
LETTERS TO THE EDITOR

Sir,

I read with interest the findings of Haigh and colleagues on their success with implantation of foldable lenses in the presence of anterior capsular tears.¹ The advantages of an intact continuous tear anterior capsulotomy are well known and lead to safe endolenticular and endocapsular phacoemulsification as well as allowing safe and secure implantation of a soft foldable intraocular lens.² It is generally taught that the absence of an intact anterior capsulorhexis is a reason to not proceed with phacoemulsification, especially with nuclear cracking techniques. It is probably safer to convert at this stage to full incision extracapsular surgery.³ If a small radial tear is identified in the edge of the capsulorhexis then the capsulorhexis may be rescued by incorporating this tear into a larger capsulorhexis as described by Gimbel in his technique for two-stage capsulorhexis for endocapsular phacoemulsification.⁴

It will be interesting to see whether, in the longer term, there is more than their reported intraocular lens decentration of 0.29 mm. It has been taught that if an implant is placed in the capsular bag in the presence of a radial tear in the edge of a capsulorhexis then a deliberate surgical cut should be made in the edge of the capsulorhexis directly opposite this. (H.V. Gimbel, Canadian Rockies Symposium on Cataract and Refractive Surgery, Banff, Canada, July 1994). The aim of this manoeuvre is to minimise potential lens decentration that could happen theoretically if fibrosis and contracture of the edge of the capsulorhexis occur in the post-operative period. A single radial tear could lead to asymmetrical contracture. The second cut aims to re-establish symmetrical forces if the edge of the capsular bags contracts.

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References

1. Haigh PM, Lloyd IC, Lavin MJ. Implantation of foldable intraocular lenses in the presence of anterior capsular tears. *Eye* 1995;9:442–5.
2. Gimbel HV, Neuhann T. Development, advantages, and

methods of the continuous circular capsulorhexis technique. *J Cataract Refract Surg* 1990;16:31–7.

3. Bolger J. How to master capsulorhexis. *Eye* 1995;9:526–9.
4. Gimbel HV. Two-stage capsulorhexis for endocapsular phacoemulsification. *J Cataract Refract Surg* 1990;16:246–9.

Sir,

We agree with Mr Kwartz that phacoemulsification is safer to perform, especially when using a nuclear cracking technique, in the presence of an intact capsulorhexis. However, we have described appropriate measures which may allow an experienced surgeon to proceed with phacoemulsification and soft intraocular lens (IOL) implantation when an anterior capsular tear has occurred.¹ The recently described 'stop and chop' phacoemulsification technique² may be a more satisfactory method for performing nuclear cracking when a radial tear is present. In 'stop and chop' the forces which crack the nuclear rim are directed towards the centre of the nucleus rather than towards the zonule, and hence should be less likely to cause tear extension.

Two-stage capsulorhexis is an important technique for refashioning a continuous capsulorhexis when a small radial tear occurs,³ but anterior capsular tears often extend rapidly towards the lens equator and may be too large to be incorporated into a second capsulorhexis. A radial tear which has reached the lens equator is prevented from extending into the posterior capsule by the bridging zonular fibres.⁴ We must emphasise that if there is any suspicion of zonular disruption, the surgeon should immediately convert to large incision extracapsular surgery.

A cut made in the edge of the capsulorhexis directly opposite a radial tear should help to prevent IOL decentration resulting from asymmetrical capsular bag contracture. However, it is noteworthy that in the cases we described¹ all anterior radial tears had become bridged by fibrous tissue when examined at the last follow-up visit (mean 14.7 months post-operatively). Since the integrity of the anterior capsular opening is reconstituted by tissue bridging, this alone may be sufficient to prevent asymmetrical contracture. It will indeed be interesting to discover

whether more than 0.29 mm IOL decentration occurs over a longer follow-up period.

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References

1. Haigh PM, Lloyd IC, Lavin MJ. Implantation of foldable intraocular lenses in the presence of anterior capsular tears. *Eye* 1995;9:442-5.
2. Koch PS, Katzen LE. Stop and chop phacoemulsification. *J Cataract Refract Surg* 1994;20:566-70.
3. Gimbel HV. Two-stage capsulorhexis for endocapsular phacoemulsification. *J Cataract Refract Surg* 1990;16:246-9.
4. Assia EI, Apple DJ, Tsai JC, Morgan RC. Mechanism of radial tear formation and extension after anterior capsulectomy. *Ophthalmology* 1991;98:432-7.

Sir,

Claridge *et al.* in their paper 'Should second eye cataract surgery be rationed?' (1995;9(Suppl):47-9) discuss the reduction in binocular visual function due to unilateral cataracts. However, they do not distinguish between binocular rivalry and binocular inhibition, which can both lead to a reduction in binocular function but by entirely different physiological processes.

Binocular inhibition is the process whereby reduced contrast sensitivity in one eye due to unocular cataract¹ in patients with a mild reduction in visual acuity (no worse than 6/12 in the cataractous eye) leads to a constant reduction in binocular contrast sensitivity which is worse than the contrast sensitivity of the better eye and approximates to the mean of the contrast sensitivities of the two eyes. This is analogous to Fechner's paradox in the assessment of brightness.² Binocular rivalry^{3,4} occurs when corresponding points in the two eyes view images that are so dissimilar that they cannot be fused. The observer experiences alternating dominance and suppression of each binocular image.

Binocular inhibition leads to a constant reduction in visual function in those patients with early unilateral cataracts, whereas binocular rivalry produces an intermittent disturbance of vision leading to visual symptoms in patients with moderate and dense unilateral cataract.⁵ Patients with unilateral cataract have many symptoms and evidence is accumulating that second eye cataract surgery is beneficial in terms of both relief of symptoms and improved performance in tests of visual function.^{6,7} Firm conclusions must await the results of a randomised controlled trial to assess the benefits of second eye cataract surgery which is nearing completion⁸ and will be published in the near future.

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References

1. Pardhan S, Gilchrist J. The importance of measuring binocular contrast sensitivity in unilateral cataract. *Eye* 1991;5:31-5.
2. Levelt WJ. Binocular brightness averaging and contour information. *Br J Psychol* 1965;56:1-13.
3. Fox R. Binocular rivalry. In: Regan D, editor. *Vision and visual dysfunction*. vol 9. London: Macmillan Press, 1991:93-110.
4. Blake R. A neural theory of binocular rivalry. *Psychol Rev* 1989;96:145-67.
5. Harrad RA, Whitaker A, Laidlaw DAH. Binocular rivalry in patients with unilateral cataract: a previously unidentified cause of visual disability. *Invest Ophthalmol Vis Sci* 1994;35:1964.
6. Laidlaw A, Harrad R. Can second eye cataract surgery be justified? *Eye* 1993;7:680-6.
7. Javitt JC, Steinberg EP, Sharkey P, *et al.* Cataract surgery in one eye or both: a billion dollar per year issue. *Ophthalmology* 1995;102:1583-93.
8. Laidlaw DAH, Donovan JL, Peters TJ, Sparrow JM, Williams MH, Frankel SJ, Harrad RA. A multidisciplinary randomised control trial of the benefit of second eye cataract surgery. *Invest Ophthalmol Vis Sci* 1995;36:S842.