

Surgical Pearls for Pediatric Patients

Retina specialists primarily examine and operate on adult patients, but when pediatric patients require examination or surgery, retina specialists deliver the same expertise and care to these young patients. In keeping with this issue's feature series on pediatric retina care (see page 42), Retina Today invited two retina specialists with a passion for pediatric care to deliver their pearls for treating pediatric patients.

Office Visits, Imaging, and Surgery for Children



By Barbara Parolini, MD

Pediatric patients are among the most vulnerable patients retina specialists encounter. However, I think it is a mistake to avoid surgery or an office visit simply because the patient is a child. I have more than once seen a child with a treatable pathology who was told by his or her ophthalmologist that "nothing could be done."

There are a number of special considerations when dealing with pediatric patients during office visits or in the OR. Rather than present a pearl for a specific surgical case, I offer some "points to ponder" when encountering pediatric patients.

During pediatric office visits, always examine the periphery. This is common practice after trauma cases to rule out a retinal disinsertion. However, peripheral examination may reveal such things as telangiectasia (Figures 1 and 2).

Panfundus photography is a valuable tool for diagnosing pathology. It is much easier to take a photograph of a pediatric patient's posterior segment than to look directly into the eye with the ophthalmoscope or slit-lamp (Figure 3).

During surgery, panoramic systems provide a clear view of the surgical space; contact lens systems are more prone to interfere with instrumentation due to the smaller distances between the limbus and the sclerotomies in pediatric eyes.

I do not use trocars in cases in which I must avoid the lens. Instead, I use tangential 20-gauge sclerotomies, which are generally self-sealing.

In vitrectomy cases, be prepared to induce posterior vitreous detachment via an incision of the internal limiting membrane at the border of the papilla.

I avoid peripheral vitrectomy in cases involving the macula, as the vitreous is still firmly attached, and the risk of leaving peripheral vitreous is lower than the risk of creating a peripheral break.

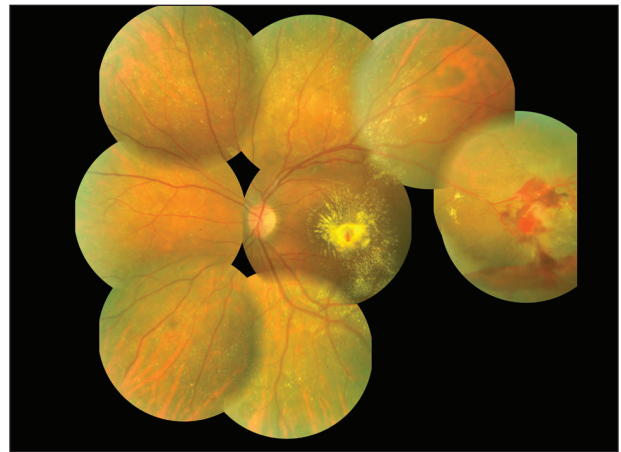


Figure 1. Coats disease discovered by chance during a visit to admit a 10-year-old child to a soccer team.

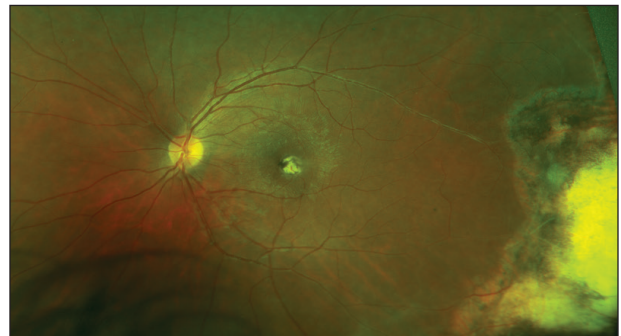


Figure 2. The same child after treatment with cryotherapy of the telangiectatic vessels and an intravitreal injection of bevacizumab (Avastin, Genentech).

Surgeons should also be well versed in episcleral surgery. Such surgery is useful for traumatic retinal disinsertion or detachments and for retinal detachment associated to retinoschisis, in cases where the retinal breaks are peripheral and reachable with a buckle.

However, if vitrectomy is needed, the fear of cataract should not stop the surgeon: The occurrence of

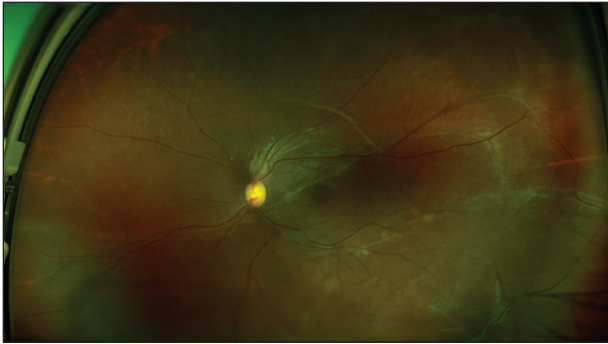


Figure 3. Panoramic color picture of an 8-year-old child with X-linked retinoschisis and detachment.

postvitrectomy cataract in a child is rare, unless the lens is touched intraoperatively.

Barring behavior problems or mental illness, postoperative positioning for pediatric patients can be achieved easily by showing parents (or the patient) that coloring, drawing, and playing can all be done in this position.

Last, but perhaps most important, children should be examined annually. Pediatric pathology is underestimated or not self-reported by the young patient, and there is usually a chance we can intervene in time to save vision if it is detected early.

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What I Emphasize to Residents, Fellows, and Training Surgeons



By R. V. Paul Chan, MD, MSc, FACS

One of the biggest mistakes surgeons in training can make when approaching vitreoretinal surgery in a pediatric eye is to think it will be the same as performing surgery in an adult patient.

There are important differences to keep in mind. The following are some key points I emphasize in my interaction with residents, fellows, and trainees learning about pediatric retina surgery.

No. 1. Know the Anatomy

I find that surgeons new to pediatric retina surgery get very surprised by the limited space you have when performing surgery. Because of the smaller size of the eye, the angle of approach and the distance from the limbus to make the sclerotomy for vitrectomy are going to be different depending on the age of the patient. Pediatric ocular anatomy is

very different than in adults, but not just because of the smaller size. The vitreous is more adherent to the retina and more difficult to remove; the sclera is also different from adults, which alters our ability to reliably leave our sclerotomies without sutures at the end of the case.

No. 2. Perform a Thorough Preoperative Evaluation

It is critical to perform a thorough preoperative examination to determine if surgery (eg, vitrectomy, scleral buckle) is even the appropriate next step. And if surgery is warranted, you need to assess what you might encounter once you enter the eye, as anterior peripheral pathology may not be easily visualized in the office. I utilize imaging quite a bit to aid in my examination. This includes widefield imaging/fluorescein angiography and optical coherence tomography. If you cannot visualize the retina, you must perform an ultrasound to assess the retina and also make absolutely sure there is no intraocular mass (eg, retinoblastoma).

No. 3. Think About the Examination Under Anesthesia (EUA)

Because of the importance of the preoperative evaluation, always remember that you have the option of performing an examination under anesthesia. The evaluation is so vital that if getting a thorough examination means having to perform an EUA, then so be it.

A fourth point I feel is important in any surgery is to be comfortable with your own preferences and to stick to what you do best. Some surgeons prefer two-port vitrectomy whereas others are more experienced with a three-port approach. Gauge selection is also a very important consideration. I use both 23-gauge and 25+ gauge. I feel that one advantage of the 25+ gauge instruments (Alcon) is the sew-on infusion. I like to have the preplaced suture for closure at the end of the case. Endoscopy is another consideration and may be very useful. However, you have to be comfortable with this approach. There is a steep learning curve with endoscopy and this may become a more widely adopted technique as the technology improves. Also, for pediatric retinal detachments, do not forget about the option of performing a scleral buckle in select cases.

These may all seem like basic principles, but they are nonetheless important. You have to be very careful with pediatric patients; they are not just small adults. ■

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