

Innovative Use of Clip on Magnifying Lens in Plastic Surgery

¹N V S Sai Kiran, ²Ravi Kumar Chittoria, ³Nishad K, ⁴Padmalakshmi Bharathi Mohan, ⁵Imran Pathan, ⁶Shijina K, ⁷Neljo Thomas

How to cite this article:

N V S Sai Kiran, Ravi Kumar Chittoria, Nishad K, Padmalakshmi Bharathi Mohan, et. al., Innovative Use of Clip on Magnifying Lens in Plastic Surgery. RFP Journal of Dermatology 2021; 8(2):45–47.

Author's Affiliations: ¹Junior Resident, ²Professor, ³⁻⁷Senior Resident, Department of General Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

Corresponding Author: Ravi Kumar Chittoria, Professor, Department of General Surgery, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry 605006, India.

Email: drchittoria@yahoo.com

Abstract

The application of magnification has revolutionized microvascular and reconstructive surgery. Tissue visualization is enhanced, suture placement will be easier. Magnification is achieved using binocular loupes, microscopes. Clip on magnifying lens is innovative method of achieving magnification using smart phone. It is cost effective, easy to use and easy to carry. It can be fitted to mobile phone which is readily available. Capturing of photos and video recording of the procedure can be done by using this method, which is not available with binocular loupe and microscope. Using this technique simple procedure like suture removal, identification of skin lesions can be done in a better way.

Keywords: Clip on Magnifying Lens; Plastic Surgery; Suture Removal; Skin Lesions.

Introduction

Plastic surgery commonly uses magnification to increased surgical refinement. With magnification tissue visualization is enhanced, precise anatomic details are appreciated, suture placement is precise and easier, microsurgical instruments can be positioned better, neurovascular structures are better appreciated. Loupes in general have a magnification of 2.5x to 5x, while microscopes provide a magnification of 6x to 40x. Loupes are preferably custom made and take into account corrected vision, interpupillary distance. Loupe is costly and difficult to carry always. Sometimes plastic surgeons get consultation about skin lesions. Clip on magnifying lens is a innovative method for achieving magnification. It is cost effective, easy to use. It is fitted to mobile which is commonly used and available with all. Difficulty encountered during suture removal and can be done by using this. It can also be used in better visualization and identification of skin lesions.

Materials and Methods

In this technique we will be using clip used for attaching

lens to mobile phone, Portable and detachable, 0.45x wide angle convex lens. Android smartphone. Lens is attached to clip which is placed on smart phone. 5 junior residents and 5 senior residents were instructed to use this technique in ward, casualty, OT for 3 days and feedback proforma was given to residents.

Proforma

	Yes	No
Is it easy to use		
Is it easy to carry		
Is it comfortable		
Is it convenient to perform procedure		
Visualisation of structure is easy		

- Limitations in using:
- Overall experience:

Excellent
Good

Fair
Poor
Bad

A replacement for loupe?

Advantage
Disadvantage



Materials required:

- Smart Phone
- Convex Lens
- Clip

Clip on lens has been used for the suture removal in this patient. Images showing:



Fig. 1: Without magnification.



Fig. 2: With magnification using clip on lens.

Result

Junior residents felt that clip on lens was easy, cost effective and convenient to use in minor procedures such as suture removal. Senior residents were comfortable in using, but felt loupe provide better magnification and comfortable with it. Residents felt it better to take photos and record procedure using clip on magnifying lens, which was not possible with loupe. Drawback we got from residents was assistant has to constantly hold the mobile phone and difficulty in focusing the image for prolonged time.

Discussion

The application of magnification is needed in microvascular and reconstructive surgery.¹ Complex and specialized procedures have become possible in areas of neurosurgery, plastic surgery, urology, pediatric surgery, Otorhinolaryngology. With Magnification tissue visualization is enhanced, microsurgical instruments can be positioned and smaller neurovascular appreciated. Magnification may lead to substantial decrease in positive margins² and nerve injuries.³ Magnification Magnification is used for wound care, skin closure in emergency room.⁴ Manification is achieved using binocular loupes and microscopes. Loupes preferably be custom made, to take into account field of view, depth of vision. Disadvantages with loupes and microscopes is costly and difficult to carry. Clip on magnifying lens is cost affective in achieving magnification. It is fitted to a smart phone and easy to carry. Suture removal is not always easy, difficult suture removal requires magnification which can be achieved using this technique. Dermatological lesions sometimes require dermoscope which is very costly. In such situations better visualization of skin lesions can be done using this method. Storage of the data can be done by capturing image or video which is not possible with loupe. This innovative technique can be considered as an alternative of loupe in low resource countries

Conclusion

Clip on magnifying lens is a innovative method to achieve magnification in a cost effective and easy way. It can be considered in situations where loupe is not available and difficulty to carry. Limitation of the study is, sample size is not adequate. Overall clip on magnifying lens can be considered can be considered in beginners who are not affordable for loupe and in situations where capturing of images is needed.

Competing interest: None

Author's contributions: All authors made contributions to the article.

Availability of data and materials: Not applicable

Financial support and sponsorship: None

Consent for publication: Not applicable

References

1. Tamai S. History of microsurgery--from the beginning until the end of the 1970s. Microsurgery.

- 1993;14(1):6-13. doi: 10.1002/micr.1920140105. PMID: 8441345.
2. Magera JS Jr, Inman BA, Slezak JM, Bagniewski SM, Sebo TJ, Myers RP. Increased optical magnification from 2.5x to 4.3x with technical modification lowers the positive margin rate in open radical retropubic prostatectomy. *J Urol*. 2008 Jan;179(1):130-5. doi: 10.1016/j.juro.2007.08.128. Epub 2007 Nov 13. PMID: 17997426.
 3. Davidson BJ, Guardiani E, Wang A. Adopting the operating microscope in thyroid surgery: safety, efficiency, and ergonomics. *Head Neck*. 2010 Feb;32(2):154-9. doi: 10.1002/hed.21157. PMID: 19536761.
 4. Hart RG, Hall J. The value of loupe magnification: an underused tool in emergency medicine. *Am J Emerg Med*. 2007 Jul;25(6):704-7. doi: 10.1016/j.ajem.2006.11.039. PMID: 17606097.
-