Clinical Ophthalmology

Dovepress
open access to scientific and medical research

Open Access Full Text Article

CASE SERIES

Learning curve of sutureless transconjunctival 20-gauge vitrectomy

Gilbert WS Simanjuntak[1,2]
Arief S Kartasasmita[3,4]
Ilias Georgalas[5]
Eustratios V Gotzaridis[6]

[1]Department of Ophthalmology, Faculty of Medicine, Christian University of Indonesia, Jakarta, [2]Cikini Eye Institute, Cikini CCI Hospital, Jakarta, [3]Department of Ophthalmology, Padjadjaran University, Jawa Barat, [4]Cicendo Eye Hospital, Bandung, Indonesia; [5]Department of Ophthalmology, G Gennimatas General Hospital, University of Athens, [6]Athens Retina Institute, Athens, Greece

Background: To report the learning curve of transition from 20-gauge (20 G) conventional vitrectomy to a 20 G sutureless vitrectomy technique.

Materials and methods: This is a retrospective descriptive case study of 32 eyes from 32 consecutive patients who underwent sutureless 20 G pars plana vitrectomy. A 20 G microvitreoretinal blade was introduced, beveled transconjunctivally, slowly, parallel with the limbus, creating a conjunctivoscleral tunnel incision. Study participants were divided into three groups, and surgical time, induced astigmatism, and complications were compared.

Results: Of 32 consecutive patients, there was no significant difference in induced astigmatism or maneuvering between the early learning curve and other groups. The true learning curve was the first three patients. There were three cases where suturing the sclerotomy was necessary: one port in each case, three of 32 cases (9.3%), or three of 96 ports (2.9%).

Conclusion: There were no significant difficulties in surgical maneuvers while performing 20 g sutureless vitrectomy.

Keywords: sutureless, vitrectomy, 20 G, learning curve

Introduction

Since Machemer et al invented closed intraocular microsurgery in 1971,[1] the practice of pars plana vitrectomy using 20-gauge vitrectomy instruments through the sclera, following incision of the conjunctiva, has been the standard procedure for decades. However, there are a number of problems associated with 20 G vitrectomy, such as iatrogenic retinal breaks, particularly those associated with sclerotomies, and the extra time required to create and suture the sclerotomies. Therefore, sutureless transconjunctival vitrectomy (TCV) was developed aimed at several advantages, such as less time required to create the sclerotomies, less postoperative inflammation, less operative corneal change, and faster recovery.[2–4]

Fujii et al introduced 25 G TCV, which allowed smaller sclerotomies that were thought to reduce surgically induced trauma.[5,6] Eckardt then developed 23 G TCV to combine the minimally invasive TCV with the benefits of sturdier, larger instruments for more complex maneuvers.[7] Moreover, the recently developed 27 G TCV by Oshima et al[8] promised more safety from wound leakage and endophthalmitis. Despite the advantages, these small-gauge instruments may also have some disadvantages, such as the increased flexibility of the smaller instruments, breakage of fragile instruments, small vitrector port size, and an initial learning curve in wound construction. These inventions also involve higher cost in purchasing new equipment for performing 23 G, 25 G, and 27 G vitrectomy, since these procedures require additional specially designed intraocular instruments other than the ones required for conventional 20 G vitrectomy.

Correspondence: Gilbert WS Simanjuntak
Department of Ophthalmology, Christian University of Indonesia, Jalan Sutoyo PS Cawang, Jakarta 13630, Indonesia
Tel +62 811 168 237
Fax +62 21 3899 7778
Email retinaid@yahoo.com

submit your manuscript | www.dovepress.com
Dovepress
http://dx.doi.org/10.2147/OPTH.S61756