Scleral buckling is still the most common paediatric retinal surgical procedure, while vitrectomy should be left as the last option, reported researchers at the 13th International Paediatric Ophthalmology Meeting.

“The potential problems with retinal surgery in children are absolutely enormous. First of all children often present late with detachment and they often have aggressive PVR,” said Dara Kilmartin MD, consultant vitreoretinal surgeon, Royal Victoria Eye & Ear Hospital, Dublin, Our Lady's Children's Hospital, Crumlin, Dublin. He added that the anatomical and functional success rate is poorer compared to adult surgery.

Dr Kilmartin’s presentation during the retina session at the meeting outlined the key problems and results of retinal surgery in children. To safely operate on young children a trained paediatric anaesthetist is essential, Dr Kilmartin emphasised, adding that the pars plana is not fully developed in infants until they are well over six months of age and it continues to develop up to six years.

Retinal tears “Posterior hyaloid separation is usually not possible and often dangerous with high risk of retinal tears so this should not be your surgical goal in most children,” he said.

Dr Kilmartin stressed that amblyopia management requires an aggressive team approach, with close co-ordination with paediatric ophthalmology colleagues. Patients should ideally be managed in a paediatric unit with assessment with the orthoptic team.

Internationally, retinopathy of prematurity (ROP), trauma, congenital abnormalities, and uveitis/infection are still the most common indicators for retinal surgery in infants and young children. However ROP-related detachments are rarely seen in Ireland, most likely due to a “very proactive” screening programme in Irish neonatal units and the low incidence of premature births, he said.

Scleral buckling is the most common retina procedure in children, particularly for dialysis and trauma-related detachments, as it is a very good, safe technique in children, according to Dr Kilmartin.

However, there are potential problems in this cohort as their eyes are still growing and the scleral buckle often needs division later. “That can often be achieved by cutting the silicone band, which I use in all my scleral buckle cases,” Dr Kilmartin explained.

“Up to 12 D anisometropia can be induced by buckling in an ROP eye and this will induce a massive degree of amblyopia and this will need to be cut within months of performing this procedure. A wider buckle is often needed, as later presentation is usually associated with PVR. You can cut the 40 band alone later leaving the silicone explant in place.”

Highlighting the risks with vitrectomy, he said it is not necessary and is dangerous to try and remove all vitreous or pre-retinal membranes from the inner retinal surface.

“Iatrogenic retinal breaks usually result in inoperable retinal detachment, even with PFI and oil, as you cannot completely dissect vitreous from inner retina.”

However, Dr Kilmartin acknowledged that the newer techniques in microincision vitrectomy mean it is now easier to safely shave much closer to the retina, but there is still some way to go in this area.

He presented a comparative study of two of his patient cohorts over succeeding time periods, which showed that uveitis has superseded trauma as the main indication in the latter group. He reiterated that modern vitreoretinal surgical techniques can help achieve retinal reattachment in most cases but multiple procedures are required frequently to attain this. “Microincision vitrectomy techniques are becoming more important particularly with core vitrectomy. There is a new trial using microplasmid to enzymatically dissolve the vitreous. The results of that study will allow safer vitrectomy”, he told EuroTimes.

Dr David Keegan, consultant vitreo-retinal surgeon, Mater Hospital, Dublin, gave the meeting a detailed presentation on the key causes of paediatric retinal detachment.

Infant retinal detachments comprise 10 per cent of all detachments though the annual incidence in the paediatric population is low (2.9 per 10,000) compared to adult incidence (10-20 per 10,000), while prevalence is also higher in male infants (3.7 male vs 1.6 female per 10,000), he noted. Tractional retinal detachments are the most common type seen in infants, with developmental conditions (eg, ROP, FEVR, or PHPV) and congenital disorders (eg, coloboma or incontinencia pigmenti) causing most paediatric retinal detachments.

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