

Share your experience with international users of Pe-Ha-Blue® PLUS

Albomed invited international experts to the ESCRS Breakfast Meeting

on September 23, 2018 in Vienna

Jean-Pierre Corlay, MD | Quimper (France)

Anna Stanislawska, MD | Warsaw (Poland)

Andreas Borkenstein, MD | Graz (Austria)

Guy L'Helgoualch, MD | Brest (France)

The “Key Messages” of the lectures are summarized here



"Making the capsule visible is essential"

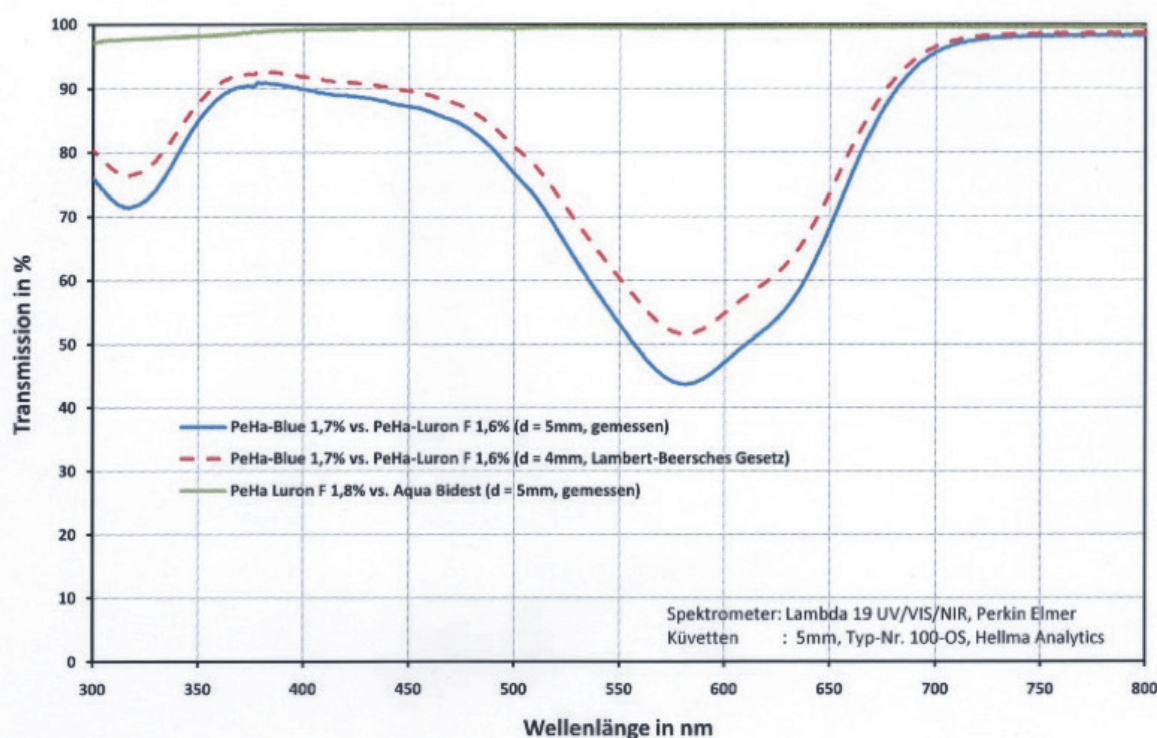


Dr. Corlay, the chairman of this symposium, provided the basic concept behind the development of Pe-Ha-Blue® PLUS. He has performed many cataract surgeries in developing countries, which led him to the idea of combining ophthalmic viscoelastic device (OVD) and trypan blue.

In mature cataract, the transparent capsule is indistinguishable from the opaque crystalline lens and this increases the risk of capsule

rupture and other surgical complications. Therefore, the success of the first phase of the surgery strongly depends on the good visibility of the capsule. The use of Pe-Ha-Blue® PLUS maintains the anterior chamber of the eye and simultaneously colors the capsule. This facilitates the first phase of the surgery, reduces the risk factors and shortens the duration of the operation, thus avoiding the need for multiple endocular surgical procedures.

While using Pe-Ha-Blue® PLUS, Dr. Corlay realized numerous advantages with this OVD in routine cataract surgery. One of the advantages is the preferred absorption of ultraviolet light from the microscope, contributing to the protection of the macula (see picture below).



Datum: 01.12.2015, (Bende, Oltrup)
Augenlinik Tübingen, Sek.I Exp. Ophthalmo Chir., Derendingerstr. 41, 72072 Tübingen

Dr. Corley concluded that this innovative product will also be suitable for new applications, such as corneal transplants and glaucoma surgery, because the visibility of the OVD is becoming increasingly important due to the development of new technologies, e.g. ab interno procedures.

Dr. Corley's Key Messages

- Pe-Ha-Blue® PLUS is a remarkable advancement for the surgical treatment of cataracts.
- It permits an improved visualization of the anterior capsule by coloring it. This facilitates and ensures the capsulorhexis which is an essential surgical step.
- IOL implantation into the capsular bag is considerably facilitated by the capsule staining.
- It simplifies the complete removal of the viscoelastic, which is essential to prevent posterior capsule opacification and hypertension.
- It has a protective function for the macula during surgery.

"I came to the conclusion that it was worth using Pe-Ha-Blue® PLUS routinely"

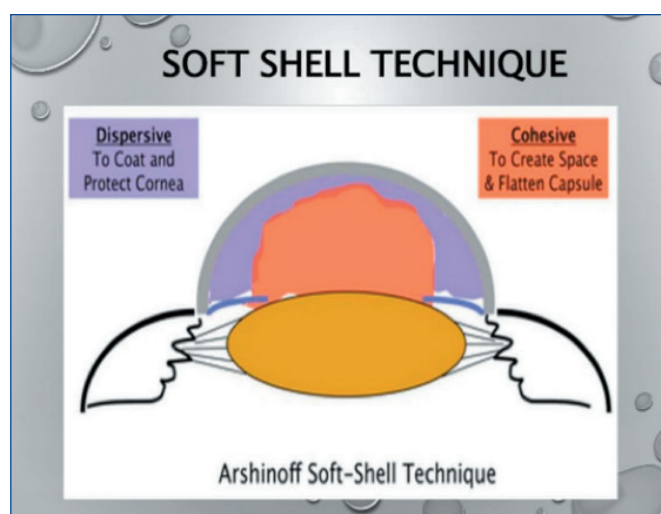


Dr. Stanislawska talked about her clinical experience with Pe-Ha-Blue® PLUS, which she has been using since June 2017 for every routine cataract surgery. She explained that the idea of combining viscoelastic and dye is to allow better visualization of the anterior bag, which is a priority when performing

capsulorrhexis. For Dr. Stanislawska, Pe-Ha-Blue® PLUS combines the following advantages:

- Lubrication and protection of corneal endothelial cells.
- Stabilization of the anterior chamber.
- Bluish layer of tissues enhances the contrast.
- Viscoelastic and dye in one syringe makes the procedure faster and safer.

Dr. Stanislawska applies Pe-Ha-Blue® PLUS not only in special cases, such as mature cataract, but also in her daily routine. Continuous curvilinear capsulorrhexis (CCC) is considered by many experienced surgeons to be one of the technically most demanding phases of cataract surgery. The speaker explained, that every phase of the phacoemulsification process, and especially capsulorrhexis, requires the highest precision and attention to detail, since the smallest error can lead to serious complications. To avoid the risk of endothelial cell loss in case of a dense nucleus, some surgeons use the so-called soft-shell technique, in which a disperse viscoelastic forms a soft shell that covers and protects the endothelium, even if the cohesive viscoelastic flows out of the anterior chamber during phacoemulsification (see figure).



Dr. Stanislawska recommends a modified soft-shell technique using Pe-Ha-Blue® PLUS to additionally color the anterior bag. This facilitates CCC and has the following advantages:

- Improving the overall visualization in case of corneal lesions and/or dense, white, hypermature cataract.
- Enhancing the visibility of the capsulorrhexis edge, which is especially helpful in case of a delicate capsular bag (PEX) or mature cataract.
- Allowing a faster reaction to the first symptoms of radial extension of the capsulorrhexis tear (RECT).

Regarding RECT, several rescue techniques are described. However, if the CCC tear-out has entered the zonular fibers, the rescue techniques may fail because the anterior zonular fibers interfere with the redirection of the CCC. A well visible, stained anterior capsule enables a quicker reaction to such intraoperative complications.

At the end of her presentation, Dr. Stanislawska stated that in the 14 months of using Pe-Ha-Blue® PLUS she had not observed any side effects during surgery or in the postoperative period.

Dr. Stanislawska's Key Messages

- Using Pe-Ha-Blue® PLUS provides better control over the capsulorrhexis edge and enables a faster reaction to intraoperative complications.
- It increases safety and prevents complications at the earliest stage of the surgery.

“Pe-Ha-Blue® PLUS enhances the OR workflow”



Dr Borkenstein has already used Pe-Ha-Blue® PLUS in about 50 cataract surgeries and reported on his clinical experience. For him, Pe-Ha-Blue® PLUS offers the following advantages:

Time saving: It is possible to fill the anterior chamber with OVD and trypan blue in one single step which helps to save time and accelerate surgical procedures. This is especially helpful in difficult cases (PEX, uveitis) where iris hooks or Malyugin rings are needed for mechanical pupil dilation.

Better resistance to vitreous pressure: In case of a “vis a tergo” with bursting of the capsule (Argentine flag), the anterior chamber can be refilled with Pe-Ha-Blue® PLUS. Thus, the blue-colored anterior capsule can be pushed back without the risk of bringing trypan blue into the posterior chamber/vitreous. No additional flushing with BSS or irrigation/aspiration is required.

Synchysis scintillans and vitreous floaters are less stressful: By refilling the capsular bag with Pe-Ha-Blue® PLUS during surgery, the fundus reflex is reduced and shadows of vitreous floaters are less disturbing for the surgeon. This makes the operation much easier and safer, especially removing the cortex, performing the I/A and polishing the posterior capsule.

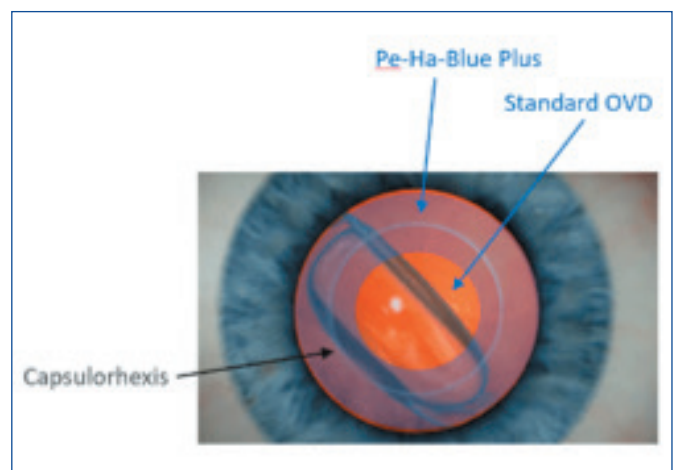
Decreased light impact on the retina: Due to the reduced light transmission of Pe-Ha-Blue® PLUS, it acts as a protection for the retina during the operation.

Allows complete OVD removal behind the IOL: Because Pe-Ha-Blue® PLUS is clearly visible to the surgeon, all residual OVD between the IOL and the posterior capsule can be completely aspirated. This reduces the risk of postoperative IOP elevation, corneal edema, and toric IOL rotation, especially with large-diameter and/or plate-haptic IOLs.

Better stereoscopic vision: Pe-Ha-Blue® PLUS and a standard clear OVD can be used simultaneously to highlight structures in the eye and achieve a better stereoscopic vision (useful for beginners, see picture to the right).

Fighting against air bubbles: With Pe-Ha-Blue® PLUS, surgeons can more easily identify air bubbles. After aspirating the bubble, the areas without OVD are clearly visible and the spots can be refilled to preserve endothelial protection.

Advantageous when complications occur: In the event of posterior capsule tearing or vitreous loss, Pe-Ha-Blue® PLUS can be useful to stain the posterior capsule without infiltrating the vitreous. This makes the vitreous body better visible in the anterior chamber and helps to push it back.



In addition to cataract surgery, Dr. Borkenstein also sees application areas for Pe-Ha-Blue® PLUS in glaucoma and corneal surgery, such as improved visualization of the host cornea, which supports accuracy. Besides that, the speaker pointed out that Pe-Ha-Blue® PLUS colors the capsule less intensively than standard trypan blue and that it cannot be used for moistening and protecting the exterior part of the eye (epithelium, conjunctiva) during surgery. He explained that in exceptional cases of subcapsular cataract in highly myopic eyes with fundus myopicus, visualization during surgery using Pe-Ha-Blue® PLUS may be limited.

Dr. Borkenstein's Key Messages

- Pe-Ha-Blue® PLUS seems to be an interesting OVD, especially in challenging cases.
- It enhances the OR workflow and makes the surgery safer and faster (caution: very long eyes with fundus myopicus).
- It leads to a very high surgeon satisfaction.

- The application of Pe-Ha-Blue® PLUS is safe in his hands (no adverse events reported).
- Pe-Ha-Blue® PLUS complete removal, improving surgical outcomes in refractive surgery (MIOL/TIOL).

"The blue color of the viscoelastic helps you to control when and how you fill the bag"



Dr. L'Helgoualch, mainly a retinal surgeon but also performing cataract surgeries, started with an excursion into illumination technology. In order to achieve the maximum coloring effect of Pe-Ha-Blue® PLUS, it is very important to have a good proportion of blue light in the light source of the operating microscope.

The blue color of Pe-Ha-Blue® PLUS is the complementary color of the retinal reflection through the lens. Placing a blue color over the orange color of the fundus increases contrast and magnifies details.

The speaker explained the different spectral profiles of common microscopy light sources. Xenon or LED light sources offer a higher wavelength proportion corresponding to the blue color, in contrast to tungsten or halogen light sources. If necessary, a new light source can be added to an older microscope to improve its performance. Dr L'helgoualc'h sees the following advantages of Pe-Ha-Blue® PLUS:

Anterior chamber injection:

- Better control over the filling quantity of the OVD during injection.
- High transparency allows to see all details of the anterior capsule.
- The intensity or brightness of the light source is not affected, but the contrast of the details is increased.

Anterior capsulorhexis:

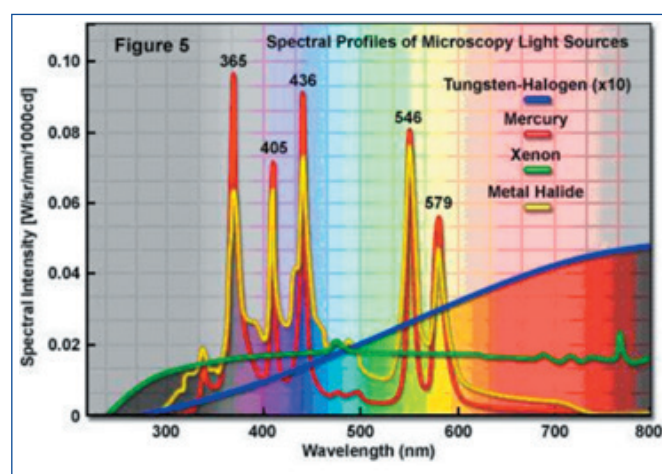
- Increases the contrast of the capsular folds and helps to better control the CCC.
- Visibility of the anterior capsule is not influenced by the color of the lens (also visible in white cataract).
- Does not significantly reduce the illumination of the lens.

Posterior chamber cleaning:

- High contrast of the rhexis edge is very comfortable.
- Residual cortex and posterior capsule are better visible.
- Posterior capsule folds are better visible, which is especially helpful during posterior capsule polishing.

Preparation of IOL injection into the bag:

- Gives the opportunity to refill the capsular bag (1st step) and the anterior chamber (2nd step) separately.



Cleaning after IOL implantation:

- The blue color helps to identify the viscoelastic even behind the IOL to ensure complete OVD removal.

Dr. L'Helgoualch Key Messages

- To take full advantage of Pe-Ha-Blue® PLUS, a proper light source is required.
- Pe-Ha-Blue® PLUS makes the surgery safer, easier, and more comfortable in his hands..
- Especially suitable for education of fellows.