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Macular Mobilization with a Flexible Nitinol Loop for Chronic, Recurrent, and Large Macular Holes

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Purpose:
The purpose of this study is to describe a surgical technique utilizing a flexible nitinol loop to mobilize retinal tissue in chronic and recurrent macular holes and to describe the clinical outcomes in a cohort of eyes undergoing vitrectomy for macular hole closure using this method.

Methods:
The medical records of two experienced vitreoretinal surgeons (CDR, MHB) were reviewed to identify consecutive surgical cases of chronic or recurrent macular holes between February 1, 2017 to January 31, 2019 in which a prior vitrectomy had been performed and the macular mobilization technique with the flexible nitinol loop instrument was used. Preoperative and postoperative clinic visits and optical coherence tomography (OCT) images were reviewed, as well as the operative report. Macular hole closure and visual acuity at the postoperative month three timepoint was the primary outcome evaluated.

Results:
During the study period, eleven eyes were included. All patients were female, and the average age at the time of surgery was 65.7 years. Eight left eyes and three right eyes were included. Prior to surgery, sixty-four percent of eyes were pseudophakic. The preoperative mean, minimal inner diameter of the macular holes included in this series was 615 microns (range, 199-1300 um). In all cases, the surgical technique described was utilized, and in three cases, a free floating internal limiting membrane flap was also created. Nine out of eleven macular holes, or 82%, were closed at the postoperative month three timepoint. Visual acuity improved in six out of eleven cases.

Conclusions:
In this cohort of patients, over eighty percent of macular holes closed at the postoperative month three timepoint. While prior techniques have been described for closing chronic or recurrent macular holes, macular mobilization is less cumbersome, less invasive, and potentially has fewer complications than previously described methods.