Posner-schlossman syndrome in Vietnam: A retrospective review study

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Summary

Objective: To describe the characteristics of patients acquired Posner-Schlossman syndrome (PSS) in Vietnam over a 2-year period and find out the underlying causes of PSS. *Subject and method:* This study was a retrospective case-series analysis of the clinical charts of 31 patients diagnosed with PSS. All the patients were collected characteristic information 081 and suspected to have CMV or HSV and had undergone real-time PCR of the aqueous humour to determine whether patients have CMV, HSV-positive or CMV, HSV-negative. *Result:* The mean age of the patients at the initial examination was 50.2 ± 17.4 years. The mean age at the first PSS attack was 45.6 ± 11.6 years. The mean IOP was significantly higher in the affected eyes than in the unaffected eyes (p=0.02). The average BCVA (p=0.14) were lower in the affected eyes than in the unaffected eyes but not reached statistical significance. The majority of these patients were aged 20 - 60 years (64.5%). Autumn demonstrated a little bit higher onset of PSS than other seasons. 33.2% of patients with PSS revealed the CMV cause, the figure for HSV1 was 6.5%. There was no statistical difference about infectious causes between male and female. *Conclusion:* PSS seems to appear mostly in the middle age. In Vietnam, CMV was the most popular causes of patients with PSS, the second most common causes of this disease was HSV1.

Keywords: Posner-Schlossman syndrome, cytomegalovirus, herpes simplex virus-1.

1. Background

Posner-Schlossman syndrome (PSS), also known as glaucomatocyclitic crisis, as first described in 1948 [1]. Patients have open angles but suffer from recurrent unilateral attacks of mild iritis with high intraocular pressure (IOP). During an attack, patients present with blurred vision and mild inflammation in the anterior chamber, with the development of small to medium-sized fine keratic precipitates.

The attacks resolve spontaneously in a few days to a week, and the IOP is normal in the remission periods. The original report on PSS by Posner and Schlossman suggested that the attacks did not cause permanent damage to the eye, but subsequent reports raised questions on the benign nature of the disease [1]. PSS typically occurs in younger individuals, making the prevention of vision loss caused by high IOP an important goal in disease management. Treatment of PSS aims at controlling inflammation and elevated IOP. Frequent attacks of high IOP are particularly dangerous because they can easily affect vision by causing progressive visual field defects. Therefore, IOP control is the most important treatment goal, with a favoured initial approach that combines anti-inflammatory and anti-glaucoma eye drops [2-4].

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However, some patients are not responsible to medical treatment and must find out the underlying cause. Some studies have showed that CMV and HSV may be the aetiology of this disease. In some of these studies, the effectiveness of antiviral drugs licensed for the treatment of CMV, HSV infections has been reported [5-8]. In Vietnam, there is still not any studies about the causes of PSS, therefore, we conducted this study to reveal some characteristics and the underlying cause of PSS.

2. Subjects and method

108 Military Central Hospital, one the five biggest hospital in Vietnam, has ability to do real-time PCR of the aqueous humour to determine whether patients have CMV, HSV-positive or CMV, HSV-negative many patients acquired PSS in Vietnam. Therefore, we conducted this study to review our experience and analyses of 31 cases of PSS over a 2-year period from 1 January 2018 to 01 December 2019, at the 108 Military Central Hospital. The clinical diagnosis of PSS was based on the clinical features of the disease described previously including mild unilateral anterior uveitis with high IOP, small white keratic precipitates (KP) on the endothelial surface of the central cornea, no posterior synechia, and no inflammatory lesions in the posterior segment of the eye. The information was collected in this retrospective study in order to detect all patients with PSS. We analysed to find out the epidermis, diagnosis, method of treatment, and find out the underlying cause of Posner-Schlossman syndrome.

3. Result

From 1 January 2018 to 01 December 2019, a total of 31 patients (19 males, 12 females) with a mean age of 50.2 years (range, 12-87 years) who acquired PSS were included in this study. 18 cases were right eye and the figure for left eye was 13.

Table 1. Demographic data of the patients with Posner-Schlossman syndrome

Characteristics	Value	P value
Gender(male/female)	19/12	
Eye (right/left)	18/13	
Age (years)	50.2 ± 17.4	
Best corrected visual acuity (c)		
Affected eye	0.48 ± 0.59	0.14
Non-affected eye	0.16 ± 0.16	
Intraocular pressure (mmHg)		
Affected eye	28.4 ± 10.0	0.02
Non-affected eye	14.5 ± 3.0	

The total number of patients with clinically diagnosed PSS were 31. The demographics of the 31 PSS patients, and their associated clinical findings at their initial examination at our hospital are presented in Table 1. The patients were predominantly men (61.3%). Nineteen of the patients were affected in the right eye and 12 in the left. The mean age of the patients at the initial examination was 50.2 ± 17.4 years. The mean age at the first PSS attack was 45.6 ± 11.6 years. The mean IOP was significantly higher in the affected eyes than in the unaffected eyes (p=0.02). The average BCVA

(p=0.14) were lower in the affected eyes than in the unaffected eyes but not reached statistical significance. Twenty outpatient patients had aqueous samplings at office during acute attacks and six were CMV positive and one was HSV1 positive. Eleven inpatient patients underwent aqueous samplings and 4 were CMV positive and 1 case was HSV1 positive.

Table 2. The descriptive summary of patients with PSS by age and gender

Age (years)	Male		Female		Total	
	n	%	n	%	n	%
< 20	1	3.2	0	0	1	3.2
20 - 60	10	32.2	10	32.2	20	64.5
> 60	8	25.8	2	6.5	10	32.3
Total	***19***	***61.3***	***12***	***38.7***	***31***	***100***

During the 2-year observation, men consistently showed a higher incidence of PSS than women, although the difference was not reached statistically significant. The majority of these patients were aged 20 - 60 years (64.5%). A considerable population > 60 years (32.3%), even > 70 years (12.9%) was also observed. Patients aged < 20 years accounted for 3.2% of all diagnosed PSS.

Table 3. The number of newly diagnosed PSS and visits per season

Season	Number of newly diagnosed	
	n	***%***
Spring (March to May)	8	25.8
Summer (June to August)	7	22.6
Autumn (September to November)	14	45.2
Winter (December to February)	2	6.5
Total	***31***	***100%***

Taking the season and climate into account, the frequency of the first visit in spring, summer, autumn and winter of these patients with PSS was 25.8%, 22.6%, 45.2% and 6.5% (Table 3), respectively. Autumn demonstrated a little bit higher onset of PSS than other seasons.

Table 4. The aetiology of Posner–Schlossman syndrome

Injectious causes	Male		Female		Total	
	n = 19	%	n = 12	%	n = 31	%
CMV	6	31.6	4	33.3	10	32.3
HSV1	1	5.3	1	5.3	2	6.5
Negative	12	63.1	7	58.4	19	61.2
Total	***19***	***100***	***12***	***100***	***31***	***100***

33.2% of patients with PSS revealed the CMV cause, the figure for HSV1 was 6.5%. Real-time PCR can detected the infectious causes in 38.8% of patients acquired PSS. There was no

statistical difference about infectious causes between male and female.

4. Discussion

The mean BCVA was worse in the affected eyes than in the unaffected eyes at the initial examination at our hospital. The mean IOP at the initial examination was significantly higher in the affected eyes than in the unaffected eyes. The initial high IOP seen at our hospital might have reflected the decreased cellularity of TM cells and outflow facilities, and could have necessitated the need for glaucoma surgery. These findings suggest that a prompt diagnosis, and appropriate treatment is required in PSS patients, to preserve the function of TM and therefore, improving prognosis.

It has been commonly perceived that PSS typically, or even almost exclusively, affects adults between the ages of 20 and 60 years [4]. PSS in individuals aged > 60 years and in adolescence is considered as a rare condition [4]. In this study, 64.5% of the patients with PSS were aged between 20 and 60 years. However, a considerable number of patients (32.3%) aged > 60 years were also detected. Although we could not exclude the possibility that some of these older patients may have already been affected with PSS for several years before their first clinical visit, an older age involvement should gain more attention.

In this study, we found that the onset and recurrence of PSS was more frequent in Autumn, a season in which allergic disorders including hay fever, asthma, eczema, severe reactions to insect stings and plants in Autumn are also prone to attack. Knox DL et al [9] reported that 65% patients with PSS had major allergies and 42% of the patients with history of allergy for > 8 years [9]. This season predilection may suggest a correlation between allergy and PSS.

Finding the etiology using real-time PCR is extremely important for treating patients with PSS effectively. CMV-DNA was detected by the aqueous humor sampling in 61.9% of the Japanese PSS patients in this study [10]. While in Singapore, a retrospective study of 67 patients with presumed PSS, reported that 52.2% were CMV-positive. Another prospective study noted that 26.4% (14/53) of PSS patients were positive for CMV-DNA in their aqueous humor [5]. An Irish study reported that 44.4% (4/9) of PSS cases were positive for CMV-DNA in their aqueous humor. In mainland China, 45.0% (27/60) of PSS patients tested positive for CMV-DNA, and in Taiwan, 54% of PSS patients tested positive for CMV-DNA in their aqueous humor. Our study showed that 32.3% of patients were positive for CMV-DNA and 6.5% were positive for HSV1-DNA in their aqueous humor. Repeated tapping to obtain aqueous humor may affect the CMV-positive rate. [10].

In the literature, initial therapy for CMV infection included, the systemic administration of ganciclovir and valganciclovir, and the intravitreal injection of ganciclovir [6], [11], [12]. Topical ganciclovir and valganciclovir have also been used as an induction and a maintenance therapy in previous studies [12]. In our study, we combined intravenous ganciclovir and topical ganciclovir 0.5% six times a day as maintenance therapy. The concurrent use of systemic and topical ganciclovir for a short period can reduce the ocular CMV level significantly during a recurrence of ocular hypertension [2]. We treated CMV-positive patients who presented with persistent AC inflammation and/or uncontrolled elevated IOP, with anti-CMV medication. Although, we did not determine the CMV copy numbers in the aqueous humor, these eyes needed anti-CMV medication, and so might have had a high CMV viral load. Despite the anti-CMV therapy, 50% (2/4) had a recurrence of symptoms. In a previous study, the rate of acute CMV anterior uveitis recurrence, after systemic and intravitreal ganciclovir treatment was 84.6%. However, this rate dropped to 57.1% with continual use of topical 0.15% ganciclovir [10].

Alternatively, the high concentration of 2% topical ganciclovir applied every 2 to 3 hours daily as an induction therapy, and every 4 hours as a long term maintenance therapy, has been reported to reduce the acute CMV anterior uveitis recurrence rate, including IOP spike to 36.8% [12]. The use of ganciclovir as both an induction and maintenance therapy, appears to effectively stop CMV activity. Nevertheless, despite anti-CMV therapy, IOP decompensation can still occur in PSS [3].

5. Conclusion

In summary, we describe PSS seems to appear mostly in the middle age. In Vietnam, CMV was the most popular causes of patients with PSS, the second most common causes of this disease was HSV1. Good designed prospective studies are in urgent need for better understanding this unique, inflammatory and ultimate optic nerve-threatening syndrome.

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