A decade ago intravitreal injections (IVT) were limited for delivering antibiotic agents for subset of patients with endophthalmitis. However the increasing efficacy and safety of IVT in conjunction with the development of pharmacotherapies, including bevacizumab, ranibizumab, pegaptanib sodium, and intravitreal triamcinolone acetonide. The administration of IVT has revolutionised the treatment of many visually devastating retinal diseases, including age-related macular degeneration (AMD), diabetic retinopathy and retinal occlusive disease as well as vitreoretinal surgery. The injection is most commonly given inferotemporally because of ease of access, 3.5- to 4-mm posterior, depending on the lens status, to the limbus through pars plana. The scleral marker designed to be used as part of the intravitreal injection procedure incorporates two calibrated ends to mark the injection point, 3.5 mm and 4 mm from the limbus.

In addition to the scleral marker, the intravitreal pack typically includes a sterile drape, eye speculum and forceps. The speculum is needed to hold the eye open, the forceps to hold and steady the eye during the injection and the caliper to measure the required distance from the limbus to the injection site.

The standard scleral marking device used, available in most of the intravitreal packs, has a main body portion and a contact portion at either ends for contacting the surface of an eye, wherein the contact portion includes a distance indicator for indicating a pre-determined distance from the corneal limbus. Most of the scleral markers are double ended with a 3.5 mm and 4 mm marking and can have a flat edge or pointed tip. Additionally newer device, like invitrea have a positioning line that is aligned with the limbus. The physician fixes the eye by gently pushing the device down and turning it. The turn displaces the conjunctiva, creating an anaesthetic effect and a stepped injection hole that prevents leakage of aqueous fluid. The eye is immobilized and the surgeon places the needle through a guide tube that ensures optimal injection angle, depth and distance from the limbus. However the injection site is always 3.5 mm from the positioning line.

Prior to any IVT injection, the patient is given topical anaesthetic drops followed by a topical disinfectant, such as povidone iodine (and sometimes antibiotic). There is overwhelming evidence to suggest that the use of prophylactic iodine prevents endophthalmitis. We have designed a new marking device that marks, stabilises the eye and provides a capillary like action for iodine while carrying out IVT injections. The purpose of this paper is to report on its design and preliminary results with its use.

**CurveSite - material and design**

A new scleral marker called CurveSite ® (Aspen) was devised. The material used is medical grade Acrylonitrile butadiene styrene (ABS). It measures 70mm in length and has a width of 8 mm. It has 2 ends marked as 3.5mm and 4mm. The internal radius of curvature which aligns with the limbus is 5.25mm and the outer arc has a radius of curvature of either 7.75mm or 8.25mm depending upon which end is used. The radius of the ends of the device is 11mm. Its rigid construction prevents any distortion during use and is convenient to handle. The inner curve is the same diameter as the limbus to allow accurate alignment. The outer curve is the same curvature as the eye and provides stability of the eye when injecting. The hollow centre acts as a reservoir if iodine solution is required to be placed locally onto the surface of the limbus to allow accurate alignment. The outer curve is the same curvature as the eye and provides stability of the eye.

**CurveSite - A novel scleral marker for intravitreal injections**

N Dhingra, Mid Yorkshire NHS Trust, Wakefield

Introduction

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**Study**

After ethics approval, fifty eyes of 50 patients undergoing IVT for neovascular AMD were selected for this pilot. The eye was anaesthetised using topical proparacaine and cleaned using 5% povidone iodine. A sterile drape was applied followed by an eye speculum. Depending on the lens status, phakic or pseudophakic, either end of the CurveSite was immersed into a galipot containing 5% iodine to approximately 1cm. The hollow centre of the device acted as a capillary and retained some iodine. The device was then placed, aligning the inner curve with the limbus. As the device has another curve which is approximately the same diameter as the eye, it provides sufficient contact between the eye and the device, to enable the eye to be held in a stable position for the injection by applying limited pressure. The injection was then either delivered in two fashions. In some cases, the device was held in its position and the injection was given along the outer radial arc, whereby it worked as an eye stabiliser and marker that provided additional iodine at the site of the injection. In other cases, after the device was removed, a visible impression was left on the sclera from the povidone iodine and the injection was given anywhere along the outer radial arc impression. In these cases, the device worked as a marker and provided the povidone iodine at the site.

**Results**

Of the 50 eyes that underwent IVT injection using the devise, none of the patients reported any excessive pain as compared to IVT using the conventional marker. There were no cases of subconjunctival haemorrhage, endophthalmitis and no lens trauma. The marker provided good iodine coverage on the site of injection, however in some cases the marker tended to slip at the time of injection. However it still provided a good visible marking for the injection site.

**Discussion**

A conventional IVT pack contains eye speculum, scleral marker, and metallic forceps amongst other things like swabs, eye drape, galipot and spears. The cost of a pack is typically between ten to twenty pounds. In recent yearsthere has been a dramatic increase in IVT numbers across the country and where Ophthalmic units are considering service cost savings this device and pack prove to be very economical. The added advantage of the marker working as a stabiliser takes away the need for the metallic forceps. Additionally the capillary action providing additional antiseptic properties of iodine may help to bring down the incidence of endophthalmitis.

Therefore CurveSite, a novel scleral marker, not only helps to mark the site of the injection but also provides additional stability during the procedure and delivers iodine at the local site to reduce the incidence of endophthalmitis.

**References**


**Fig. 1. The CurveSite device**

**Fig. 2. The device placed against the limbus**

**Fig. 3. The mark clearly seen with iodine outline once the device is removed**

**Fig. 4. The mark site being used as a guide for injection**

This poster was sponsored by Aspen Medical Europe Ltd.