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Outcomes of Eyes with Failed Primary Surgery for Idiopathic Macular Hole

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Purpose: To describe the anatomic and visual outcomes of eyes undergoing reoperation after failed primary surgery for idiopathic macular hole.

Design: Prospective registry study.

Participants: One hundred three patients who had undergone failed macular hole surgery.

Methods: Unclosed idiopathic macular holes were identified from a large national prospective registry run by the Australian and New Zealand Society of Retinal Specialists. Unclosed idiopathic macular holes were defined as idiopathic macular holes that underwent vitrectomy surgery for the first time, but were never observed to close in the postoperative period. Surgeons were contacted to submit retrospectively details of subsequent management and long-term outcome of these eyes.

Main Outcome Measures: Macular hole closure; visual acuity (VA) change relative to baseline at 3, 12, and 24 months; and hole size at all time points.

Results: One hundred three patients with failed macular hole surgery were identified, among whom 53 underwent reoperation, 49 did not, and 1 was lost to follow-up. Macular hole closure was achieved in 45 of 53 patients (85%) undergoing revision surgery. Mean change in VA from baseline in eyes undergoing revision surgery versus eyes that did not was +2.8 letters versus -1.9 letters at 3 months ($P = 0.278$), +8.2 letters versus -1.9 letters at 12 months ($P = 0.167$), and +18.3 letters versus -3.4 letters at 24 months ($P = 0.022$). Thirty-six percent of eyes with reoperated holes showed improved VA of 15 letters or more at 3 months after operation, increasing to 48% at 12 months and 65% at 2 years. Before revision surgery, mean macular hole size was observed to increase from 483 μm to 562 μm after failed primary surgery ($P = 0.046$).

Conclusions: In eyes undergoing revision surgery, reoperation for unclosed macular holes was significantly better than observation, although these visual gains took some time to occur. The surgical success rate was lower than that for primary idiopathic macular hole. The selection criteria for revision surgery need to be defined.

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Outcomes of Pars Plana Vitrectomy for Epiretinal Membrane in Eyes With Coexisting Dry Age-related Macular Degeneration

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Purpose: There has been limited evidence on the benefits of pars plana vitrectomy with membrane peel (PPV-MP) for epiretinal membrane (ERM) in eyes with dry age-related macular degeneration (AMD). We sought to assess anatomic and functional outcomes of PPV-MP for ERM in this subset of eyes.

Design: A retrospective cohort study.

Participants: Patients with dry AMD who underwent PPV-MP for ERM from January 1, 2010, to December 1, 2016.

Methods: Visual acuity (VA) and central foveal thickness (CFT) as measured on spectral-domain OCT were recorded and analyzed for the preoperative, 6-month, and final follow-up visits. The presence of cystoid macular edema (CME) and ellipsoid zone (EZ) integrity were recorded and compared with postoperative imaging. Conversion to neovascular AMD in eyes for which at least 2 years of follow-up were available, as confirmed by either OCT and/or fluorescein angiography and documentation of treatment with intravitreal antivascular endothelial growth factor, was recorded and compared between case eyes that underwent PPV-MP versus fellow control eyes.

Main Outcome Measures: Postoperative VA.

Results: A total of 38 eyes from 38 patients met the study criteria. There was a significant improvement in the median (interquartile range, [IQR]) logarithm of the minimum angle of resolution [logMAR] VA from 0.60 (IQR 0.46−1.00) (20/80, Snellen equivalent) at the preoperative visit, to 0.48 (IQR 0.30−0.70) (20/60, Snellen equivalent) at the 6-month follow-up visit ($P = 0.04$), and to 0.48 (IQR 0.30−0.70) (20/60, Snellen equivalent) at the final visit ($P = 0.01$). There was a significant median decrease in CFT at the final visit ($P < 0.001$) compared with the preoperative CFT. Only eyes with either CME or an intact EZ showed significant improvement in median logMAR VA at the final visit compared with the preoperative visit ($P = 0.01$ and $P = 0.004$, respectively). In a subgroup analysis of eyes for which a minimum of 2 years of follow-up were available, 4 of 25 (16.0%) vitrectomized eyes and 1 of 25 (4.0%) fellow control eyes progressed to neovascular AMD ($P = 0.16$).

Conclusions: PPV-MP appears to confer anatomic and functional improvement in eyes with ERM and coexisting dry AMD.

Moreover, greater preoperative CFT, the presence of CME, and an intact EZ were predictors of VA improvement in these eyes.

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Infectious Sources, Prognostic Factors, and Visual Outcomes of Endogenous *Klebsiella pneumoniae* Endophthalmitis

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Purpose: To investigate the infectious sources and prognostic factors for poor visual outcome, including subjective symptoms, presenting clinical features, laboratory data, and treatments, in patients diagnosed with endogenous *Klebsiella pneumoniae* endophthalmitis (EKE) at a tertiary referral center in Northern Taiwan.

Design: Retrospective, single-institution, consecutive case series.

Participants: One hundred ten consecutive patients (124 eyes) diagnosed with EKE.

Methods: One hundred ten patients (124 eyes) were reviewed retrospectively between January 1996 and April 2013.

Main Outcome Measures: Visual acuity (VA), subjective symptoms, presenting clinical features, laboratory data, treatments, and requirement of evisceration or enucleation.

Results: Of the 110 patients with EKE, 74 (67.3%) were men. Diabetes was the most commonly associated systemic disease (75/110 [68.2%]), and liver abscess was the major infection source (85/110 [77.3%]). In addition, 91 of 124 eyes (73.4%) had final VA worse than counting fingers (CF; poor visual outcome), and 20 eyes required evisceration or enucleation. The binary multivariate logistic regression (forward-Wald) model revealed that poor initial VA worse than CF (odds ratio [OR], 8.8; 95% confidence interval [CI], 2.2−36; $P = 0.002$), positive vitreous culture results (OR, 9.8; 95% CI, 1.7−56.1; $P = 0.010$), posterior focal EKE (OR, 0.15; 95% CI, 0.03−0.8; $P = 0.027$), and the presence of intravitreal dexamethasone administration (OR, 0.19; 95% CI, 0.04−0.9; $P = 0.030$) were the significant independent factors for visual outcomes.

Conclusions: Liver abscess was the major infection source, and EKE typically has poor visual prognosis. Early diagnosis and prompt treatment may salvage useful vision in some eyes. Early diagnosis with fair initial VA and intravitreal antibiotic and dexamethasone combination therapy may have beneficial effects on visual outcomes.

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Risk Factors for Endophthalmitis after Pars Plana Vitrectomies in a Tertiary Eye Institute in India

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Purpose: To identify the risk factors associated with endophthalmitis after pars plana vitrectomy (PPV).

Design: Retrospective case-control study.

Participants: All eyes that presented with endophthalmitis after PPV within 6 weeks in a tertiary eye care center were evaluated. There were 36 cases with endophthalmitis and 93 controls without endophthalmitis.

Methods: Other patients undergoing operation by the same surgeon on the same date and in the same operating room were included as controls. Univariate and multivariate regression analyses were performed to evaluate the risk factors.

Main Outcome Measures: Incidence and risk factors for endophthalmitis after PPV.

Results: In this study, 36 cases and 93 controls met the inclusion criteria. For endophthalmitis, 3 independent risk factors were identified: systemic immunosuppression (odds ratio [OR], 10.673; 95% confidence interval [CI], 1.114−102.292; $P = 0.04$), balanced salt solution (BSS) or Ringer's lactate (RL) as vitreous substitute (OR, 5.288; 95% CI, 1.769−15.813; $P = 0.003$), and surgery performed in the second half of the day (OR, 0.016; 95% CI, 1.266−10.398; $P = 0.016$). Operating on phakic patients compared with pseudophakic or aphakic patients (OR, 0.962; 95% CI, 5.049−57.644; $P < 0.001$) and the use of endotamponade (OR, 5.288; 95% CI, 1.769−15.813; $P = 0.003$) were associated with a reduced risk for endophthalmitis. In culture-positive endophthalmitis, the presence of diabetes (OR, 4.61; 95% CI, 1.15−18.39; $P = 0.03$), vitreous substitute (BSS or RL) (OR, 6.08, 95% CI, 1.47−25.10, $P = 0.012$), and pseudophakia (OR, 5.68; 95% CI, 1.37−23.47; $P = 0.016$) were significant risk factors.

Conclusions: Patients who are immunocompromised, pseudophakic, or aphakic are at a higher risk of endophthalmitis after PPV. Endotamponade significantly mitigates the risk of infection after vitrectomy surgery.

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Medicare Spending on Anti−Vascular Endothelial Growth Factor Medications

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Purpose: To analyze Medicare Part B spending on anti-evascular endothelial growth factor (VEGF) medications.

Design: Observational cohort study using Medicare Part B claims data released by the Centers for Medicare and Medicaid Services.

Participants: Medicare Part B beneficiaries and their providers.

Methods: Data from 2011 through 2015 were used to analyze intravitreal injection claims for ranibizumab (Lucentis; Genentech, South San Francisco, CA) and aflibercept (Eylea; Regeneron, Tarrytown, NY).

Main Outcomes Measures: Number of intravitreal injections performed annually, Medicare Part B expenditures on anti-VEGF medications, and beneficiary cost share.

Results: The number of Medicare Part B claims for ranibizumab decreased from 671 869 in 2011 to 573 796 in 2015. During this 5-year period, associated Medicare drug costs averaged $1.3 billion annually. The number of Medicare Part B claims for aflibercept increased from 518 836 in 2013 to 866 749 in 2015. Annual Medicare drug expenditure for aflibercept was $1.4 billion on average. On average, Medicare spent $9719 and $9934 annually on each beneficiary receiving ranibizumab and aflibercept injections, respectively.