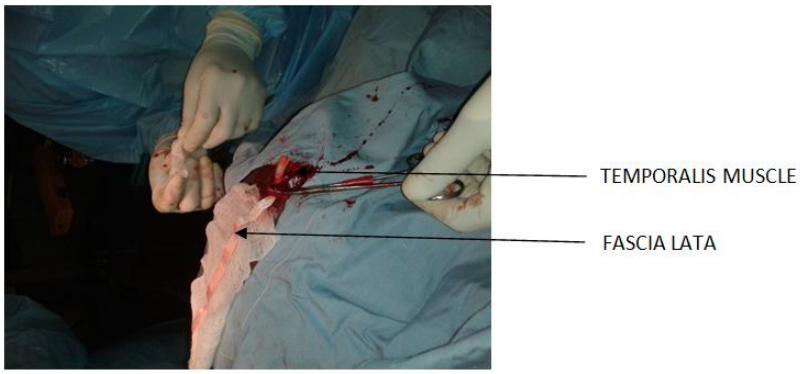

Fig. 1. Attachment of fascia lata to temporalis muscle

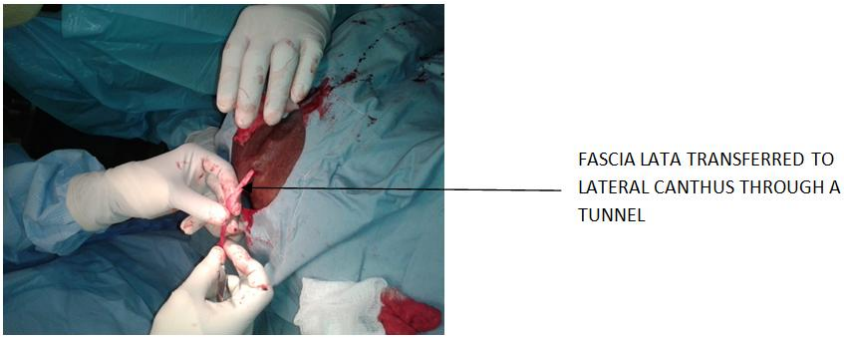

Fig. 2. Transfer of fascia lata to lateral canthus

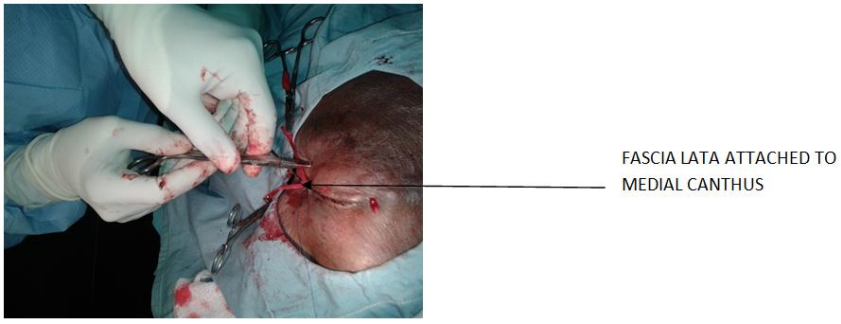

Fig. 3. Attachment of fascia lata to medial canthus

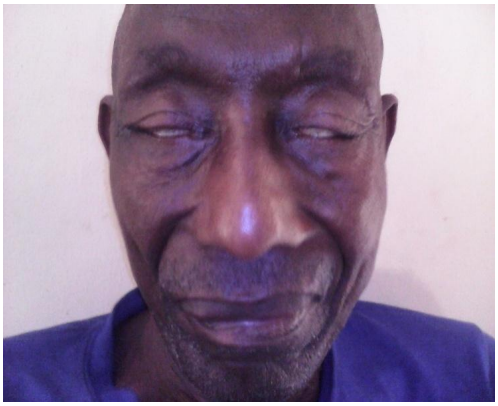

Fig. 4. Pre-OP tight closure of the eyes

3. GILLIES' PROCEDURE

A strip of fascia lata was harvested from the lateral side of the thigh and stored in normal saline. Through a curved incision just above and behind the pinna, the temporal fascia was identified. A window was made on the fascia and the temporalis muscle was identified. A strip of temporalis muscle was isolated and detached at the tendinous insertion anteriorly. The graft of fascia lata was then sutured to this muscle using 'wrap around' technique and brought out to the outer angle of the eye with a tunneller. The graft was then split into two. One slip was tunneled via the outer edge of the upper eye-lid and brought out to the medial canthus, which has been identified earlier. The other slip was similarly brought to medial canthus via the outer edge of the lower eye-lid. The two slips were then sutured to the medial canthal ligament under adequate tension so that the upper eye-lid just overlaps the lower one [4].

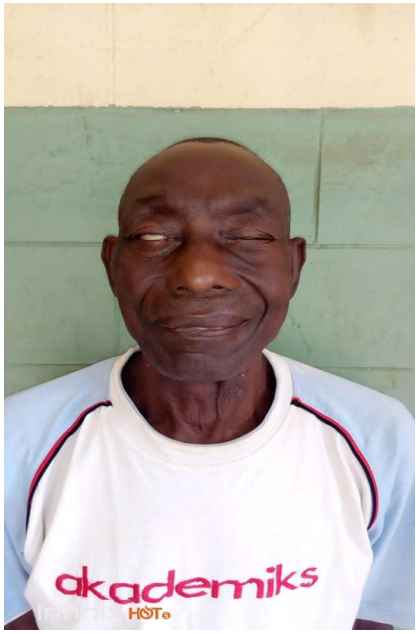

Fig. 5. Post-OP tight closure of the eyes

4. DISCUSSION

Lagophthalmos is a fairly common and extremely distressing condition. This deformity is usually as a result of isolated paralysis of the motor branch of the facial nerve which innervates the orbicularis oculi muscle. Lagophthalmos in Hansen's disease is often found in association with corneal anesthesia, which is responsible for the development of the corneal trauma syndrome from keratitis and ulceration leading to blindness [5]. In our case presented the patient still had his vision preserved and he had not developed any complication following Lagophthalmos. The non-exposure of the corneal during the light closure of the eyelids may be a major factor why he still has his vision preserved. It has been demonstrated that restoration of voluntary blinking and closure of the eye during sleep among the patients with Lagophthalmos effectively protect the eye against further damage. Out of all the surgical methods used in treatment of Lagophthalmos, Temporalis muscle transfer according to the method of Gillies is considered the best procedure [5]. A few surgeons have employed this method with a variety of techniques. Patients usually undergo pre-operative physiotherapy to strengthen the temporalis muscle and post-operative physiotherapy to activate the transferred muscle. Our patient had pre-operative physiotherapy for two weeks and post-operative physiotherapy for three weeks. His post-operative period was uneventful and the outcome of the surgery was satisfactory.

5. CONCLUSION

Surgical correction of Lagophthalmos usually leads to restoration of voluntary blinking and closure of the eye during sleep which effectively protect the eye against further damage. Our patient was able to close his eye during sleep after the surgery.

CONSENT

We declare that 'written informed consent was obtained from the patient for publication of this case.

ETHICAL APPROVAL

We hereby declare that the study has been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

ACKNOWLEDGEMENTS

We would like to appreciate Damien Foundation Belgium for sponsoring the training of the doctor and the physiotherapist and for the establishment of the Reconstructive Center.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Chavan LB, Patel P. Epidemiology of disability in incident leprosy patients at supervisory urban leprosy unit of Nagpur city. National Journal of Community Medicine. 2011;2(1): 119-122.
2. Semwal S, Joshi D, Goel G, Asati D, Kapoor N. Clinico-histological correlation in Hansen's disease: Three-year experience at a newly established tertiary care center in central India. Indian Journal of Dermatology. 2018;63(6):465.
3. Srinivasan H, Palande DD. Essential surgery in leprosy technique for district

hospitals. World Health Organization. 1997;63.
4. Schwarz R, Brandsma W. Surgical Reconstruction & rehabilitation in leprosy and other neuropathies. Nepal. Ekta Books Distribution Pvt. Ltd. 2004;258-269.
5. Andersen JG. Surgical treatment of lagophthalmos in leprosy by the Gillies temporalis transfer. British Journal of Plastic Surgery; 1961.
Available:www.jprasurg.com/article/S0007-1226(61)80057-X/pdf

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sdiarticle3.com/review-history/50845