

## Commentary: Battling the bulge: Buckling staphylomas

Myopic macular distortions and their management by macular buckle (MB) were described almost six decades ago,<sup>[1]</sup> however, the concept of myopic traction maculopathy (MTM) gained attention after the advent of optical coherence tomography.<sup>[2]</sup> Panozzo and Mercanti<sup>[2]</sup> and Shimada *et al.*<sup>[3]</sup> described the techniques of vitrectomy in MTM. The concept of pathogenesis in MTM became better defined with the evolution of various vitrectomy techniques and the application of internal limiting membrane (ILM) peeling to relieve the traction.<sup>[4]</sup> The role of ILM peel with gas tamponade gained almost universal acceptance among all retinologists with various groups reporting almost 90% success rate in their series.<sup>[5]</sup> Still a small subset of patients with extremely long eyes and large posterior staphylomas remained nonresponsive to the vitrectomy approach. The role of anatomical correction of the posteriorly directed pull of a bulging sclera became clearer, and the interest in buckling the macula was re-ignited. The approaches included procedures as complicated as multiple recti disinsertion for inserting the buckle element to suprachoroidal fillers to relieve the traction.<sup>[6]</sup>

Even though the complimentary role of MB along with vitrectomy was clear, Parolini *et al.*<sup>[7]</sup> demonstrated the success of MB alone in these high myopes and emphasized the complications associated with vitrectomy techniques. The steady journey from Ando's plombe to the latest T-shaped buckle has brought out the distinct requirement of relieving anteroposterior traction in achieving reattachment of retina and treating foveoschisis. Alkabes *et al.*<sup>[8]</sup> reviewed the subject of MTM and assessed 31 articles published till 2018 and came to a rather unconventional conclusion that complete resolution of foveoschisis, reattachment of retina, and closure of macular hole were better in MB group compared to vitrectomy. Though this

subject is hotly debated, it is the technical difficulty of learning the cumbersome procedure of MB, which presents a challenge for most retinologists in adopting MB in their practice.

The concepts of macular buckling in MTM were published by Susvar and Sood<sup>[1]</sup> in 2018 and it is exhilarating to review their current article reporting 25 extremely well-documented cases of MTM undergoing MB.<sup>[9]</sup> The strength of this retrospective study "Outcomes of macular buckling with T-shaped buckle for myopic tractional maculopathies associated with posterior staphyloma: Indian experience" lies in the large number of cases ( $N=25$ ), assessment of macula using swept-source optical coherence tomography (SS-OCT), and analyzing the factors responsible for a favorable outcome in terms of axial length and type of staphyloma. The three key factors playing a role in MTM are well documented.<sup>[10]</sup> First, the horizontal traction is exerted by a rigid ILM/vitreous cortex; second, the anterior pull results from the vitreous; third, the posterior pull results from the increasing depth of posterior staphyloma (PS). Any vitrectomy approach can relieve only the first two factors. This leaves a subset of cases with deep PS where the retinal reattachment cannot be achieved. Here lies the importance of a MB, which can relieve the anteroposterior traction by inverting the PS into a convex dome. Therefore, there will be cases that may be managed with vitrectomy alone (treating first two factors), MB alone (treating the anteroposterior traction), or require a combined approach. In the present circumstances, the safety of vitrectomy approach weighs heavily in favor of adopting it as the primary approach in treating MTM. The MB approach comes with a steep learning curve and vision-threatening complications like suprachoroidal hemorrhage (as documented in the current article) and hence remains the reserve choice procedure, even though it has the potential to treat most cases of MTM even as a single procedure. The importance of this article in current practice lies in identifying the cases which will not improve with vitrectomy alone and offering them a chance of MB alone or a combined procedure. The option of incorporating

MB in the surgical armamentarium of all retinologists is an exciting idea and will level the playing field for choosing the option of MB versus vitrectomy in cases of MTM guided by the newer staging systems.<sup>[11]</sup>

The important practical consideration while comparing the management options for MTM is that the outcome data of various surgical techniques differ in the hands of various surgeons. Most published data on vitrectomy in MTM is from surgeons with vast experience and may not translate equally in hands of all retinologists. The difficulty level of managing the vitreoschisis and avoiding a full-thickness retinal break during ILM peel in the thinned macula under stretch are not adequately highlighted in the literature. Here lies the importance of learning an extraocular technique, i.e., the Macular Buckle, by a budding retinologist and probably then the success rate and complications of the two approaches can be truly compared. Till then the niche space for MB in MTM management is well established.

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