



Quality of life living with ocular prosthesis

Marcelo Coelho Goiato, Fernanda Pereira de Caxias & Daniela Micheline dos Santos

To cite this article: Marcelo Coelho Goiato, Fernanda Pereira de Caxias & Daniela Micheline dos Santos (2018) Quality of life living with ocular prosthesis, Expert Review of Ophthalmology, 13:4, 187-189, DOI: [10.1080/17469899.2018.1503534](https://doi.org/10.1080/17469899.2018.1503534)

To link to this article: <https://doi.org/10.1080/17469899.2018.1503534>



Accepted author version posted online: 20 Jul 2018.
Published online: 26 Jul 2018.



Submit your article to this journal [↗](#)



Article views: 319



View Crossmark data [↗](#)

EDITORIAL



Quality of life living with ocular prosthesis

Marcelo Coelho Goiato, Fernanda Pereira de Caxias and Daniela Micheline dos Santos

Department of Dental Material and Prosthesis, Sao Paulo State University (UNESP), School of Dentistry, Araçatuba, Brazil

ARTICLE HISTORY Received 3 April 2018; Accepted 19 July 2018

KEYWORDS Anophthalmia; eye; artificial; microphthalmia; quality of life

1. Introduction

The absence of ocular content may be congenital [1] or acquired due to surgical removal which can be indicated in several cases such as traumas [2–4], cancer, blind painful eye, microphthalmos, endophthalmitis, and suprachoroidal hemorrhage [3]. The ocular defects can be corrected by prostheses which have many functions such as restore the esthetic, prevent eyelid deformation, protect the anophthalmic cavity, orientate the lacrimal flux, and avoid its accumulation in this cavity [5]. Furthermore, the ocular prosthetic rehabilitation is associated to psychosocial improvement, once the prostheses are able to influence positively the interpersonal relations [6,7], which leads to a positive impact on the quality of life.

The aim of this literature review was to report the etiology of ocular bulb loss, the types of ocular prosthesis, and their impact on quality of life as well as the post-rehabilitation care.

2. Etiology of ocular defects

Anophthalmia and microphthalmia are defined, respectively, as the absence of ocular tissue within the orbit and as smaller eyes that general population mean size [8] and they can affect one or both eyes [9].

The etiology of congenital ocular defects is still unknown, but there are studies that suggest hereditary and environmental causes such as genetic mutations [8], maternal nutritional deficiency, mainly Vitamin A [10], and maternal infections during pregnancy [11].

The acquired ocular defects may be caused by three types of surgery: evisceration, which is the removal of ocular bulb internal content keeping the bulb in the orbit; enucleation, which is the removal of whole ocular bulb keeping the adjacent structures in the orbit; and, lastly, the exenteration that is defined as removal of whole content, eyelid, and posterior coverage of epidermal tissue with a graft [12]. The literature points the enucleation as most frequent type among these surgeries, but the elected one varies according to the problem etiology, and trauma is the most frequent indication for the cited surgeries [12]. Coas et al. (2005) found higher predominance for ocular bulb loss in individuals who were 20–40 years old in their study and these authors

attributed this predominance to the fact that individuals in that age range are more often exposed to situation that might lead to ocular loss [12].

3. Prostheses, quality of life, and post-rehabilitation care

Attempts of aesthetic recovery after ocular loss have happened since ancient times, once there are references of different materials use since Egypt, Aztec, Roman, and Inca civilizations [12]. Currently, the materials used for fabrication of ocular prostheses are cryolite glass and, mainly, polymethyl methacrylate (acrylic resin) [13]. Besides these two materials, silicone is also used in prostheses that cover facial portions [14], that is, oculopalpebral prostheses. Ocular prostheses must be fabricated individually [15], with materials that allow a correct molding of the cavity, which results in correct prosthesis adaptation and comfort to the patient [7], and they should be finished with materials that offer good dimensional stability so that good retention, protection to the remaining tissues, and pleasant esthetic along the use can be achieved [14]. On the other hand, temporary prostheses can also be installed in patients soon after their surgery, when there is tolerance, aiming to improve the appearance [16]. The immediate prostheses seem not to affect the wound closure, neither the quality of the subsequent permanent prostheses [16].

Besides the manual fabrication cited earlier, the professional can also use modern techniques, such as computer-aided design and computer-aided manufacturing and rapid prototype modeling, aiming the fabrication of 3D printed customized prostheses [17]. This technique substitutes the molding phase aiming to decrease the errors cause by impression material and to save clinical time [17].

The absence of ocular content makes the periorbital musculature hypofunctional and individually fabricated, and well-adapted ocular prostheses help to recover the muscular tonus of orbicularis oculi muscle, once these prostheses allow a good adaptation in the cavity and on the muscle, improving its mobility [18]. Besides this physiological improvement, satisfactory prostheses also cause impact on emotional aspects

since patients become depressed after ocular content loss and feel better with the prosthetic restauration due to improvement in appearance [7].

The eyes are the most noticeable structure on the face [19] and their loss causes a psychological fragility of patients [4]. Shame, embarrassment, preoccupation to hide, insecurity, and fear are reported as significant feelings after surgery [7]. Ahm, Lee and Yoon, (2010) affirm that eye removal causes such devastating effect in the patient that some of them develop anthropobia, which is the fear of meeting new people or new environments [20]. The same authors studied the presence of anxiety and depression in anophthalmic individuals and in individuals with both health eyes and they found worse results to those who suffered ocular losses [20]. They affirm that the patients' negative feeling regarding interpersonal relationships causes physical and mental stress that result in emotional instability [20]. It is important to mention that anxiety represents a risk to the health and consequently to the quality of life, since anxious individuals seem to be more subject to report worse health conditions, pain, limitation for daily activities, limitation for physical and mental health, problems with vitality and sleep, as well as higher tendency to consume tobacco, alcoholism, sedentarism, and obesity [21].

Goiato et al. (2013) found in their study that ocular prosthesis cause positive influence in the patients' personal relations and that this fact can be associated to the psychological improvement along with prosthesis use [7]. Therefore, it is possible to affirm that prosthetic restauration had a fundamental role in the patients' personal identity recovery and their reintegration in the society [6]. A way to reduce the psychological impact caused by ocular loss is by shortening the interval between the surgery and rehabilitation [16].

After the prosthetic rehabilitation, the patients face the challenge of maintenance and care of their prosthesis. The artificial eyes must be washed twice/three times per day with clean water [22], removed during the night sleep [19], and the patient must return to have a professional checkup for every six months [19] in order to polish the prostheses, which will prevent protein and bacterial accumulation on the prostheses surface [19]. Song, Oh and Baek (2006) found in their study that the majority of patients did not know how to disinfect their prostheses, what demonstrates a failure of professionals in their orientation to the patients [23]. The same authors also affirm that the patients should be well-oriented about how to handle and clean their prostheses to reduce the incidence of conjunctivitis [23].

4. Conclusion

Ocular defects may be congenital or acquired and can cause negative psychological impact that reflects directly on the quality of life. Ocular prostheses work as an instrument to recover the patients' self-confidence and allow improvements in their social convenience. Specific cares are necessary for prosthesis maintenance and reminiscent tissue health.

Funding

This paper was not funded.

Declaration of interest

The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

Reviewer Disclosures

Peer reviewers on this manuscript have no relevant financial relationships or otherwise to disclose.

References

Papers of special note have been highlighted as either of interest (*) or of considerable interest (***) to readers.

- Bermejo E, Martínez-Frías ML. Congenital eye malformations: clinical-epidemiological analysis of 1,124,654 consecutive births in Spain. *Am J Med Genet.* 1998 Feb 17;75(5):497–504.
- Goiato MC, Mancuso DN, Sundefeld MLMM, et al. Aesthetic and functional ocular rehabilitation. *Oral Oncology Extra.* 2005;41(8):162–164.
- Nakra T, Simon GJ, Douglas RS, et al. Comparing outcomes of enucleation and evisceration. *Ophthalmology.* 2006 Dec;113(12):2270–2275.
- Zheng C, Wu AY. Enucleation versus evisceration in ocular trauma: a retrospective review and study of current literature. *Orbit.* 2013 Dec;32(6):356–361.
- Perrone A, Bercini F, Azambuja TWF. Prótese ocular, revisão da literatura e apresentação de caso clínico. *Rev Fac Odont Porto Alegre.* 1996;37:13–14.
- Fernandes AUR, Goiato MC, Batista MAJ, et al. Color alteration of the paint used for iris painting in ocular prostheses. *Braz Oral Res.* 2009 Oct-Dec;23(4):386–92386.
- Goiato MC, dos Santos DM, Bannwart LC, et al. Psychosocial impact on anophthalmic patients wearing ocular prosthesis. *Int J Oral Maxillofac Surg.* 2013 Jan;42(1):113–119.
- ** Study of important quality of life aspect in anophthalmic patients.**
- Verma AS, Fitzpatrick DR. Anophthalmia and microphthalmia. *Orphanet J Rare Dis.* 2007 Nov 26;2:47.
- Ludwig PE, Czyz CN, Embryology E. *Malformations SourceStatPearls* [Internet]. Treasure Island (FL): StatPearls Publishing; 2018–2017 Dec 28.
- Weber KA, Yang W, Carmichael SL, et al. Nutrient intake in women before conception and risks of anophthalmia and microphthalmia in their offspring. *Birth Defects Res.* 2018;110(10):863–870. doi: 10.1002/bdr2.1201
- Dolk H, Busby A, Armstrong BG, et al. Geographical variation in anophthalmia and microphthalmia in England, 1988–94. *BMJ.* 1998 Oct 3;317(7163):905–909.
- Coas VR, Neves CC, Rode SM. Evaluation of the etiology of ocular globe atrophy or loss. *Braz Dent J.* 2005;16(3):243–246.
- Important study about etiology of ocular loss.**
- Rokohl AC, Koch KR, Adler W, et al. Concerns of anophthalmic patients—a comparison between cryolite glass and polymethyl methacrylate prosthetic eye wearers. *Graefes Arch Clin Exp Ophthalmol.* 2018 Mar 3;256:1203–1208.
- Pesqueira AA, Goiato MC, dos Santos DM, et al. Effect of disinfection and accelerated ageing on dimensional stability and detail reproduction of a facial silicone with nanoparticles. *J Med Eng Technol.* 2012 May;36(4):217–221.
- Ow RK, Amrith S. Ocular prosthetics: use of a tissue conditioner material to modify a stock ocular prosthesis. *J Prosthet Dent.* 1997 Aug;78(2):218–222.

16. Chin K, Margolin CB, Finger PT. Early ocular prosthesis insertion improves quality of life after enucleation. *Optometry*. 2006 Feb;77(2):71–75.
17. Ruiters S, Sun Y, de Jong S, et al. Computer-aided design and three-dimensional printing in the manufacturing of an ocular prosthesis. *Br J Ophthalmol*. 2016 Jul;100(7):879–881.
18. Goiato MC, Santos MR, Monteiro BCZ, et al. Electrical activity of the orbicularis muscles before and after installation of ocular prostheses. *Int J Oral Maxillofac Surg*. 2015;44:127–131.
- **Study about physiological impact of wearing ocular prostheses.**
19. Pathak C, Pawah S, Singh G, et al. Prosthetic rehabilitation of completely blind subject with bilateral customised ocular prosthesis: a case report. *J Clin Diagn Res*. 2017 Jan;11(1):ZD06–ZD08.
20. Ahn JM, Lee SY, Yoon JS. Health-related quality of life and emotional status of anophthalmic patients in Korea. *Am J Op Hthalmol*. 2010 Jun;149(6):1005–1011.
21. Strine TW, Chapman DP, Kobau R, et al. Associations of self-reported anxiety symptoms with health-related quality of life and health behaviors. *Soc Psychiatry Psychiatr Epidemiol*. 2005 Jun;40(6):432–438.
22. Figueiredo LAA, Sampaio AA, Souza SE, et al. The role of prosthesis spacer for ocular prostheses. *J Craniofac Surg*. 2017 Jun;28(4):e360–e363.
23. Song JS, Oh J, Baek SH. A survey of satisfaction in anophthalmic patients wearing ocular prosthesis. *Graefe's Arch Clin Exp Ophthalmol*. 2006;244:330.