

Ziemer's FEMTO LDV™: One year of Clinical Experience

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In cooperation with Ziemer Ophthalmic Systems, we could collect early practical experience with the „Da Vinci“ femtosecond (FS) laser since 2006. In January 2007, I had the opportunity to perform the world's first live surgery with the system during the „Halle'sches Symposium.“ In general, the FEMTO LDV™ turned out, right from the early days, to be a robust and safe device. And even

the first devices surprised us with the excellent quality of the corneal flap resections it generated. Within these 2 years only 1 operation day had to be postponed proving the reliability of this high tech-device.

Today, we have performed approximately 400 LASIK procedures successfully and without complications at the IROC clinic in Zurich. Now, in the second half of 2008, about 100 LDV systems are in operation around the world, and over 50.000 eyes have been successfully treated. Within the inter-

national LDV-User Group we communicate intensely. My colleagues report unanimously about their experience:

Long-term results of LASIK procedures performed with microkeratomes and with FS-lasers are of a comparable quality as far as visual and refractive results are concerned. FEMTO-LASIK flaps may be superior to blade-created flaps in the long run in terms of corneal stability, since femto flaps are typically thinner with a smaller standard deviation which may lead to a more stable cornea. Refractive

surgeons and patients alike are particularly impressed with the immediately post-operative results obtained with Z-LASIK. It is noteworthy that the percentage of Z-LASIK eyes with a UCVA better than 20/20 on the first post-operative day exceeds the results seen with blade microkeratomes. This explains the high degree of customer satisfaction LDV-users are experiencing. Several colleagues are reporting that an increasing number of their patients opt for Z-LASIK. When comparing the two major contenders in

the FEMTO-LASIK arena, the very low complication rates reported for the LDV are particularly noteworthy. Opaque bubble layer (OBL), transient light syndrome (TLS) and laser-induced diffuse lamellar keratitis (DLK) - these complications are practically non-existent with the Ziemer system, where complications are limited to occasional mismanagement of the thin flap.

What is the best combination of Lasers for Z-LASIK? At IROC we are using the FEMTO LDV in combination with the Wavelight Concerto Excimer Laser. These two state-of-the-art laser systems can be integrated into the LASIK procedure workflow in an optimal fashion. But other leading-edge excimer lasers (Schwind,...) may be easily combined with the FEMTO LDV.

Where is further FS-laser development headed? In LASIK surgery, an important trend is towards thinner flaps (Sub-Bowman Keratomileusis, SBK), as they are believed to promise better biomechanical stability and leave more tissue for excimer laser ablation. SBK's promise is to expand the range of treatable visual errors. The FEMTO LDV is here ahead of other FS-lasers, as it offers the highest cutting precision and virtually eliminates the risk of gas breakthrough and flap tears.

Another important advantage of the FEMTO LDV is that it permits the largest flap diameters of 10 mm; giving the surgeon more room for special excimer ablation patterns. Despite using tricks such as elliptically shaped flaps, other femtolasers cannot generate flaps of comparable size and therefore are facing issues with higher order aberrations, putting a limit on ultimate visual performance.

The importance of the FS-laser reaches well beyond the capabilities of a mere „flap-maker“. We can report convincing initial results with an improved FEMTO LDV with deep lamellar keratomies. With a FEMTO LDV equipped with a modified handpiece we could generate tunnel incisions for inserting corneal rings. Due to the good quality and precise geometry of the incision, the ring segments can be inserted more easily and positioned with greater accuracy. Generating intrastromal „pockets“ for corneal inlays (e. g. Acufocus inlays for correcting presbyopia) is very straightforward with the FEMTO LDV.

We can also report on initial experience with femtolaser lamellar keratoplasty. While with other FS-laser systems the cutting quality deg-

Zレーシックは手術直後の結果が良いので、患者や執刀医から感銘を受けている。

それは手術翌日の裸眼視力が 1.0 以上に回復する割合がマイクロケラトームに比べ優れている事や、Zレーシックを受ける患者が増えているという報告がある事からも伺える。

また、フェムトレレーシックの分野で、有力候補のイントラレーシックとZレーシックを比較したとき、ZレーシックのシステムではOBL(一時的ガス混濁)やTLS(眩しい症状)、さらにはDLK(炎症)といった術後の合併症が存在しない事もZレーシックを採用している執刀医の満足度の高さを示している。

世界の屈折矯正の権威であるスイスのザイラー教授の発表 (ESCRS2008) から抜粋 (要訳)

当院の実績においても好結果が得られています

当院の調査結果においてもZレーシックはイントラレーシックに比べ、約30%炎症(DLK)の発生率が減少しています。

当院は日本で唯一イントラレーシックとZレーシックを行っているクリニックです。Zレーシックを行っていない施設が、イントラレーシックとZレーシックを比較しているケースがありますが、当院では医学的に検証し、実績に基づいてZレーシックを推奨しておりますので、ご安心ください。