PAEDIATRIC OPHTHAMOLOGY AND STRABISMUS

Surgical management of childhood glaucoma cases at the Eye Foundation Hospitals Group, Nigeria

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Abstract

Background: A few studies[1] have been carried out on congenital glaucoma as well as surgical outcomes[2,3,4] using combined trabeculotomy-trabeculectomy in developing countries including those in sub–Saharan Africa. This hospital-based study is a review of all types of glaucoma seen in children at a tertiary facility in Nigeria as well as the surgical outcomes. The aim of this study was to identify the demographics, causes and outcomes of surgical management of pediatric glaucoma seen at a private eye hospital setting in Nigeria.

Methods: A retrospective review of the records of children seen at the Eye Foundation Hospitals Group presenting with glaucoma who had combined trabeculotomy-trabeculectomy over a 5-year study period (2018-2023). Data on their demographic characteristics, diagnosis, and Intraocular pressure (IOP) before and after surgery was collected with the aid of proforma. All the children under went combined trabeculotomy-trabeculectomy under general anesthesia with serial examinations postoperatively. Data was descriptively analysed.

Results: Forty-five eyes of 25 patients were studied. Eighteen (72%) patients were male and seven (28%) were female. Seventeen (68%) patients were between the ages of 0-12 months, eight (32%) patients were between ages 2-12 years with four (50%) between 2-4 years. Eighteen (72%) patients were diagnosed with primary congenital glaucoma, three (12%) had post traumatic glaucoma, two (8%) had secondary glaucoma post lensectomy, while developmental glaucoma was diagnosed in one (4%) patient. The average corneal diameter was 12.4mm. The cup disc ratios ranged between 0.1-0.9 in 25 (55%) eyes. Twenty-six eyes had pre- and post-operative IOP measurements. The preoperative IOPs ranged from 6 to 54mmHg with a mean of 24.5mmHg. Eleven (42.3%) eyes had preoperative IOP of 21-43mmHg while 15(57.7%) eyes had between 6-20mmHg. Twenty-four (92.3%) eyes had reduction in IOP post-operatively. Twenty-three (88.5%) eyes achieved >21% reduction in pre-operative IOP with a mode of 63% reduction. Three (11.5%) eyes had IOP reduction of $\leq$7%. Approximately 31% of the eyes were hypermetropic while 69% were myopic.Average follow up period was 19.1 months with a range between 1–60 months. The corneas cleared up except 4 patients with residual dense corneal opacities.

Discussion: The common pattern of presentation of the disease in African children is a cloudy cornea which may hinder good visualization of the anterior chambers for angle surgery. Essuman et al[3] reviewed a series of cases among Ghanaian children with good outcomes in 79% of 19 eyes which was lower in comparison to what was obtained in this study (92.3%) having significant reduction in the intraocular pressures post operatively. A study by Ugalahi et al[2] also showed good outcomes with significant reduction in the intraocular pressures in 92.9% of cases after a 12 month follow up period. Corneal cloudiness also cleared in more than 80% of cases reviewed which was comparable with our findings of 91.1% of the corneas clearing up post operatively.

Conclusion: Pediatric glaucoma is commoner in boys than girls. Congenital glaucoma is the commonest type. Combined trabeculotomy-trabeculectomy is effective in reducing the intraocular pressures and improving corneal clarity in African children.

References

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Presumed 13q deletion syndrome in a Nigerian child: A Case Report

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Introduction: 13q deletion syndrome is a rare genetic disease caused by the deletion of some or all of the long arm of chromosome 13. Patients with 13qdeletion syndrome are at risk of retinoblastoma when the RB1 gene, located in the chromosome band 13q14 is deleted proximally. Other features include Dandy Walker mal-formation, cerebellar hypoplasia, and agenesis of corpus callosum.[1] To the best of our knowledge, there has been no reported case in Nigerian children. We report a presumed case of 13q deletion syndrome.

Case Report: We present a 3-year-old boy first seen in our facility when he was 11 months old with poor vision in both eyes noted at the age of 5 months. He is a product of twin pregnancy achieved by in vitro fertilisation and carried by a surrogate mother. He was delivered at 26 weeks gestation with birth weight of 1.07kg, and had insertion of a ventriculoperitoneal shunt at 3 months for hydrocephalus with absence seizures. General Examination revealed plagiocephaly while systemic examination was unremarkable. Ocular examinationrevealed roving eye movements. The right eye had a central cornea opacity with no view of the fundus, left eye revealed normal anterior segment with a whitish retrolental mass.

Ocular ultrasound and Magnetic resonance imaging (MRI) of the Brain and orbits revealed features suggestive of bilateral retinoblastoma (Groups E and D in the right and left eyes respectively). His caregivers were counselled and the he subsequently underwentright enucleation (retinoblastoma was confirmed by histology [Figure 1]) followed by 6 cycles of chemotherapy (Carboplatin, Etoposide and Vincristine). He was followed up in the clinic while having chemotherapy. He defaulted follow up visits after the chemotherapy and later presented with cornealopacity in the left eye which hindered examination of the posterior segment. He subsequently had repeat MRI of the brain and orbits as well as ocular ultrasound scan, about 12 months after the initial MRI, which revealed a well defined left intraocular globular shaped retina lesion measuring 16mm by 9.5mm by 15mm (Figure 2). The child had repeat course of 6 cycles of chemotherapy (Carboplatin, Etoposide and Vincristine) and is currently being followed up in the paediatric ophthalmology and oncology units.

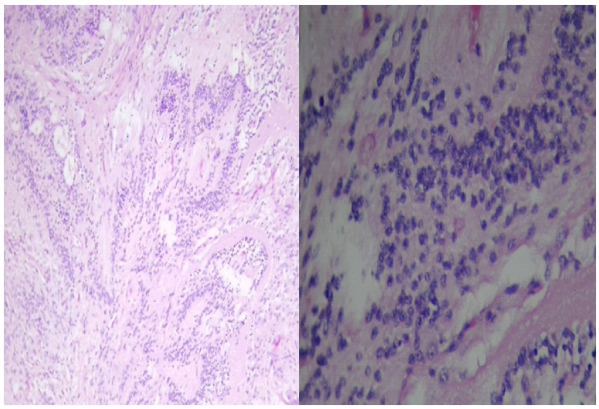

Figure 1: *Histology slides showing necrotic and haemorrhagic invasive tumour growing in sheets, trabeculae, and solid nest of small round blue cells having hyperchromatic nuclei and scant cytoplasm, scattered within the tumor cells are Homer-Wright and Flexner-Wintersteiner rossettes.*

Discussion: Chromosome 13q deletion syndrome was first described by Allderdice after studying two paediatric patients in 1969[2]. The first patient affected by the syndrome including retinoblastoma was reported in 1983[2]. Clinical characteristics, phenotypic description and severity depend on the size of the deleted region