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Usefulness of Ophthalmic Trial Frame in Iris Positioning: An In Vivo Study

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Abstract

Aim: To study the Usefulness of ophthalmic trial frame in iris positioning

Objectives

1. To co-relate the position of iris in both eyes using ophthalmic trial frame.
2. To verify duplication of iris outline from one eye(right) to another (left)

Materials and Methods: 100 Enrolled participant's iris position was marked on a trial glass of ophthalmic trial frame, and checked for symmetry with the contralateral iris.

Results: In 96% of the subjects studied for the correlation of position of iris in both eyes using ophthalmic trial frame coincided with each other. In 4% of the subjects studied showed variation in the position of the iris.

Conclusion: The position of iris can be co-related in both eyes using ophthalmic trial frame. Iris outline can be duplicated from one eye (right) to another (left) using ophthalmic trial frame

Keywords: Iris positioning, Ocular Defect.

Introduction

The facial disfigurement associated with loss of an eye creates lot of psychological trauma. Loss of an eye may result from congenital defect, pathology, or accidental trauma.[1] Psychological distress can be reduced by timely replacement with an artificial eye. In the fabrication of ocular or orbital prosthesis iris positioning is of paramount importance for the natural gaze and appearance of the eye prosthesis. This in vivo study was planned to co-relate the position of iris in normal eyes and to develop a simple and predictable method of iris positioning.

Material and Methods 100 subjects were selected, who fulfilled the following inclusion and exclusion criteria.

Inclusion criteria

1. Ready to participate in the study with written informed consent
2. Healthy individuals with normal eye sight

Exclusion criteria

1. Individuals with orbital or ocular defect
2. Individuals with gross facial asymmetry
3. Individuals with squint eyes
4. Individuals with any abnormality associated with eyes

Study Conduct Each participant was seated comfortably on dental chair with head erect, asked to gaze straight at an object kept 4 feet away.[2] Ophthalmic trial frame was positioned on the subjects face with superior - inferior and medial-lateral adjustments. Then the iris outline of one (right) eye was marked using a permanent marker on the trial lence. Then the trial lence with the iris outline was then positioned on contralateral (left) side and checked for

symmetry from a distance of 4feet with straight gaze (Figure 1).

Discussion: In the rehabilitation of unilateral ocular or orbital defects, iris position of contralateral normal eye is used as a reference. Guttal et al used transparent graph grid,[3] Bhochhobhoya et al used PD ruler,[4] and Chamaria et al used a grid attached to spring bow[5] for positioning the iris on a scleral blank. All these procedures are time consuming and require additional skill and cannot be used on facial model, so in this in vivo study usefulness of ophthalmic trial frame in iris positioning was studied. Despite competition from automatic refracting units, ophthalmic trial frame remains one of the optometrist's most important pieces of kit in eye examination. The trial frame can be centralised on the face in medio-lateral and superior-inferior direction.

The light falling in one eye affects the diameter of the pupil in both the eyes. If one eye is open and other is closed, the closed eye follows the accommodation of the opened eye.[6] In 96% of the subjects studied for the correlation of position of iris in both eyes using ophthalmic trial frame coincided with each other. Only in 4% of the subjects studied, variation in the position of the iris was observed. There was no variation found in the position of the iris with respect to gender. Strabismus - a disorder in which the two eyes don't line up in the same direction. This results in "crossed eyed" appearence. Nystagmus is fast, uncontrollable movements of the eyes, sometimes called "dancing eyes". Side to side movement is called as horizontal Nystagmus, and Up and down movement as vertical Nystagmus. Circular movement as rotary Nystagmus. Orbital hypertelorism is a condition in which distance between the inner eye corners as well as the distance between the pupils is greater than normal. In such cases ophthalmic trial frame cannot be used for iris positioning.

Advantages: Can be positioned on the Facial model, Easy to use and quick, No skill is required

Conclusion: Ophthalmic trial frame is a useful tool in positioning the iris outline.it is easy to use with predictable result.

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Figure 1.