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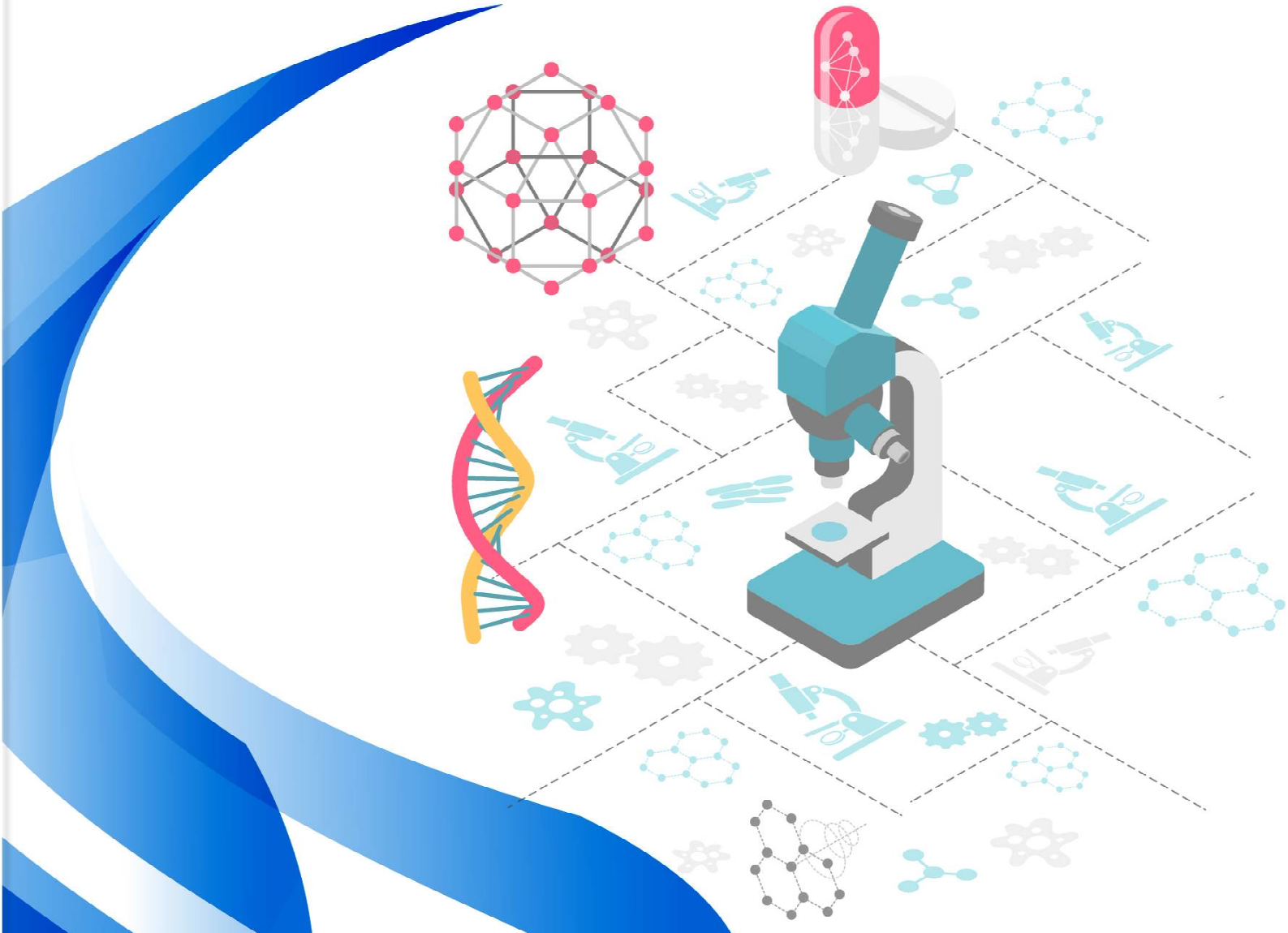

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ALGORITHM FOR MANAGING CHILDREN WITH REFRACTED GLAUCOM

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Abstract.The article analyzes the results of the algorithm for managing children with refractory glaucoma, which included: preparation and conduct of surgical treatment, analysis of the postoperative period of sick children with refractory glaucoma. The total number of children was 478 diagnosed with glaucoma. Of these, 82.1%, 410 children underwent surgical treatment. 30.2% (125 children) required a second operation. The results of the analysis of the clinical and functional state of the organ of vision in children for the period from 2016 to 2020 are given. The indications for repeated surgical treatment with the use of drains are described in detail.

Keywords: refractory glaucoma, drains, diagnostics, congenital glaucoma.

Introduction.

Primary congenital glaucoma is the most common form of childhood glaucoma, occurring with a frequency of 1 in 10,000 newborns, with one in 10 blind children permanently losing their sight from glaucoma. The disease is usually bilateral in nature, but asymmetric and even unilateral forms are found. In the United States and England, boys are more likely to have glaucoma than girls, but the opposite is true in Japan. In Europe and North America, inheritance is manifested as polygenic or multifactorial. In the Middle East, it is inherited in an autosomal recessive manner. [1,4,5].

Signs of the disease in 60% of children can be detected already in the first 6 months, in 80% - in the first year of life. When examining newborns in maternity hospitals, 90% of the disease can be diagnosed by early signs.

The following facts speak about the special relevance of the problem of glaucoma:

only 50% of glaucoma patients living in developed countries are aware of their disease; in developed countries 50% of glaucoma patients are not treated, and in developing countries 95% are not treated; 50% of people around the world have never had their intraocular pressure measured. Recent studies have clearly shown that there is no single cause of the formation of glaucoma, but there are many "different glaucoma" [1,5, 12,13].

Most authors are of the opinion that this disease is multifactorial with a complex etiopathogenesis, which is not fully understood [1,6, 12, 14].

The term "refractory glaucoma" encompasses clinical forms of glaucoma characterized by a severe course and resistance (refractory) to the commonly used methods of glaucoma treatment. [2,3,7,9].

Children's glaucoma is rightfully classified as a refractory (intractable) disease, and this, first of all, is associated with the peculiarities of the pathology and with the specifics of the course of the disease in this contingent of patients. Surgical remains the main type of treatment for glaucoma in children. According to the literature, 30% of patients need reoperations, in this regard, there is a need to improve antiglaucomatous operations [8,10,11].

Currently, surgical methods are being actively developed that are less traumatic and prevent the process of excessive scarring in the postoperative area.

Thus, despite the frequent occurrence and widespread prevalence of congenital glaucoma, this problem remains a global and rather unexplored side of pediatric ophthalmosurgery. In this regard, the study of relapses, repeated surgical interventions in congenital glaucoma is of particular relevance, which causes a high frequency of diagnostic errors and unsatisfactory functional results of treatment.

The purpose of the study was to evaluate the results of using the algorithm for the management of children with primary congenital glaucoma.

Material and methods. Over the past 5 years, 5367 children with various pathologies of the organ of vision have been admitted to the department of eye diseases at the clinic of the Tashkent Pediatric Medical Institute. Of these, 8.9% were children with primary congenital glaucoma (PVH) and with suspected glaucoma; in 82% of cases, surgical treatment was performed. For the rest of the children, the diagnosis of glaucoma was not confirmed, or there was a contraindication to surgical treatment due to the somatic status (52 children). All surveyed children were between 0 and 14 years old (mean age 8.3), of whom 46.6% were girls and 53.3% were boys. All children underwent a standard ophthalmological examination: visiometry, ophthalmoscopy, biomicroscopy, A - B scanning of the eyeball.

Results. All examined children with primary treatment were hospitalized on an emergency basis. Sick children who needed hospitalization for the second time were examined and prepared for surgical treatment by an ophthalmologist at their place of residence.

All children with PVH and suspected PVH were previously seen by an ophthalmologist at the Republican Research Institute of Oncology before hospitalization, and Doppler ultrasound was performed to exclude oncopathology.

In the admission department of the TashPMI clinic, the patients examined by us were consulted by related specialists: a neuropathologist, pediatrician, and neonatologist. In order to assess the somatic status, children were assigned additional research methods: laboratory (general analysis of blood, urine, feces, biochemical studies), ECG, EEG (neurosonography depending on age). Of all the 478 patients examined by us, 6.7% of patients were found to have contraindications to anesthesia due to their somatic state. Of 32 sick children, 47% of patients were diagnosed with acute respiratory disease, 16% were diagnosed with rhinopharyngitis, 6% had gastrointestinal dysfunction, one child had secondary fermentopathy, 19% had icteric syndrome and 13% had bradyarrhythmia. All patients who had contraindications to surgical treatment were discharged home for further examination and treatment by a pediatrician, cardiologist at the place of residence, with the recommendation of instilling IOP-lowering drugs. Interpreting the obtained laboratory - instrumental studies in the remaining children, pathological changes were not found, all indicators were within the reference values.

In preparation for surgical treatment, all 478 children diagnosed with PVH and suspected of PVH underwent generally accepted standard ophthalmic methods of diagnosis, and of these, 8.2% of children were diagnosed with suspected PVH, of which 5.4% of children were not diagnosed with glaucoma. and the children were discharged home. The rest 86.4% underwent examination and antiglaucomatous surgery (AGO) under general anesthesia. In connection with the correct preparation for anesthesia for children with PVH and suspected PVH, no lethal outcomes were observed for the period 2016-2020.

Based on our observations for the entire period, patients with a far-advanced stage of PVH were most often treated - 47.5% of cases, but in recent years there has been a tendency to a decrease in the number of patients with a far-advanced stage and an increase in the number of children with a developed stage of this disease.

When examining patients, the determination of the PZO (anteroposterior axis) of the eyeball in 75.6% of children revealed an increase in indicators, up to 2 mm (1.9 ± 0.01 mm) - in 9.2%, more than 3-5 mm (2 , 6 ± 0.01 mm) - in 25.6% and 41% of children, PZO increased by more than 4-5 mm (5.6 ± 0.01 mm) in comparison with the age norm. In 24.4% of children, there was a pronounced opacity of the cornea, an enlargement of the eyeball - buphthalmos. Also, when analyzing the diameter of the cornea in children with PVH, it was revealed that the size of the cornea was in 11.5% of children, in 27.3% from 11 to 12 mm (11.5 ± 0.01 mm) - more from 12 to 15 mm (12, 3 ± 0.21 mm) - and in 43.0% of children more by 4-5 mm (15.1 ± 0.01 mm).

The patients underwent biomicroscopy, which showed that in the first operated children, the limb enlargement by more than 3 mm and the Gaab line was 26.5%, corneal edema was 38%, and pronounced keratopathy, in which the anterior chamber was not visible, was 27.8%.

When carrying out gonioscopy with the Goldman three-mirror goniolines, the following results were obtained: it was found that the I degree of goniodysgenesis - the angle is open - was found in 8.2% of cases. I degree of goniodysgenesis of the CPC was characterized by the presence of astrip of the ciliary body, above the trabecula; a delicate grayish veil of non-absorbed mesenchymal tissue was considered.

In grade II, there was a high attachment of the iris root at the level of the posterior third of the abnormal trabecula, which was observed in 34.6% of cases. There was a space between the root of the iris and the anterior boundary ring of Schwalbe filled with a semi-translucent grayish tissue or a continuous layer of mesodermal tissue in the form of a Barkan membrane; in 5.6% of cases in the trabecula region, the comb ligaments formed a "jagged" line.

Grade III was observed in 13.1% of cases and was characterized by the fact that the root of the iris was located at the level of the middle of the trabecula, in 10% of patients an atypical position and obliteration of the schlem canal was observed.

In the examined 24.4% of children, gonioscopy was not possible due to pronounced edema and opacity of the cornea.

In terms of the frequency of antiglaucomatous operations for the period from 2016 to 2020, the following results were revealed. Patients operated on for the first time made up 265 eyes (50%), the second time operated on - 176 eyes (19.0%), the third time the operation was performed in 47 eyes and the fourth operation was performed in 3% of cases. According to the analysis of the frequency of surgical interventions, the result showed that of all the operated 496 eyes, 231 eyes (46.5%) required repeated surgical intervention. The indications for reoperation were as follows:

1.Children with PVH after repeated previous AGOs.

2.Increase in PZO within 1 year by 2 mm or more in comparison with the age norm

3.True IOP is more than 22.5 mm Hg.

4.Lack of effect from conservative treatment.

5.Increased corneal edema.

6.Increased lacrimation, photophobia, soreness.

Most often, in our department, surgical treatment is carried out, which includes a one-step effect on the outflow pathway in 3 directions: Burian sinusotrabeculotomy into the scleral sinus, cyclodialysis - cycloretraction with an autoscleral pedicle into the suprachoroidal space, basal iridectomy with sclerectomy into the episcleral flap system.

In 2020, a registration certificate was received for the use of Glautex drainage models TDA and TMA in ophthalmic surgery to improve the AGO in the Republic of Uzbekistan.

Glautex has several model variations. But for pediatric ophthalmosurgery, the most optimal models are TDA and TMA.

Advantages of the biodegradable drainage "Glautex":. When installing the

Glautex drainage, no complicated and time-consuming manipulations are required, the correct position of the implant in the postoperative period is guaranteed due to its simple and reliable fixation. "Glautex" has a small thickness and does not swell, without exerting excessive pressure on the surrounding tissue. Complete resorption of drainage in an optimal time allows the formation of pathways for the outflow of aqueous humor and avoids long-term undesirable reactions possible when using non-resorbable material. Biologically inert resorbable materials ensure the absence of toxic-allergic reactions and an areactive course of the postoperative period. Versatility: the possibility of using non-penetrating and penetrating type in AGO in all modifications of operations with the formation of a scleral flap. Glautex can be combined with any other method of preventing excessive scarring. "Glautex" is practically invisible outwardly the next day after the operation. Drainage "Glautex" makes it possible to obtain a persistent and long-term hypotensive effect, which reduces the likelihood of repeated surgical interventions.

In order to reduce the number of repeated AGOs in refractory glaucoma in children, 21 children were implanted with the Glautex drainage, which had been previously performed several times with AGOs.

The technique of antiglaucomatous surgery using the proposed biodegradable drainage "Glautex" is as follows: we process the opera. field, we apply a blepharostat, we cut the conjunctiva from 11 to 13 hours, the superior rectus muscle is taken to the bridle suture, diathermocoagulation of the scleral vessels is performed, a U-shaped scleral flap is cut out, cycloretraction, cyclodialysis is performed, then we put on the drainage sleeve on the scleral flap of the tongue by straightening the camera, on the sclera we put 2 sutures 10.0 to fix the drainage, we put 2 sutures 6.0 on the conjunctiva.

The results of the analysis of early postoperative complications were analyzed. On the first day of the postoperative period, no patient had any complications. Detachment of the choroid was observed due to hypotension in 2 children on the 10th day. The above complications were eliminated after drug treatment before the patient was discharged.

After AGO, after 1 month in patients in both groups, an increase in PZO was not observed. In the postoperative period after 1 and 6 months, no significant increase in the diameter of the cornea was observed.

A month after the operation, a significant, gradual decrease in the true and tonometric intraocular pressure was observed. After 6 months, the parameters of tonometric and true IOP were within normal limits.

Conclusion. In patients with RH, the need for repeated surgery develops 12-24 months after the primary surgery, the lowest percentage falls on the first 12 months (12.8%) after the primary AGO. And also, AGO with the use of Glautex drainage excludes a sharp decrease in IOP in the early postoperative period, reduces the number of postoperative complications by 1.25 times, and the number of reoperations in 85% of cases. In the course of the results obtained, an algorithm for the management of children with RH was developed and implemented, which included: the preparation and conduct of surgical treatment, as well as the analysis of the results of the postoperative period of sick children with refractory glaucoma.

References

1.Buzrkukov BT, Levchenko OG, Khamroeva Yu.A. Primary glaucoma (modern aspects of etiopathogenesis, clinical picture, diagnosis and treatment) "ILM ZIYO", 2015 pp. 65-78.

2.Slonimsky A.Yu., Alekseev I.B., Dolgiy S.S. New possibilities for the prevention of excessive scarring in glaucoma surgery. Ophthalmology. 2012; 9 (3): 36-40.

3.Slonimsky A.Yu., Alekseev I.B., Dolgiy S.S., Korigodsky A.R. New biodegradable drainage "Glautex" in the surgical treatment of glaucoma. Glaucoma. 2012; 4: 55-59.

4.Toykuliev T.K. Comparative assessment of various methods of surgical treatment of congenital glaucoma in the age aspect // Kazan Medical Journal.-2013.-№6.-T.19.-P.847-850.

5.Khamroeva Yu.A. Buzrukov B.T. Comparative analysis of the size of the anteroposterior axes of eyes with congenital glaucoma and healthy eyes in the age aspect. Clinical ophthalmology. 2013; 1:17

6.Petrov S.Yu., Vostrukhin S.V., Aslamazova A.E. Modern microinvasive glaucoma surgery. Bulletin of Ophthalmology. - 2016; 3: - p. 96-102.

7.Stepanov A.V., N.R. Tedenoeva, U.Sh. Gamzaeva, K.V. Lugovkin. New drainage surgery for the treatment of refractory post-traumatic glaucoma. Russian Ophthalmological Journal -2015.- No. 2: 54-58.

8.Khabibullina N.M., Galeeva G.Z., Rascheskov A.Yu. Intraocular pressure in young children without signs of glaucoma. Practical medicine. 2016.vol. 1, 2 (94), 101-103.

9.Khusnitdinov I.I., Babushkin A.E. The effectiveness of surgical treatment of glaucoma using various types of drainage "Glautex". Ophthalmology. 2019; 16 (1S): 91-95.

10.Shpak A.A., Sevostyanova M.K., Ogorodnikova S.N. Changes in the size of the optic nerve head in patients with initial glaucoma and suspected glaucoma. Ophthalmosurgery .- 2014.- No. 2.- P. 57-60.

11.Alper M.J. Ciliary body detachment for control and glaucoma surgery. Se. Am. J. Ophthalmology. -2002.Vol. 118. - N 34. -P. 2311-2318.

12.Chiu T.Y., Fan D.S., Chu W.C. Ocular manifestations and surgical management of lid coloboma in a Chinese infant with linear nevus sebaceous syndrome. ... J. Pediatr. Ophthalmol. Strab. - 2004. - Vol. 41, No. 5. - P. 312-314.

13.Denis D, Pommier S, Coste R, Fogliarini C, Benso C, Cornand E. Deep sclerectomy in congenital glaucoma: results of a study lasting more than 3 years. (Article in French) J Fr Ophtalmol. 2008; 31: 173-179.

14.Gupta V, Jha R, Srinivasan G, Dada T, Sihota R. Ultrasound biomicroscopic characteristics of the anterior segment in primary congenital glaucoma. J AAPOS. 2007 Dec; 11 (6): 546-50