Residual fragments and endophthalmitis risk

New laboratory research supports previous suggestions that residual lens cortex after phacoemulsification may be associated with an increased risk for the development of endophthalmitis. Chinese researchers report animal study data in which Staphylococcus aureus and Staphylococcus epidermidis were dispensed into aqueous humour or serial dilutions of lens cortex that were obtained from cataract patients during phacoemulsification. After a 24-hour incubation, the colony-forming unit (CFU) was quantified. Eighty rabbits had phacoemulsification. Complete lens cortex removal was performed in half of the rabbits, while a quarter of lens cortex was retained in the remaining animals.

Staphylococcus aureus, with an inoculum size of 32 CFU, 56.3 CFU and 108.6 CFU, was injected intracameraly at the conclusion of surgery and the production of endophthalmitis was measured 72 h later. The researchers observed that lens cortex was associated with a significant increase in bacterial growth compared with aqueous humour. They conclude that eyes with residual lens cortex seem more prone to develop endophthalmitis if anterior chamber bacterial contamination occurs during phacoemulsification.

In a related editorial, Emanuel Rosen MD, FRCSEd, discussed the implications of these findings. He reviews the measures surgeons now take to reduce the risk of postoperative endophthalmitis, including preoperative topical antibiotics, draping and postoperative intracameral antibiotics. He then cites previous clinical reports suggesting that retained cortical fragments might enhance the ability of common bacteria to infect the anterior segment of the eye. Dr Rosen notes that although the clinical evidence is still slight, Dr Lou’s study suggests that it would be wise to ensure that all cortical material is removed as a further prophylactic manoeuvre against infection within the operated eye.

Pain control after cataract surgery

Two new studies report that a new gel formulation loteprednol etabonate 0.5 per cent appears to be safe and effective in the treatment of inflammation and pain after cataract surgery. The first, a large multicentre, prospective double-masked parallel-group study enrolled 406 patients at 17 clinical sites in the US. Patients with anterior chamber cell (ACC) grade 2 or higher after cataract surgery were randomised to loteprednol etabonate 0.5 per cent gel or vehicle four times a day for 14 days. On day eight, 30.5 per cent of patients in the loteprednol etabonate group and 16.3 per cent of patients in the vehicle group had complete resolution of ACC, whereas 72.9 per cent and 41.9 per cent, respectively, had grade zero pain (both P<.001). Significant treatment differences for complete resolution of ACC and grade zero pain favouring loteprednol etabonate were also found on day 15 and day 18. One patient in each treatment group had a significant increase in IOP (≥10 mm Hg). Analyses of pain, photophobia and tearing favoured loteprednol etabonate at different time points beginning on day three. More than 85 per cent of patients in each treatment group reported no discomfort on drop instillation.

A second study, also conducted in the US, compared the efficacy of loteprednol etabonate 0.5 per cent versus prednisolone acetate 1.0 per cent for the control of postoperative inflammation in patients having routine cataract surgery. The comparative case series randomised 88 patients to receive loteprednol etabonate or prednisolone acetate four times daily in addition to bromfenac 0.09 per cent and besifloxacin 0.6 per cent after surgery. At three weeks the researchers noted no significant differences in efficacy. They observed less fluctuation in IOP assessments in patients treated with loteprednol etabonate than in patients treated with prednisolone acetate, in particular one day and three days postoperatively.


Less invasive and no surgically induced astigmatism

Due to 1.8 mm MICS (micro incision cataract surgery)