Clinical characteristics of patients with nanophthalmos in Gloucestershire

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Background

Nonophthalmic eyes have an axial length (AL) less than or equal to 20mm

Common association with microcornea, high hypermetropia and reduction in ocular volume

It is a rare condition with an estimated prevalence of approximately 0.27% in the UK population

Due to the rarity of the condition, there is a lack of literature describing its clinical features

Aim

This study aimed to describe the demographic, visual and clinical features of patients with nanophthalmos requiring cataract operation in Gloucestershire, UK

Epidemiology of nanophthalmos in Gloucestershire

Gloucestershire population ~ 650,000

2006-2023 (18 years)
62,364 cataract operations
41,366 patients aged 17 and older

86 nanophthalmic eyes (from 59 patients) underwent cataract surgery

1 in every 725 cataract operations; or 5 cases per year in our unit

Clinical features of nanophthalmos requiring cataract operation

Around 1/3 male and 2/3 female; the mean age was 66.5 years (range: 17 to 86 years)
The mean AL was 19.24 mm (range: 14.9 to 20.0 mm)
The mean AC depth was 2.4 mm (range: 1.87 to 4.05 mm)
The mean spherical equivalent was + 7.75 (range: -1D to 17.25D).
Pre-operatively, BCVA on average was 0.50, 16 eyes had vision worse than 1.0 and 5 eyes had vision worse than counting fingers.

Amblyopia was present in 7% of eyes.
The mean intraocular pressure (IOP) was 15.2 mmHg, and 17 eyes required IOP lowering medication. None of the eyes in this cohort required trabeculectomy for IOP control, although three eyes underwent cyclodiode treatment for pressure management.
9 eyes were diagnosed with angle closure glaucoma. Family history of glaucoma was reported in one patient, while another had a family history of nanophthalmos.

Methods

Retrospective case series of all nanophthalmic eyes that underwent cataract surgery in our trust over 18-year catchment period

Data collected from electronic patient record (Medisoft®) and paper notes

Conclusion

In Gloucestershire, for every 725 cases of cataract surgery, there was one case of nanophthalmic eye. Nanophthalmos is often associated with a high prevalence of visual morbidity. In our cohort, approximately 20% of nanophthalmic eyes required IOP medication, 10% of had angle-closure glaucoma, and 7% had amblyopia. A family history of glaucoma or nanophthalmos is uncommon in affected individuals.