

Clinical Characteristics of Pediatric Uveitis at HO CHI Minh City Eye Hospital in 2017

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Purpose: To identify demographic and clinical characteristics, as well as treatment outcomes of pediatric uveitis at Ho Chi Minh city Eye Hospital in 2017.

Methods: Descriptive cross-sectional study. We enrolled 107 eyes from 94 patients <16 years of age, diagnosed with pediatric uveitis from January 1, 2017 to December 31, 2017 at the HCM City Eye Hospital. Medical records are included in the study if sufficient information is available.

Results: Most patients were 6-10 years of age (42.6%), with no difference in gender. Main chief complaints were blurry vision (66%), pain (48.9%) and photophobia (19.1%), 30% of the patients had previous history of uveitis. Of all the patients, 52.1% were hospitalized for >7 days after the disease onset and 76.6% had no preliminary treatment. 86.2% of patients had unilateral uveitis, 51.4% had baseline visual acuity <20/70. Idiopathic causes accounted for 76.6%, while panuveitis accounted for 52.1%. The most common symptoms were blurry vision (66%), redness (50%) and pain (20.2%); the most common signs were vitreous opacity (57.9%), conjunctival injection (47.7%) and anterior chamber cells (37.4%). Regarding treatment characteristics, 90.4% used topical steroids, 70.2% used intraocular pressure lowering agents and 68.1% used topical NSAIDs; most of the patients did not gain improvement in visual acuity (63.6%). The most common complications were vitreous organization (31.7%), secondary cataract (22.4%) and band keratopathy (17.6%).

Conclusion: Pediatric uveitis is a serious disease with complicated progression, easy recurrence and may cause irreversible vision loss. Furthermore, pediatric uveitis requires a long period of treatment and patient compliance. Therefore, it is necessary to have a subclinical test to optimize the diagnosis and treatment. It is important to advocate the patients to have early admission and treatment to avoid sequelae of vision loss.

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Keywords: pediatric uveitis, uveitis, uveitis in children

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Introduction

Uveitis is the third frequent cause of blindness in the United States of America^{1,2}

with the prevalence in children around 2.2% to 33.1%. Among them, the prevalence of anterior, intermediate, posterior and pan uveitis is, in order, 30-40%, 10-20%, 40-50% and 5-10%³. Although the prevalence of uveitis in children is less frequent than that in adults, the prognosis of uveitis in children is usually worse than adults. The inflammation reaction

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in children is usually more aggressive than adults, and the children themselves may have difficulty complaining about the symptoms. Those factors result in late diagnosis and treatment, easy recurrence, and higher risk of complications which may lead to permanent vision loss. Considering the longer life span in children, vision loss can profoundly affect their quality of life, and result in a long-term disability for many decades. Therefore, a retrospective evaluation about clinical characteristics and treatment results of pediatric uveitis is essential to provide an overview about the disease and optimize the art of diagnosis and treatment in such patients.

Patients and Method

This was a descriptive cross-sectional study. In this study, we collected data from 107 eyes of 94 pediatric uveitis patients in Ho Chi Minh city Eye Hospital between January and December 2017. The inclusion criteria were patients younger than 16 years old, with diagnosis of uveitis and sufficient information in their medical records. Medical records with insufficient information, and those admitted outside of 2017 were excluded from this study.

Data collected from admitted patients included age, sex, chief complaint, duration of symptoms, treatment before hospital admission, cause, anatomical classification of uveitis following SUN classification, presenting visual acuity (VA) recorded by Snellen chart and intraocular pressure (IOP) before and after treatment, signs and symptoms, treatment procedures and complications.

Data was analysed by SPSS 20 software, with qualitative variables presented by percent, quantitative variables presented by mean \pm 2SD and the relation between 2 qualitative variables confirmed by chi-square test. The difference was considered statistically significant with $p \leq 0.05$.

Results

Details about age, sex and history of disease were summarized in Table 1. In this study, the most frequent age group was 6-10 years old, while gender distribution was similar. Most of the patients underwent primary onset of disease, however, recurrent patients consisted of one-third of all cases (31.9%). The most frequent chief complaints were blurry vision (66%),

redness (48.9%) and pain (19.1%). More than half of patients were admitted to hospital after a duration of symptoms of >7 days, while 76.6% of patients received no treatment before being admitted to hospital.

Table 1 Etiological characteristics and history of disease

Epidemiology characteristics	N (%)
Age group	
0-5	18 (19.1)
6-10	40 (42.6)
11-16	36 (38.3)
Sex	
Male	49 (52.1)
Female	45 (47.9)
History of disease	
Primary	64 (68.1)
Recurrent	30 (31.9)
Other ocular history	
Trauma	8 (8.5)
Surgery	1 (1.1)
Chief complaint	
Blurry vision	62 (66)
Redness	46 (48.9)
Pain	18 (19.1)
Photophobia	2 (2.1)
Other	2 (2.1)
Duration of symptoms	
1-3 day(s)	22 (23.4)
4-7 days	23 (24.5)
8 -14 days	12 (12.8)
>14 days	37 (39.3)
Primary treatment	
In a healthcare center	19 (20.2)
Self-treatment	3 (3.2)
None	72 (76.6)

Clinical characteristics, classification and causes of pediatric uveitis in this study were summarized in Table 2. Most of the patients had VA $<20/70$ (51.4%). With regards to the anatomical categorization of the diseases, pan-uveitis was

the most frequent (52.1%), with regards to the causes, idiopathic uveitis was the most frequent (76.6%) in this study. The most common symptoms were blurry vision (66%), redness (50%) and pain (20.2%). The most common signs were vitreous opacity (57.9%), conjunctival injection (47.7%) and anterior chamber cell (37.4%).

Table 2 Clinical characteristics of pediatric uveitis

Clinical characteristics	N (%)
Affected eye(s)	
1 eye	81 (86.2)
2 eyes	13 (13.8)
Pre-treatment VA	
>20/30	19 (17.8)
20/70-20/30	33 (30.8)
<20/70	55 (51.4)
Pre-treatment IOP	
High (>21mmHg)	8 (7.5)
Normal (16-21 mmHg)	89 (83.2)
Low (<16 mmHg)	10 (9.3)
Classification of uveitis	
Anterior uveitis	18 (19.1%)
Intermediate uveitis	3 (3.2%)
Posterior uveitis	24 (25.5%)
Pan-uveitis	49 (52.1%)
Causes	
Idiopathic	72 (76.6)
Trauma	11 (11.7)
Proximal infection (ear, tooth)	8 (8.5)
Vogt-Koyanagi-Harada syndrome	2 (2.1)
Surgery (cataract)	1 (1.1)
Symptoms	
Blurry vision	62 (66)
Redness	47 (50)
Pain	19 (20.2)
Photophobia	2 (2.1)
Other	7 (7.5)
Signs	
Vitreous opacity	62 (57.9)
Conjunctival injection	51 (47.7)

Clinical characteristics	N (%)
Anterior chamber cell	40 (37.4)
Cataract	32 (29.9)
Posterior synechia	25 (23.4)
Poor pupillary reflex	24 (22.4)
Band keratopathy	19 (17.8)
Hypopyon	16 (15)
Optic disc edema	14 (13.1)
Keratic precipitates	7 (6.5)
Posterior pole retinal lesion	4 (3.7)

Treatment characteristics of pediatric uveitis were summarized in Table 3. The VA of most patients remained unchanged (63.6%) and the treatment period usually lasted more than 3 months (50%). Medical treatment was the main modality, with the most often used drug being corticosteroids (90.4%), IOP-lowering drugs (70.2%) and topical NSAIDs (68.1%). Complications appeared in 65/94 patients (69.2%) with the most common complications were in order, vitreous organization (31.7%), cataract (22.4%) and band keratopathy (17.6%).

Table 3 Treatment characteristics of pediatric uveitis

Treatment characteristics	N (%)
Post-treatment VA	
Increased	25 (23.4)
Decreased	14 (13.1)
Unchanged	68 (63.6)
Treatment period	
<1 month	28 (29.8)
1-2 month(s)	12 (12.8)
2-3 months	7 (7.4)
>3 months	47 (50)
Treatment process	
Topical steroids	85 (90.4)

Treatment characteristics	N (%)
IOP-lowering drugs	66 (70.2)
Topical NSAIDs	64 (68.1)
Topical antibiotics	20 (21.3)
Immunosuppressive agent	1 (1.1)
Surgery	5 (5.3)
Complications	
Vitreous organization	34 (31.7)
Cataract	24 (22.4)
Band keratopathy	19 (17.6)
Posterior synechiae	8 (7.5)
Increased IOP	6 (5.6)
Optic disc neovascularization	2 (1.9)
Retinal detachment	2 (1.9)
Foveal scar	1 (0.9)
Epi-retinal membrane	1 (0.9)

Discussion

In our study, children 6-10 years old were found to be the most common age group in pediatric uveitis. In this period of life, children may start to attend school and subsequently discovered symptoms of the disease. With regards to gender, the prevalence of male and female patients in our study were equivalent. Our result was similar to previous studies.^{7,8,11,12}

We found that blurry vision, pain and photophobia were the most common chief complaints in pediatric uveitis, with the prevalence being, in order, 66%, 48.9% and 19.1%, similar to the study of Smith¹². It is critical that the uveitis children admitted due to red eyes were easily misdiagnosed with conjunctivitis, especially in the early stage of disease. Nearly half of admitted cases had their eye(s) checked more than 7 days after the appearance of symptoms, while more than ¾ cases did not have preliminary treatment and only 20.2% of patients had preliminary treatment at a healthcare center. That could help explain the high prevalence of low VA and recurrence.

Pertaining to pathogenesis and classification details, our study found that the most common categories were pan-uveitis and posterior uveitis, different from the other authors who concluded that anterior uveitis was the most common form^{3,6,7}. In fact, children patients with anterior uveitis were diagnosed and treated in an outpatient unit, with no document

recorded in hospital; this may be the cause of the difference in categories of uveitis. Nearly 77% of uveitis patients are idiopathic, higher than that of other authors^{3,4,6,8,10}. Maybe this result was due to the lack of laboratory and imaging tests in diagnosis and treatment. Vogt-Koyanagi-Harada syndrome took a low prevalence, similar to the other studies^{6,8,10} while traumatic cause was quite high (11.7%) comparing to the other authors^{2,9,12}. On the other hand, with recurrent patients taking around one-third of all cases, it could be concluded that pediatric uveitis was easily recurred, due to strong inflammation reaction in children.

Our study recorded that only 17.8% of patients had >20/30 VA, while 51.4% of patients had <20/30 VA. In the group with <20/30 VA, 5 eyes had no light perception VA and 25 eyes had VA from light perception to hand movement, which could be considered totally function loss. The proportion of patients presenting with <20/30 VA in our study was higher than previous studies^{4,5}, which could be explained by late admission to hospital and high recurrence rate. As discussed before, while redness was one of the most common symptoms and conjunctival was one of the most common signs, one uveitis patient could be easily misdiagnosed with conjunctivitis. Therefore, patients present with red eye should be carefully examined, especial when they have blurry vision, pain and no discharge.

With regards to treatment strategies, our study found a similar result with de Boer⁶ and Smith¹² that topical corticosteroid was the most common treatment for 90.4% of patients. The proportion of immunosuppressive agents was surprisingly low compared to other authors (1.1%), which is thought to be the result of lacking the aid of internal specialists. Surgical treatment solving complications of pediatric uveitis was still limited; only 5 patients underwent cataract surgery (5.3%), no pars plana vitrectomy or surgical removal of calcified corneal epithelium was recorded in our study. Fifty percent of patients had treatment duration lasting longer than 3 months, while only 23.4% increased VA after treatment and most of patients had unchanged VA after treatment. Eventually 13.1% decreased VA after treatment due to complications.

The most common complications in our study were vitreous organization, cataract and

band keratopathy. Solving these complications was apparently not easy. Pars-plana vitrectomy to remove vitreous organization is a difficult process in our clinical setting, which requires anesthesia even with children close to 16 years old. Moreover, vitrectomy and cataract removal surgery may result in recurrence of uveitis itself, as the inflammation reaction in children is quite strong. Band keratopathy can be treated by removing the calcified epithelium by scalpel or excimer laser, however the recurrence rate is high.

Conclusion

Pediatric uveitis is a serious disease with complicated progress, easy recurrence and may cause irreversible vision loss while the treatment process prolongs and requires patient compliance. Therefore, it is necessary to have subclinical test to optimize the diagnosis and treatment. It is important to promote patients to have early admission therefore avoiding sequelae of vision loss.

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