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We conducted a retrospective study of 12,182 consecutive patients who underwent clear corneal phacoemulsification, comparing incision technologies.

Group A

In 3,912 patients the main and sideport incisions were created with Mastel diamonds.

Group B

In 8,270 patients standard metal keratomes were employed for both incisions.

All patients were seen within 8 hours of surgery. There were no postoperative wound leaks (0/3,912) at any point in time with a mean first visit postoperative pressure of 19.2 mm Hg in Group A. There were 9/8,270 ($p < 0.05$) wound leaks with a mean first visit postoperative pressure of 21.6 mm Hg ($p < 0.05$) in Group B. All 9 wound leaks in Group B were from the sideport. 3/9 wound leaks required suturing. 6/9 wound leaks sealed spontaneously. The intraocular pressure difference reflected the need to hydrate the wounds more in Group B as they were more difficult to seal and the eyes were left with a higher intraocular pressure at the end of the case. 180/3,912 (4.55%) of patients in Group A had an early IOP spike greater than 28 mm Hg versus 842/8,270 (10.18%) in Group B ($p < 0.05$). None of the patients in either group experienced an endophthalmitis or vascular occlusion.

We found that the use of Mastel diamonds for the incision significantly reduced the rate of wound leaks and the amount of wound hydration resulting in lower early postoperative IOP's and potentially dangerous IOP spikes.

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