Retinal detachment—evolution and changing trends in management

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Since the first successful report by Gonin, retinal detachment (RD) surgery has come a long way and over the last 70–80 years, the anatomical success rate has increased to over 90%.

The evolution of RD surgery is both exciting and fascinating. RD, from being an inoperable problem to one where surgery has an over 90% success rate, is probably one of the greatest success stories in the world of medicine. Although Ware gave the first description of RD in 1805, an accurate clinical diagnosis of RD was possible only after Helmholtz invented the ophthalmoscope (1850). With further modification over time, an indirect ophthalmoscope, introduced by Schepens, became the main diagnostic tool for retinal disorders even today.

Many procedures were proposed to reattach the retina but with hardly any success until Gonin proposed that a retinal break was responsible for the detachment. He reported successful reattachment of the retina by sealing the retinal break (1920) using a cautery (Ignipuncture). With this technique, Gonin could achieve a success rate of more than 50%. Subsequently, many researchers contributed to the advancement and success of retinal surgery by trying various innovative techniques and surgical methods. Modern established surgical techniques for RD repair, such as, retinopexy, scleral buckle, vitrectomy and internal tamponade, have evolved over a period of time but revolve around the basic principle of ‘closure of retinal break and relieving vitreous traction’.

Kasner proposed and proved that the eye can tolerate removal of vitreous and was the first to advocate open sky vitrectomy. Although Dodo (1955) and Haruta (1959) from Japan published their vitrectomy techniques years earlier, Robert Machemer, considered as the ‘Father of modern VR surgery’, reported his first pars plana vitrectomy in 1970 for non-resolving vitreous haemorrhage and went on to propose newer instruments, techniques and indications for vitrectomy. Miniaturization of instruments and the development of operating microscope contributed to establish current standard three-port vitrectomy techniques.

Scleral buckle, vitrectomy or any other procedure? Despite significant improvement in techniques, instrumentation and better understanding of patho-anatomy leading to dramatic success in RD management, reasonable disagreement exists as to which approach is best as far as surgical intervention is concerned. In the past, scleral buckling was considered as the ‘Gold standard’ and pars plana vitrectomy was used either in recurrent RD following scleral buckling or primarily in complicated detachments. In 1985, Escoffery published his first report of vitrectomy without scleral buckling for the management of RD. Since then we know that the process of vitrectomy which includes near complete removal of vitreous traction, ability to clear media opacities leads to better visualization and identification and hence better treatment of retinal break/s and further improvement in surgical outcomes.

With the availability of smaller gauge instrument (MIVS) with better fluidics, wide angle visualization and brighter illumination, there is an increased safety margin leading to reduced intraoperative complication rate, reduced overall surgical time and reduced post-surgery morbidity with a final better reattachment rate. There is an increasing trend to use vitrectomy as the primary option for retinal reattachment surgery, although there is no clear evidence of superiority of one procedure over the other. The combined surgical approach of vitrectomy with scleral buckle has also been an area of debate and multiple studies have shown conflicting results. There is a general consensus that primary vitrectomy is better for RD in pseudophakic/aphakic eyes and SB yields a better single-surgery success rate in phakic eyes. The available set-up, training and competence and technical familiarity of the operating surgeon also influence the selection of surgical procedure, and we may need ‘expertise-based’ trials to eliminate a surgeon factor while performing newer trials for better interpretation of the results.

The introduction of MIVS has made a paradigm shift in the way we approach our cases. The speed, efficiency, early rehabilitation and most importantly ‘no suture technique’ are appealing for both surgeons and the patients. There are further attempts to go for thinner, smaller instruments with higher cut rates. Do we really need these? What is an ideal gauge for microsurgery? Are they really superior for patient care? What about surgical efficiency and safety? Should we go for it just because they are available, or due to peer pressure? We do not have answer to all these questions at present.

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With increasing options in the VR surgeons’ armamentarium, it is becoming more and more difficult for us to choose the appropriate technique in a given case and it is here that experience and familiarity with various techniques matters. While training our young retina surgeons to adopt these newer exciting technology and techniques, it is equally important to ensure that they learn their basics right.

Sankara Nethralaya is organizing the ‘Retina Summit 2017’, our second theme based annual retina meeting, in July 2017. The focus of this year’s meeting is ‘Retinal detachment’. Eminent and experience faculty from India and across the globe will be discussing various management options for simple and complex RDs including controversies in management and associated complications. I hope the meeting will be a great learning experience for both practicing surgeons and retina surgeons in training.

This issue of ‘Insight’ is rolling out at the time of the ‘Retina Summit 2017’ and is dedicated to the management of RD, the very focus of this meeting. This issue covers diverse topics related to evolution of RD surgery, tips for beginners, current trends and controversies in the management of retinal reattachment surgery, surgery for exudative RD and case reports of management of unusual complications of surgery. As Sankara Nethralaya is known for its expertise in VR surgery, we would also highlight SN’s contribution in establishing VR surgery as a specialty in Indian subcontinent and it's contribution to the existing published literature on RD.

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