A Low-cost Magnification Device for Use in Dermatosurgery

Chander Grover, Rohan Chawla[1], Karalikkattil T. Ashique[2], Deepak Jakhar[3]

Department of Dermatology and STD, University College of Medical Sciences and Guru Teg Bahadur Hospital, New Delhi, [1]Dr. Rajendra Prasad Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, Delhi, [2]Amanza Skin Clinic, Perinthlamanna, Kerala, [3]Department of Dermatology and STD, North Delhi Municipal Corporation Medical College and Hindu Rao Hospital, New Delhi, India

Problem Faced

For a dermatosurgeon, the use of magnification during surgical procedures is not routinely required. However, for minute lesions like glomus tumor, mole excision, sclerotherapy, placing fine sutures, etc., this need is felt. Magnification enhances tissue visualization, helps appreciate precise anatomical details, makes suture placement precise, and helps better use of microsurgical instruments.[1] Various surgical magnification devices include binocular loupes (simple, compound, or prism loupes) or an operating microscope[2]; however, the antecedent cost and the need to train on these devices preclude their use for most dermatosurgeons. To circumvent this, we describe the use of a simple, low-cost device.

Solution Proposed

The easily available reading glasses (powered from +2 to +3 dioptres) provide an alternative for surgical loupes in dermatosurgery. They are user-friendly and lightweight. They offer a large field of view (unlike operating microscopes), thus decreasing operating time, rather than increasing it. A magnification of +2, +2.5, or +3D is enough for routine dermatosurgery including nail surgery, mini punch grafting, and fine suturing on face [Figure 1]. At the normal surgical working distance, their use is not cumbersome and does not compromise depth of perception [Figure 2]. In contrast, surgical loupes are available from 2× to 6× magnification, although most commonly used are the ones which offer 2–4.5 times magnification. The working distance can be calculated as 100/x cm, where x is the power of the lens in dioptres (D). For example, if power of the lens is +2D then the working distance becomes 100/2 – 50 cm; for +3D lens, the optimum working distance reduces to 100/3, i.e. 33.3 cm, and so on. For powers more than +4D, the working distance goes down to 25 cm, which becomes too close and uncomfortable to perform procedures. Thus, the higher the power of the lens, the closer it can be used and surgeons can select an appropriate power depending on the required magnification and working distance. The reading glasses are light plastic and can be worn over the regular glasses of the operator (in case they have a refractive error) [Figure 2]. They are also convenient to wear under face shields, which have become new normal in current COVID (coronavirus disease) pandemic situation. This is not possible with the magnification loupes because they are bulky. No special training is required to work with reading glasses, and they are easily available online or in ophthalmic stores at a very

Figure 1: Ingrown toenail to be operated using the reading glasses

Access this article online

Quick Response Code:

Website: www.jcasonline.com

DOI: 10.4103/JCAS.JCAS_209_20

Address for correspondence: Prof. Chander Grover, Department of Dermatology and STD, University College of Medical Sciences and Guru Teg Bahadur Hospital, New Delhi 110095, India. E-mail: chandergroverkubba76@gmail.com

How to cite this article: Grover C, Chawla R, Ashique KT, Jakhar D. A low-cost magnification device for use in dermatosurgery. J Cutan Aesthet Surg 2021;14:418-9.

Figure 2: Operator carrying out ingrown nail surgery wearing +2 reading glasses. Note the comfortable operating distance and wide field of view. The operator is wearing the lightweight glasses over his normal glasses worn for refractive error

affordable cost of INR 100–1000. Thus, we recommend their use in routine dermatosurgery work.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

None.

Conflicts of interest

There are no potential conflicts or competing interests of any of the authors.

References

1. Mungadi IA. Refinement on surgical technique: Role of magnification. J Surg Tech Case Rep 2010;2:1-2.
2. Mallikarjun SA, Devi PR, Naik AR, Tiwari S. Magnification in dental practice: How useful is it? J Health Res Rev 2015;2:39-44.