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CUTTING-EDGE ADVANCEMENTS

## EUROPE

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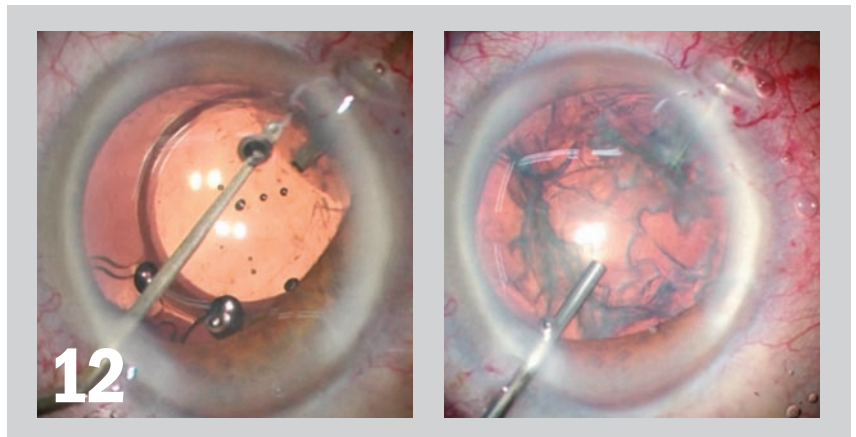
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# The importance of microsurgical instruments that facilitate adaptability

The surgeon's tools are just as important as their surgical skills

By Dr Gilles Lesieur

In my private practice I perform cataract, refractive and glaucoma procedures that demand good visual outcomes. I have been performing bimanual microincision cataract surgery (BiMICS) for many years. With BiMICS, cataracts may be extracted through incisions of 1.1 mm, requiring precise, accurate and dependable microinstruments.

While much emphasis is often placed on the decrease in incision size, the main advantages of BiMICS, in my opinion, are enhanced anterior chamber stability, improved safety through the separation of irrigation and aspiration, best wound architecture and preservation of wound integrity.

The anterior segment microsurgical instruments from MicroSurgical Technology (MST; WA, USA) are for me the instruments of choice. MST relies on the advice from many experienced surgeons to develop instruments that provide flexibility and help ease difficult surgeries. I regularly use the 23g Seibel Capsulorhexis Forceps, 23g Hoffman/Ahmed

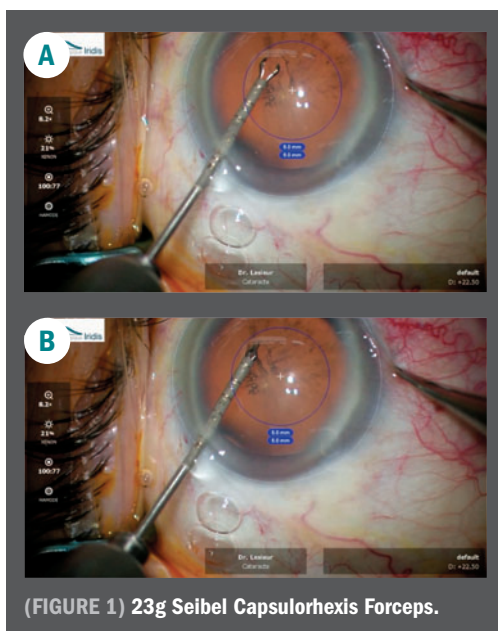
Horizontal Scissors, and the Packer/Chang IOL Cutting Kit (19g Packer/Chang IOL Cutters and the 23g Micro Holding Forceps) along with the MST Capsule Retractors as part of my surgical routine.

## Conquering capsulorhexis in BiMICS

Creating a precise capsulorhexis is one of the most challenging steps in BiMICS. Surgeons require a great degree of precision, control, visibility and manoeuvrability, which needs to be attainable through a microincision. The development of capsulorhexis forceps meeting such requirements helped to transform BiMICS into my surgical routine. The Seibel Capsulorhexis Forceps (Figure 1) have become indispensable in my practice. The forceps have a coaxial design and include a unique capsulorhexis ruler, which helps the surgeon visualise, directly on the capsule, the desired capsulorhexis size. The ruler enables surgeons to centre the capsulorhexis precisely and to ensure capsular opening of an adequate size to achieve a stable implantation of the lens. The coaxial design allows greater control at the distal end of the instruments. The design as well as the ability to minimise the paracentesis to 1.0 mm, if needed, help minimise the loss of OVD, and therefore maintain a stable anterior chamber. This is very important in white cataract cases avoiding Argentinian flag complication with the help of Trypan Blue (Monoblue, Arcad Ophtha, Launac, France).

The Seibel Capsulorhexis has a ruler with exact measurements (allowing high accuracy and precision), and sharp-tipped forceps (allowing visibility when grasping the capsule).

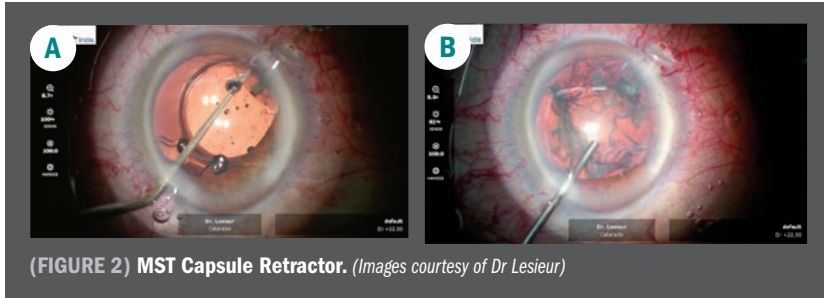
While having the right skills and right instruments to perform capsulorhexis through a micro-incision



(FIGURE 1) 23g Seibel Capsulorhexis Forceps.

## IN SHORT

► Dr Lesieur discusses the importance of using instruments that provide flexibility to adapt when performing BiMICS.



(FIGURE 2) MST Capsule Retractor. (Images courtesy of Dr Lesieur)

is of essence, patients can sometimes unexpectedly move during the procedure, resulting in an oval capsulorhexis. In this case, after the implantation of the lens into the anterior capsule, the capsular bag can overlap the lens more than desired. By using the micro-scissors, it is possible to correct the size of the capsulorhexis to achieve a well-centred capsulorhexis, preventing any IOL tilt or decentration. In these cases, I use the 23g Hoffman/Ahmed curved scissors, which provide great control during the cutting thanks to their small size, curved shape and hingeless design.

Having more space to work, good control and good precision are what I need to simplify micro-incision cataract surgery as well as treat complex cases.

### Unstable capsular bag and patients with weak zonules

Dealing with an unstable capsular bag is another challenge in BiMICS. This occurs in cases with weak zonules, and can affect every step of the cataract procedure and increase the risk of complications. When faced with weak zonules, several devices can be used to stabilise the capsular bag, such as the tension ring, iris hooks or capsule retractors.

Whether during or at the end of the surgery, my choice is the MST Capsule Retractors, Chang modification for capsular bag stability. The retractors let you support the bag throughout the operation without aggravating the zonular distension.

In comparison with the iris hooks, which only pull on the capsulorhexis margin, the MST Capsule Retractors have extended posterior tabs that support the bag. Whereas iris hooks can be somewhat aggressive and increase the risk of tearing the anterior capsule, the MST Chang-modified capsule retractors support the entire capsule

equator as well as the anterior capsule rim without cinching down on the continuous curvilinear capsulorhexis edge.<sup>1</sup> This allows the retractors to act as artificial zonules that help the surgeon achieve enough stabilisation throughout the entire bag during phacoemulsification and cortical clean up. The retractors also allow a delayed placement of CTR until after the cortex is removed, which helps avoid the cortex being trapped by the CTR.<sup>1</sup> The outcomes are good with this retractor mainly due to the shape and elongation of the hooks, which provide a broader area of contact to achieve gentle support (Figure 2).

So, in patients with serious pseudo-exfoliation syndrome who suffered major complications during the operation, it is a tool that enables me to support the bag, implant the lens without increasing the zonular lesions and achieve post-operative stability.

### Conclusion

With adaptable instruments in BiMICS, I am able to control the microenvironment that I am working in, have great visibility and precision, and minimise chances of complications, as well as manage them better if they do occur. Having instruments that provide flexibility to adapt to the situation is of essence to every doctor performing BiMICS.

### REFERENCE

1. Chang, D. Chang Modified MST Retractors. *VJCRS*, 2019, 35. <https://vjcrs.com/volume35-issue1/chang-modified-mst-retractors>

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