Alternative technique for insertion of Eva Dorc® infusion cannula in vitreoretinal surgeries

Técnica alternativa de inserção da canula de infusão do Eva Dorc® em cirurgias vitreorretinianas

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\textbf{AbstrAct}

This paper provides a fast and inexpensive technique to prevent slippage of the infusion cannula from the EVA DORC\textsuperscript{®} 27-gauge system. After the usual retrobulbar anesthesia, antisepsis and asepsis, a 2\% hydroxypropyl methylcellulose drop is placed around the infusion cannula in the trocar to hold it in position. This technique prevents the slippage of the infusion cannula and both the surgical time and creation of the first sclerotomy in the eye can be shortened slightly.

\textbf{Keywords:} Cannula; Minimally invasive surgery; Vitrectomy

\textbf{Resumo}

Este artigo fornece uma técnica rápida e barata para evitar o deslizamento da cânula de infusão do sistema EVA DORC\textsuperscript{®} 27-gauge. Após a habitual anestesia retrobulbar, antisepsia e asepsia, uma gota de 2\% de hidroxipropilmetilcelulose é colocada ao redor da cânula de infusão no trocater para mantê-la em posição. Essa técnica evita o deslizamento da cânula de infusão e o tempo cirúrgico e da criação da primeira esclerotomia no olho podem ser ligeiramente reduzidos.

\textbf{Descritores:} Canula; Cirurgia minimamente invasiva; Vitrectomia

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INTRODUCTION

The goal of pars plana vitrectomy (PPV) surgery is to remove vitreous without leaving any traction that causes iatrogenic retinal tears or unwanted tissue aspiration into the vitrectomy probe. The 25- and 27-gauge vitrectomy systems facilitate minimally invasive surgeries with rapid postoperative visual recovery, improved wound construction, and greater ability to maneuver in small spaces. These advantages have increased the use of small-gauge vitrectomy.

When performing a sclerotomy, using the EVA system (Dutch Ophthalmic Research Center [DORC], Zuidland, The Netherlands) with a 27-gauge trocar with an infusion cannula, the cannula detaches easily from the trocar. This intraoperatively, if the trocar detaches, the surgery is prolonged. In the current study, we suggest a new technique to ensure continuous attachment of the cannula to the trocar without affecting the sclerotomy.

The Alcon Constellation system (Alcon, Fort Worth, TX) and the EVA are the vitrectomy systems compatible with the 27-gauge surgery. The EVA has an increased infusion rate and higher aspiration power compared with other systems. The EVA also provides the new concept of two-dimensional cutting for the 27-gauge probe; it allows the pneumatic oscillation to cut while moving forward and backward past the cutter opening. This provides 16,000 cuts/minute and theoretically a faster vitrectomy that is close to the 25-gauge surgical time.

However, the 27-gauge system has disadvantages, such as a longer vitrectomy time, low instrument rigidity, fewer available instruments, and longer times required to inject and remove oil.

Case Report

The surgery is performed under retrobulbar anesthesia. Eyelid and periorcular skin asepsis are performed with 10% povidone-iodine solution, and following placement of a lid speculum, 0.25% povidone-iodine drops are instilled onto the eye. Intraoperatively, if the trocar detaches, the surgery is prolonged. In the current study, we suggest a new technique to ensure continuous attachment of the cannula to the trocar without affecting the sclerotomy.

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Figure 1: The irrigation cannula detaches easily from the EVA DORC® 27 gauge trocar

Figure 2: Sclerotine with a 2% methylcellulose drop holding the cannula to the trocar

DISCUSSION

Vitrectomy is a complex blend of high-technology microsurgery applied to a complex pathobiologic system. This growing field with evolving technologies requires well-trained surgical teams and efficient surgical abilities. Thus, every step is important to perform a satisfactory vitrectomy, including the irrigation cannula sclerotomy, which is the first maneuver.

The methylcellulose provides a higher adherence of the cannula to the trocar due to its higher viscosity providing more adherence to many materials, such as the trocar. In the food industry, it's used as a thickener or gelling agent.

This technique provides an easy solution for detaching the cannula from the 27-gauge Ultra Short One-Step cannula system. The 2% methylcellulose secures the sclerotomy, and the surgical time is shortened by preventing cannula detachment (Video). Although not used in this technique, any other type of methylcellulose could perform the same task.

This technique provides a fast and inexpensive solution to prevent slippage of the infusion cannula from the EVA DORC 27-gauge trocar system. As a result, both the surgical time and creation of the first sclerotomy in the eye can be shortened slightly.

REFERENCES


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