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Malaysian Journal of Ophthalmology

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Editorial
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Eye acupuncture in Malaysia: the need for guidelines, regulation and enforcement

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Acupuncture originates from the practice of the ancient Chinese more than 2000 years ago.[1] It was initially performed using sharp stones, bone, or bamboo, before the discovery of metals. In modern days, the needles are made of stainless steel and can vary from 5 to 23 cm in length.[1] Eye acupuncture involves the application of these needles to multiple acupoints around the orbital area.[2] In eye care, acupuncture has been reported to be used in treating myopia, glaucoma, retinitis pigmentosa, and cranial nerve paralysis.[3-6] It is increasingly being used for the treatment of dry eye.[7] Eye acupuncture has also been reported to be used as the primary treatment or adjuvant therapy to treat other ailments not related to the eye.[8,9] The usage of needles in eye-acupuncture exposes individuals to ocular injury due to the close proximity of the eyeball or critical orbital structures to the acupoints. Poor sterilization practices and the usage of recycled instruments may lead to infection or transmission of sexually transmitted diseases.[10] Therefore, anatomical knowledge of the orbit and eyeball as well as adherence to standard ethical practices are mandatory for all acupuncturists. Reported adverse effects are not uncommon. They range from superficial conjunctival haemorrhage to penetrating ocular injury, resulting in traumatic cataract, subretinal track, vitreous haemorrhage, proliferative vitreoretinopathy, or endophthalmitis.[6,11-15] In this current issue, Ainal *et al.* highlighted six cases of ocular injuries related to acupuncture in their brief report.[15]

In the local setting, Traditional and Complementary Medicine (T/CM) has been integrated into the Malaysian Healthcare System. Although other types of acupuncture services are available and listed for general information in the Annual Report and the Consumer Guideline, eye acupuncture services are not available yet in public hospitals.[16,17] The National Guidelines for these non-eye acupuncture services are available for both healthcare providers and consumers.[17,18] Essential information, such as the location of the acupuncturist, contact number, type of acupuncture services offered, and complaint or feedback line, is also available

to the public.[17] Like other T/CM services in the country, they are governed by the National Policies and Law on Traditional and Complementary Medicine.

The National Policy was developed by the Traditional and Complementary Medicine Division of the Malaysian Ministry of Health (MOH) in 2002.[19] It states that the T/CM system should be an essential component of the Healthcare System, coexisting with modern medicine and contributing towards enhancing the health and quality of life of all Malaysians. The Act on Traditional and Complementary Medicine (Act 775: 2016) came to full enforcement on August 1, 2016. It allows the Traditional and Complementary Medicine Council to regulate the T/CM services in Malaysia. It also requires T/CM practitioners to register in the T/CM Practitioner Bodies, the National Bodies registered with the Registrar of Societies and appointed by the MOH. This appointment allows this body to self-regulate its practitioners through codes of ethics and practice regulated by the T/CM-MOH standing committee and endorsed by the T/CM council.[20]

The case series included in this issue of Malaysian Journal of Opthalmology highlights the possible hidden magnitude of the problem in the country. Within seven months (from April 2019 to October 2019), six cases of ocular injury following eye acupuncture treatment presented to different ophthalmologists in the country. The number could probably be higher if the writer extended the duration of the case series reporting or if the related enforcement body performed an active case tracing at the same time. The multiple incidences of acupuncture-related eye injury occurring within a short period suggests a possible error in the notification system (either within the healthcare system or within the community), if the notification system existed at all. It also shows a lack of coordination and possible lack of awareness among acupuncturists, ophthalmologists, and the T/CM Practitioner Body regarding the risk of unmonitored eye acupuncture practice to the public.

When properly regulated and monitored, eye acupuncture may contribute favourably to the community's eye healthcare. T/CM Practitioner Bodies and Councils, as organizations mentioned in the Act, need to monitor and evaluate the process of registering acupuncturists, develop standards and ethics frameworks, and regulate the practice of eye acupuncture. The regulation shall include stringent certification and penalties for breach of professional conduct and rules. The T/CM MOH Division shall develop a policy and guidelines on acupuncture involving the eye as well as provide a platform to host notification and encourage communication among the practitioners. The Prevention of Blindness Committee in the MOH shall work together with the T/CM MOH Division in planning to prevent further occurrence of acupuncture-related ocular injuries in the community. Most importantly, the public must be informed through the media and social media platforms regarding the standard conducts in eye acupuncture and the potential risks of the procedure.

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Recurrent pterygium in Bintulu, Sarawak (Malaysian Borneo): determining its risk factors

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Abstract

Introduction: Pterygium may give rise to astigmatism in addition to causing blindness in advanced stages, reflecting the importance of timely surgical intervention. Despite various operative approaches, the recurrence rate continues to range from 2% to 89%. Therefore, it is essential to investigate the risk factors influencing recurrence to improve therapeutic strategies.
Purpose: To determine the risk factors of pterygium recurrence among the multiethnic cohort of patients of Bintulu, Sarawak (Malaysian Borneo).
Study design: Retrospective cohort.
Materials and methods: This study was conducted in Bintulu Hospital, Sarawak (Malaysian Borneo) and involved patients who underwent pterygium excision with conjunctival autografting between April 1, 2016 and May 31, 2019. Patients completed at least a year of follow-up for recurrence detection. Collected data included presence of recurrence, sociodemographics, outdoor activities, habits, first-degree family history, pterygium type and location, as well as laterality. Chi-squared test, Fisher's exact test, and logistic regression analysis were used.
Results: A total of 161 eyes that underwent pterygium excision in 137 patients were identified. Percentage of recurrence was found to be 42%. The mean age during excision was 59.3 ± 11.5 years; age group showed no significance in pterygium recurrence (p = 0.447). Male gender showed statistical significance (p = 0.045, OR 1.90, CI 1.01, 3.58) in chi-squared test but not in logistic regression. Ethnicity,

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marital status, income, and education level showed no association with recurrence ($p > 0.05$). Anatomic factors like location ($p = 0.353$) and laterality ($p = 0.955$) also showed no association. Smoking ($p = 0.867$) and alcohol intake ($p = 0.397$) were insignificant, similar to first-degree family history ($p = 0.137$). Activities involving sun exposure ($p < 0.001$, OR 18.34, 95% CI 5.59, 60.17) and recurrent pterygium type ($p = 0.001$, OR 7.40, 95% CI 1.81, 30.21) supported a positive association with recurrence. Medication adherence ($p < 0.001$, OR 3.61, 95% CI 1.07, 12.21) and the use of sun protection ($p < 0.001$, OR 7.90, 95% CI 3.25, 19.19) showed a statistically significant decrease in recurrence.
Conclusion: Activities involving sun exposure, use of sun protection, medication adherence, and recurrent pterygium type have shown to be statistically significant in influencing recurrence after excision and conjunctival autograft.

Keywords: conjunctival grafting, pterygium, pterygium excision, recurrence, risk factors

Pterigium berulang di Bintulu, Sarawak (Borneo Malaysia): penentuan faktor risiko

Abstrak

Pendahuluan: Pterigium dapat menimbulkan astigmatisme selain menyebabkan kebutaan pada tahap lanjut, yang menggambarkan pentingnya campur tangan pembedahan tepat pada masanya. Walaupun terdapat pelbagai pendekatan pembedahan, kadar pengulangan terus berkitar antara 2% hingga 89%. Oleh itu, adalah mustahak untuk menyelidik faktor risiko yang mempengaruhi kes berulang dan memperbaiki strategi terapi.
Tujuan: Untuk menentukan faktor risiko berulang pterigium di antara kohort pesakit pelbagai etnik Bintulu, Sarawak (Borneo Malaysia).
Reka bentuk kajian: Kumpulan retrospektif.
Bahan dan kaedah: Kajian ini dilakukan di Hospital Bintulu, Sarawak (Borneo Malaysia) dan melibatkan pesakit yang menjalani eksisi pterigium dengan cantuman autograf konjunktiva antara 1 April 2016 dan 31 Mei 2019. Pesakit menyelesaikan sekurang-kurangnya satu tahun susulan lanjut untuk pengesanan kes berulang. Data yang dikumpulkan termasuk kehadiran berulang, sosiodemografi, aktiviti luar, kebiasaan, sejarah keluarga darjah pertama, lokasi dan jenis serta kelateralan pterigium. Uji Chi-kuadrat, uji tepat Fisher, dan analisis regresi logistik digunakan.
Dapatan: Sebanyak 161 mata yang menjalani eksisi pterigium pada 137 pesakit dikenal pasti. Peratusan berulang didapati 42%. Umur min semasa eksisi adalah 59.3

± 11.5 tahun; kumpulan umur tidak menunjukkan kepentingan dalam kambuhan pterigium (p = 0.447). Jantina lelaki menunjukkan kepentingan statistik (p = 0.045, OR 1.90, CI 1.01, 3.58) dalam ujian chi-square tetapi tidak dalam regresi logistik. Etnik, status perkahwinan, pendapatan, dan tahap pendidikan tidak menunjukkan hubungan dengan kambuhan (p > 0.05). Faktor anatomi seperti lokasi (p = 0.353) dan lateral (p = 0.955) juga tidak menunjukkan perkaitan. Merokok (p = 0.867) dan pengambilan alkohol (p = 0.397) tidak signifikan, serupa dengan sejarah keluarga darjah pertama (p = 0.137). Aktiviti yang melibatkan pendedahan cahaya matahari (p < 0.001, OR 18.34, 95% CI 5.59, 60.17) dan jenis pterigium berulang (p = 0.001, atau 7.40, 95% CI 1.81, 30.21) menyokong hubungan positif dengan berulang. Kepatuhan ubat (p <0.001, OR 3.61, 95% CI 1.07, 12.21) dan penggunaan pelindung cahaya matahari (p <0.001, OR 7.90, 95% CI 3.25, 19.19) menunjukkan penurunan berulang secara statistik.
Kesimpulan: Kegiatan yang melibatkan pendedahan cahaya matahari, penggunaan pelindung sinar matahari, kepatuhan terhadap ubat-ubatan, dan jenis pterigium berulang telah terbukti signifikan secara statistik dalam mempengaruhi kes berulang selepas eksisi dan autograf konjunktiva.

Kata kunci: berulang, cantuman graf konjunktiva, eksisi pterigium, faktor risiko, pterigium

Introduction

Pterygium is an ocular surface disease in which there is a benign, uncontrolled growth involving epithelial hyperplasia, hyperproliferation of vessels, and elastotic degeneration of the bulbar conjunctiva onto the cornea.[1,2]Besides causing debilitating blindness in advanced stages, pterygium may give rise to refractive astigmatism and is cosmetically unappealing, which conclusively reflects the importance of surgical intervention.[3] Worldwide, studies have shown that the prevalence of pterygium ranges between 0.07% and 53%.[4] Pterygium is noted to be more prevalent within the "pterygium belt" located between 30° north and south of the equator.[5]Malaysia is located in the presumed "pterygium belt" along with its neighbours India, Singapore, Indonesia, Japan, and Nepal, for which pterygium prevalence is 11.7%, 10.1%, 10%, 4.4%, and 10.08%, respectively.[6-11] A study done in West Malaysia reported a 7.4% prevalence of pterygium, while in East Malaysia studies are yet to be conducted.[12]

Surgery has been widely used in the treatment of pterygium, which mainly includes leaving the sclera bare after excision and excision with either conjunctival autograft, conjunctival minigraft, or amniotic membrane grafting.[13] Other treatment approaches include adjunctive therapies such as thiotepa, mitomycin, or beta irradiation postoperatively or intraoperative mitomycin besides cautery

and excimer laser treatment.[14] Despite surgery being the single most practical way to treat pterygium, recurrence rates continue to range from 2% to 89% with various operative approaches.[15,16] Therefore, it is essential to investigate the risk factors involved in pterygium recurrence in order to improve therapeutic strategies, especially in light of the fact that it has tendency to proliferate more aggressively during recurrence.[1] In addition, various authors have addressed the need for research on the effect of ethnicity and other risk factors as prognosticators of postoperative pterygium recurrence in a controlled fashion.[14,17] Ethnicity in particular has consistently been overlooked as a potential predictor due to the assumed homogeneity of the research subjects.[17,18]

To the best of our knowledge, a study regarding the risk factors of pterygium recurrence has yet to be done in an equatorial population. In our case, Bintulu is located 3° north of the equator and its multiethnic population, living in the same geographical area, provides an exceptional opportunity to study it from a single health facility. This study was intended to investigate the postoperative recurrence of pterygium in association with demographic, environmental, habitual, anatomic, and familial predisposition factors.

Materials and methods

This study was conducted in compliance with the ethical principles outlined in the Declaration of Helsinki as well as the Malaysian Good Clinical Practice Guideline and obtained ethical clearance from the country's Medical Research and Ethics Committee. This retrospective cohort study involved patients who underwent pterygium excision with conjunctival autografting and completed at least 1 year of follow-up in Bintulu Hospital. Recruitment of subjects was done from patients who underwent the procedure between April 1, 2016 and May 31, 2019. These patients were identified and approached during their regular follow-up at the clinic.

Written informed consent was obtained and patients were interviewed to obtain demographic data (age during excision, gender, ethnicity, education level, income, marital status), information on lifestyle as well as habits (activities involving sun exposure, smoking, use of sun protection, postoperative medication adherence, alcohol consumption), and familial predisposition. Household income was calculated from the total income of each household member. Households were grouped into quintiles according to income.[19] Sun exposure was considered significant when outdoor activities involved sun exposure for more than 5 hours per day.[4,20] Non-smokers were categorised as those who had never smoked or smoked less than five packs in their lifetime.[4,20] Sun protection included the use of hats, sunglasses, umbrellas, or shades during outdoor activities and was categorised using Likert-scale answers.[21,22]Medication adherence was defined as taking 80% or more of the prescribed medication doses.[23]Prescribed medications referred to

Table 1. Univariate and multivariate analysis of variables in patients with and without recurrence

Characteristics	Recurrence		AOR (95% CI)	P-value
	Yes (%)	No		
Age during excision				
<40	2 (40%)	3		0.447[b]
40–49	11 (34.4%)	21		
50–59	23 (52.3%)	21		
>60	33 (41.3%)	47		
Gender				
Male	41 (50.6%)	40	1.90 (1.01,3.58) (COR)	0.045[a]
Female	28 (35%)	52		
Ethnicity				
Malay	7 (43.8%)	9		0.607[a]
Chinese	10 (38.5%)	16		
Iban	34 (39.5%)	52		
Melanau	13 (52.0%)	12		
Others	5 (62.5%)	3		
Marital status				
Single	3 (37.5%)	5		0.485[a]
Married	52 (41.9%)	72		
Widower/Widow/ Divorcee	14 (48.3%)	15		
Education level				
No formal education	21 (41.2%)	30		0.953[a]
Primary education	20 (44.4%)	25		
Secondary education	23 (41.8%)	32		
Tertiary education	5 (50%)	5		
Income				
1st quintile	16 (38.1%)	26		0.642[a]
2nd quintile	15 (38.5%)	24		
3rd quintile	23 (50%)	23		
4th quintile	15 (44.1%)	19		

Characteristics	Recurrence		AOR (95% CI)	P-value
	Yes (%)	No		
Location				
Nasal	47 (40.2%)	70		0.353[b]
Temporal	3 (75%)	1		
Both	19 (47.5%)	21		
Laterality				
Unilateral	14 (42.4%)	19		0.955[a]
Bilateral	55 (43%)	73		
Smoking				
Smoker	15 (44.1%)	19		0.867[a]
Non-smoker	54 (42.5%)	73		
Alcohol Intake				
Abstinent	66 (43.7%)	85		0.397[b]
Light drinking	1 (25%)	3		
Moderate drinking	0 (0%)	3		
Unsafe drinking	2 (66.7%)	1		
First-degree family history of pterygium				
Yes	28 (50.9%)	27		0.137[a]
No	41 (38.7%)	65		
Activities involving sun exposure				
Yes	30 (85.7%)	5	18.34 (5.59,60.17)	< 0.001
No	39 (31%)	87		
Medication adherence				
Yes	46 (34.6%)	87		
No	23 (82.1%)	5	3.61 (1.07,12.21)	< 0.001
Use of sun protection				
Never/Rarely/ Sometimes	39 (68.4%)	18	7.90 (3.25,19.19)	< 0.001
Often/Always	30 (28.8%)	74		

Characteristics	Recurrence		AOR (95% CI)	P-value
	Yes (%)	No		
Pterygium type				
Primary	54 (38%)	88		
Recurrent	15 (78.9%)	4	7.40 (1.81,30.21)	0.001
Total	69 (42%)	92		

[a]Pearson chi-square test
[b]Fisher's test
AOR: adjusted odds ratio; COR: crude odds ratio

lubricant and steroid eye drops given postoperatively for 1 month. Patients were deemed "abstinent" if they consumed less than 1 unit of alcohol a week. "Light" drinking was defined as between 1 and < 7 units a week and "moderate" drinking as 7 to < 14 units a week. "Unsafe" drinking was defined as > 14 units a week.[24,25]

Information regarding date of operation, duration of follow-up, age during surgery, laterality and location of pterygium, presence of recurrence, type of pterygium, and date of recurrence detection was obtained from the hospital information system. Recurrence of pterygium was defined as any fibrovascular growth extending across the limbus onto the cornea at the site of previous surgical excision.[26]Patients who did not consent for this research and those with incomplete data were excluded.

All the information obtained was analysed for associations with pterygium recurrence using SPSS version 26. The analytical statistics used were chi-square test and Fisher's exact test. Subsequently, variables that showed significant association in these tests were further analysed via multivariate logistic regression. Variables with 95% confidence interval (CI) and p-value < 0.05 were considered statistically significant factors for pterygium recurrence.

Results

A total of 161 eyes from 137 patients who underwent pterygium excision from April 2016 to May 2019 were included in this study. Male-to-female ratio was noted to be almost 1:1(81 to 80). The mean age during excision was 59.3 ± 11.5 years. Percentage of recurrence was noted to be 42%.

Table 1 summarises the risk factors investigated and the presence of recurrence. Most pterygium excisions (49.7%) were performed in patients above 60 years of age. This demographic factor showed no significant difference when incorporated into Fisher'stest(p=0.447).Malegenderwasstatisticallysignificant(p=0.045),withacrude odds ratio (OR) of 1.90 and CI of 1.01 to 3.58 when analysed using chi-squared test;

however, once integrated in binary logistics, the value became non-significant. Other sociodemographic data, which included ethnicity, marital status, and education level, showed a $p > 0.05$. Income, which was divided equally in quintiles, also appeared to be non-significant ($p = 0.642$). Location and laterality as anatomic factors also showed no significant difference, with p-values of 0.353 and 0.955, respectively. The initial data was analysed with Fisher's test, while the latter with chi-squared test. Being known risk factors for many diseases, smoking ($p = 0.867$) and alcohol intake ($p = 0.397$) showed no association with recurrence in this study. Positive family history in first-degree relatives was analysed with chi-squared test and resulted in non-association with recurrence ($p = 0.137$).

Moving forward, all factors which showed significant difference when analysed with univariate analysis were assimilated into logistic regression to control confounding factors. Data on activities involving sun exposure yielded $p < 0.001$ with OR 18.34 (95% CI 5.59, 60.17), supporting a positive association with recurrence. Medication adherence ($p < 0.001$, OR 3.61, 95% CI 1.07, 12.21) and use of sun protection ($p < 0.001$, OR 7.90, 95% CI 3.25, 19.19) showed statistically significant decrease in recurrence. Recurrent pterygium type were 7.40 times more likely to cause recurrence compared to primary pterygium type ($p = 0.001$, 95% CI 1.81, 30.21).

Discussion

The aim of this study was to determine the risk factors that contribute to pterygium recurrence after excision and conjunctival grafting in a multiethnic cohort of patients in Bintulu, Sarawak (Malaysian Borneo). Given its considerably high recurrence rate, it is essential for us to identify its risk factors in order to establish different therapeutic strategies as well as modify surveillance follow-up frequency and duration for those who are deemed to have higher tendency for recurrence. Intensive counselling on lifestyle and aggressive treatment approach may be administered in anticipation of recurrence. We performed our study retrospectively to analyse anatomy, sociodemographics, environment, lifestyle, and pterygium type as potential factors for recurrence.

Pterygium recurrence often develops in a short span of time after excision; therefore, sun exposure was assumed to be a rather negligible risk factor.[1] This assumption was refuted in our study, which proved that sunlight exposure is a significant risk factor, further supporting similar studies conducted in Croatia, Spain, and Korea.[27-29] In addition, lack of sun protection also appeared to be significantly associated with recurrence in this study. In fact, the burden may be higher in regions located in the "pterygium belt", in this case, our study site, Bintulu. Multiple studies have addressed the effect of UVB on limbal cells leading to production

of interleukin (IL)-6, IL-8, and growth factors which is linked to inflammation, blood vessel formation, cellular proliferation, and antiapoptosis.[30-32] Although the pathogenesis of recurrence due to sunlight has never been well documented, the previously mentioned molecular pathogenesis may possibly apply to any type of pterygium.

Recurrent pterygium itself was more likely associated with further recurrence as compared to primary pterygium in this study. A possible explanation for this could be the degree of expression of cyclooxygenase-2 (COX-2), which is said to be increased in stromal fibroblasts of recurrent pterygium in contrast to primary pterygium and is believed to be part of the pathogenesis of pterygium itself through its antiapoptotic nature.[33-35]

The use of corticosteroids and artificial tears has been important in reducing the postoperative complications of pterygium, including recurrence.[39-40] In our study site, both corticosteroids and artificial tears were given postoperatively; our results showed poor medical adherence be a significant risk factor in recurrence. Without proper consistent usage of these medications, the protective factor is no longer in place. This theory is supported by a recent study in Spain, which showed that tapering doses of corticosteroids within 5 weeks as compared to 4 months improved medication compliance and therefore resulted in less complications such as recurrence.[40]

Male gender showed significance in univariate analysis, but lost significance once incorporated into binary regression. This may be due to the disproportionately greater number of males exposed to the sun, possibly because of the nature of their occupation in Bintulu. Male gender as a predictive factor, however, seemed inconclusive as there have been mixed results in multiple studies.[1,17,28,38,39]

Younger age has been documented to be more prone towards recurrence in a few studies.[1,38,40] Surprisingly, our study contradicts this, possibly due to an uneven distribution number of patients whereby most of the patients in our study were more than 60 years old.

This study has several limitations. The first is the lack of standardized surgical technique for pterygium excision due to the surgeries being performed by multiple surgeons using different surgical techniques, which may have influenced postoperative outcomes. The second is the patients who were lost to follow-up, who may have experienced recurrences but could not be included in our study. Finally, due to its retrospective nature, we were unable to obtain information on pterygium morphology prior to excision, which has been reported to influence recurrence in several studies.

In conclusion, activities involving sun exposure, the use of sun protection, medication adherence, and recurrent pterygium type have shown to be statistically significant in influencing recurrence after excision and conjunctival autograft in our multiethnic cohort of patients in Bintulu, Sarawak (Malaysian Borneo).

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Wies procedure for correcting involutional entropion of the lower lid in geriatrics

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Abstract

Objective: To evaluate the anatomic outcome and recurrence rate of the Wies procedure for treating involutional entropion of the lower lid in geriatrics.
Materials and methods: This retrospective case series was conducted in the Ophthalmology department of a tertiary care hospital from January 1, 2016 to December 31, 2017. Geriatric patients (≥ 65 years) who had undergone the Wies procedure, *i.e.*, transverse lid split and everting sutures for correction of involutional entropion of the lower lid were included. All the surgeries were done under local anaesthesia by a single ophthalmologist. The follow-up period was 12 months. A successful outcome was defined as restoration of lid margin to its position with no lash touching the cornea and no recurrence within 12 months.
Results: Eighteen eyes of 13 patients with a mean age of 67.6 ± 2.2 SD years were included. There were 11 males (61%) and 7 females (39%). Bilateral entropion correction was done in five patients. Nine right eyes and nine left eyes were included. Anatomical success was 94.4% at 12 months. Recurrence was seen in one (5.6%) patient at 12 months.
Conclusion: The Wies procedure for correction of involutional entropion with horizontal lid laxity in the geriatric population provided good anatomic results in our study. The recurrence rate was minimal within 1 year. The recurrence rate can be reduced by an accurate initial entropion assessment.

Keywords: entropion, geriatric, involutional entropion, lower lid, Wies procedure

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Prosedur Wies untuk membaiki entropion involusi kelopak mata bawah dalam geriatrik

Abstrak

Objektif: Untuk menilai hasil anatomi dan kadar pengulangan prosedur Wies untuk merawat entropion kelopak mata dalam geriatrik.

Bahan dan kaedah: Siri kes retrospektif ini dilakukan di jabatan Oftalmologi hospital rawatan tertier dari 1 Januari 2016 hingga 31 Disember 2017. Pesakit geriatrik (≥ 65 tahun) yang telah menjalani prosedur Wies, iaitu pemisahan kelopak mata melintang dan jahitan untuk pembetulan entropion inklusi penutup bawah dimasukkan. Semua pembedahan dilakukan di bawah anestesia setempat oleh pakar oftalmologi tunggal. Tempoh susulan adalah 12 bulan. Kejayaan prosedur ditakrifkan sebagai pemulihan margin ke kedudukannya tanpa bulu mata menyentuh kornea dan tidak berulang dalam 12 bulan.

Hasil: Lapan belas mata dari 13 pesakit dengan usia sekitar 67.6 ± 2.2 SD tahun dimasukkan. Terdapat 11 lelaki (61%) dan 7 perempuan (39%). Pembetulan entropion kedua belah mata dilakukan pada lima pesakit. Sembilan mata kanan dan sembilan mata kiri. Kejayaan anatomi adalah 94.4% pada 12 bulan. Pengulangan entropion berlaku dan dilihat pada satu (5.6%) pesakit pada 12 bulan.

Kesimpulan: Prosedur Wies untuk membetulkan entropion involusi akibat kelonggaran kelopak mata mendatar pada populasi geriatrik memberikan hasil anatomi yang baik dalam kajian kami. Kadar entropion berulang adalah minimum dalam tempoh 1 tahun. Kadar berulang dapat dikurangkan dengan penilaian awal awal yang tepat.

Kata kunci: entropion, entropion inklusi, geriatrik, penutup bawah, prosedur Wies

Introduction

For the first time in history, life expectancy has exceeded 60 years.[1] The geriatric population in low-income countries is estimated to reach approximately 840 million by 2025.[2] This global rise in the aging population has also made its impact on Pakistan: life expectancy has risen by three decades in the last 50 years and will reach nearly 70 years by 2023.[3] Pakistan stands as the fifth most populous country in the world and has a geriatric population currently to be more than 8 million.[4]

With increasing life expectancy, an increase in ocular problems in the geriatric population is also to be expected. Various eyelid diseases such as ectropion, entropion, dermatochalasis, etc., are frequently encountered in the elderly.[5] As the elderly resort to medical and surgical methods for treatment of these associated

eyelid diseases, surgical treatments are constantly being improved.[6]

Entropion refers to an inward rotation of an eyelid.[7] It is further classified into congenital, cicatricial, involutional, and spastic. Involutional or senile entropion is the most commonly encountered type of entropion.[6] Entropion causes chronic conjunctivitis, punctate epithelium erosions, ocular irritation, and blepharospasm in the elderly. If left untreated, it may cause vision loss and ocular damage leading to dry eye, corneal ulceration, and microbial keratitis.[7] Senile entropion has a prevalence of 2.1% in the geriatric population and is more common in women.[7] Several aetiological factors are thought to play an important role in the development of senile entropion. Horizontal lid laxity, vertical lid laxity, overriding of the preseptal orbicularis oculi muscle onto the pretarsal muscle, and appositional pressure of the lids during eyelid closure are the anatomical changes that occur with aging, leading to entropion formation.[8]

Everting sutures is the most commonly used technique for lower-lid entropion correction, dating back to Hippocrates.[9,10] However, everting sutures provide only temporary relief for involutional entropion.[11] The Wies procedure, which combines transverse full-thickness blepharotomy and everting sutures, is the other method used for entropion without horizontal lid laxity.[12]

In developing countries, a sizeable proportion of the geriatric population treated in public hospitals is chronically ill and belongs to lower socioeconomic groups, facing significant financial constraints. These elderly patients are frequently using multiple topical eye drops with preservatives, which make them prone to recurrent corneal ulcers and worsen their entropion. Various surgical techniques for entropion correction have been reported in the literature with different success rates.[7-12] These studies have been conducted worldwide, but local data is missing. To target this dearth of data in Pakistan, in this study we evaluated the anatomic outcome and recurrence rate of the Wies procedure for treating involutional entropion in geriatric patients coming to a tertiary care hospital.

Materials and methods

This is a retrospective case series conducted in the Ophthalmology department of a tertiary care hospital. The study adheres to the tenets of the Declaration of Helsinki. As it is a retrospective study, ethical approval by the institutional review board has been waived. We reviewed the records of 13 patients aged 65 years or above with 18 lower-lid involutional entropion who underwent the Wies procedure with or without horizontal lid laxity, from January 1, 2016 to December 31, 2017. Their records were examined for their history, examination, management, and surgical complications. They were followed in an eye outpatient department for recurrence rate and success rate up to 12 months. Written informed consent was taken from all the patients before the surgical procedure.

Preoperative assessment was taken on a separate form. Patient history regarding symptoms, visual acuity, and slit-lamp examination was collected. The lid, lashes, conjunctiva (for scarring), cornea (for punctate epithelial erosions), epithelial defects, and ulceration were assessed. Entropion was evaluated by the following tests:[13]

1. Squeeze test: The patient is asked to squeeze their eye on looking down. This reveals a rotated lid margin with eyelashes touching the globe in primary position.
2. Reverse ptosis: In downgaze, the lower lid will not be as low as the lid on the unaffected side.
3. Medial canthal tendon laxity: The lacrimal punctum migrates laterally on lateral traction over the lid or more than 5 mm displacement lateral to the nasal limbus.
4. Lateral canthal tendon laxity: There is a displacement of the lateral canthus medially on medial traction. The sharpness of the lateral canthus replaced by rounding off suggests marked laxity.
5. Distraction test: When the lower lid is pulled away from the globe, a distance between the posterior lid margin and globe of > 6mm is abnormal, normal being 2 to 4 mm.
6. Snap back test: This test specifically checks for horizontal lid laxity. When the lower lid is pinched, pulled, and released, it returns to its normal position without a blink. Slow return indicates mild laxity, incomplete return unless the patient blinks indicates moderate laxity, and incomplete return even after blinking indicates severe laxity.

Surgical technique

All the surgeries were done under local anaesthesia by a single ophthalmic surgeon (ES). Strict aseptic measures were taken. The skin was cleaned with povidone 10%. One to 2 ml of 2% lignocaine containing 1 in 200,000 units of adrenaline was injected in the subcutaneous tissues along the whole length of the respective lid. The conjunctiva was anaesthetized with topical anaesthesia (0.5% proparacaine). A straight, full-thickness horizontal incision was made with help of the surgical blade number 15. An incision was made 4 mm below the lid margin to avoid cutting of the tarsal plate. An entropion clamp was used to protect the globe from accidental perforation. Everting sutures with single-arm vicryl 5/0 were passed 2 mm below the lash line into the anterior lamella of the upper cut end then into the posterior lamella of the lower cut end. The needle engaged the lower lid retractors, which are seen as a subconjunctival, infratarsal white band at the lowest point of the inferior conjunctival fornix. It was then passed back through the anterior lamella of the upper cut end 2 mm away from the entry point. The point of entry and point of exit of the sutures were 2 mm below the lash line and 2 mm apart. These two ends of the suture were left to

be tied at the end. Two more similar transverse everting sutures were passed in every patient. The cut ends of the everting sutures were tied after applying all sutures starting from the lateral side of the lid to the medial side. The medial suture was tied in the last to avoid medial ectropion. The skin wound was closed with interrupted black silk 4/0. Slight overcorrection was aimed at the end of the procedure.

Antibiotic drops were instilled in the conjunctival sac after completion of surgery and ointment was applied in the sac and at the suture line. The wound was closed with eye padding, which was removed on the first postoperative day. Postoperatively, systemic antibiotic ciprofloxacin 500 mg, analgesic (mefenamic acid tablet), and anti-inflammatory (serratiopeptidase) were given twice a day for 5 days. Antibiotic steroid combination eye drops and ointment (tobramycin and dexamethasone) were prescribed for 2 weeks. Lubricants were also prescribed three times a day. The silk sutures were removed after 7–10 days depending on wound healing. Vicryl was removed after a month if required, otherwise it was left in place for disintegration. Patients were examined postoperatively on day 1, 1 week, 2 weeks, 1 month, and 3 months for recurrence of symptoms**.**

All the patients were followed up for a period of 12 months. They were assessed for overcorrection, undercorrection, and wound infection. A successful outcome was defined as restoration of the lid margin to its position with no lash touching the cornea and no recurrence within a 12-month period.

Results

This study had a total number of 18 eyelids of 13 patients. The mean age of the patients was 67.6 ± 2.2 standard deviation (SD) years. The minimum age was 65 years; the maximum age was 75 years. There were 11 males (61.1%). Bilateral entropion correction was done in five patients. The mean duration of symptoms was 5.3 ± 2.8 SD months, with a minimum of 1 month and a maximum of 12 months. The right eye and left eye were seen in 9 (50%) cases each. One patient had a history of grafting at the medial canthus 5 years prior due to basal cell carcinoma. The patients' demographic features are summarized in Table 1.

Postoperative complications including overcorrection (secondary ectropion), undercorrection (residual entropion), and wound infection were not seen in any patient. Ecchymosis was seen in three (16.7%) patients. Postoperative anatomic success was seen in 94.4% of patients, defined as no lash touching the cornea. Recurrence was seen in one patient (5.6%).

Discussion

Several surgical techniques have been described in the literature for correction of involutional entropion, ranging from skin patches,[14] botulinum toxins,[15] tissue glue,[16] to everting sutures.[9,10] Everting sutures are most commonly used worldwide but they provide only temporary entropion correction.[11] Wright *et al.* recommended everting sutures on the patient's first appointment as they can be employed quickly, safely, and cheaply.[17]

The present study evaluated the Wies procedure for anatomic success and recurrence rate. We found 100% anatomic success postoperatively at 6 months and 94.4% at 12 months with minimal complications. Rosbach *et al.* reported success rates of 91.2% for primary entropion surgery and 88.9% for recurrent entropion in a case series with a mean follow-up of 34 months.[18] El-Sobky *et al.* reported a success rate of 85.7% after the Wies procedure in 15 patients at the 6-month follow-up.[19] The results of our study are similar to these results. Detailed examination of every patient is very important to decide whether the procedure is suitable for the individual patient.

In our study, only one patient (5.6%) developed recurrence at 12 months. Serin *et al.* reported 29.0% recurrence after the Wies procedure with a mean follow-up period of 18.4 months.[20] The average time of recurrence reported in this study was 4.8 months;[20] these early recurrences could be due to missing horizontal lid laxity at the initial assessment. Borboradis *et al.* reported a recurrence rate of 17%,[21] while Karki and Sharma reported a recurrence rate of 29%[22] by 12 months of follow-up. In our study, the single recurrence at 12 months could be due to the development of significant horizontal lid laxity a few months after the surgery. This patient was later treated with horizontal lid shortening comprising vertical full-thickness lid resection.

The Wies procedure is a combination of transverse full-thickness blepharotomy and everting sutures. Everting sutures correct vertical lid laxity by passing through the retractor layer and tightening lower lid retractors. Blepharotomy creates a scar between the skin, conjunctiva, and preseptal and pretarsal orbicularis. Combined, these procedures prevent overriding of the preseptal onto the pretarsal orbicularis oculi muscle.[20] The Wies procedure does not address horizontal lid laxity, which is due to canthal tendon laxity and tarsal plate laxity.[23] Lid shortening procedures like lateral tarsal strip or full-thickness wedge resection can overcome horizontal lid laxity.[24] The general consensus states that recurrence will be higher when horizontal laxity is not addressed by horizontal tightening.[25,26] Simple advancement of dehisced retractors may be satisfactory for effective repair in absence of horizontal lid laxity. The recurrence rate can be decreased by correcting horizontal laxity in case of a positive snap back test.[27] Therefore, we suggest that initial assessment is critical to exclude horizontal lid laxity before performing the Wies procedure for good surgical outcome and prevention of early recurrence.

Incidence of involutional entropion is reported to be higher in females compared to males. Damasceno *et al.* reported a prevalence of 2.4% in females and 1.9% in males, as females have a smaller tarsal plate than males.[7] Boboridis *et al.* had 61 female patients and 41 male patients.[20] In our study, males were predominant, with 11 patients (61%). Since our study used a small sample size, the difference is not apparent.

The cosmetic results of the procedure have also been considered in other studies.[20,22] The Wies procedure causes significant transverse scarring 4 mm below the lash line compared to the combined procedure (lateral tarsal strip, retractor tightening, and everting sutures). The combined procedure produces a small 1 cm vertical incisional mark which is buried in skin stress lines, from the lateral canthus to the orbital rim.[20] Cosmetic results were beyond the scope of this study, so we did not evaluate them. However, our patients were quite happy and satisfied postoperatively after enduring constant ocular irritation for a long period.

Table 1. Demographic features of patients

Variables	**Frequency (%)**
Mean age (years)	67.6 ± 2.2 SD
Gender Males Females	 11 (61%) 7 (39%)
Laterality Right eye Left eye Bilateral	 8 (44.44%) 5 (27.77%) 5 (27.77%)
Cataract	5 (28%)
Pseudophakic	13 (72%)
Systemic illness DM HTN	 5 (28%) 1 (5.6%)
Visual acuity (VA) VA 6/6 VA 6/9 to 6/18 VA 6/24 to 6/60	 11 (61%) 6 (33%) 1 (6%)
Mean duration of symptoms	5.3 ± 2.8 SD months
Recurrence at 12 months	1 (5.6%)
Anatomical success	17 (94.6%)

DM: diabetes mellitus, HTN: hypertension; SD: standard deviation

The main limitations of our study are its small sample size and limited follow-up time. However, its main strength is that it is the first study in Pakistan studying the outcome of the Wies procedure in the geriatric population.

Conclusion

In our study, the Wies procedure for correction of involutional entropion in the geriatric population with horizontal lid laxity provides good anatomic results. The recurrence rate was minimal within 1 year. Accurate initial assessment of the entropion before performing the Wies procedure is valuable in reducing its recurrence rate.

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Brief report
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A series of acupuncture-related ocular injuries in Malaysia

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Abstract

Introduction: Acupuncture is a complementary medicine that has gained popularity in treating various systemic illness including the eye. However, there are few reported complications following acupuncture to the eye structures.
Purpose: To create awareness regarding the potential complications following acupuncture involving the eye and orbit.
Study design: Case series.
Materials and method: We report six cases of ocular complications related to acupuncture procedures in Malaysia, from August 2019 until December 2019. The cases were compiled from a group of ophthalmologists who encountered the patients.
Results: The magnitude of the severity of complications ranges from non-sight-threatening complications to sight-threatening complications requiring evisceration. The complications compiled in this case series include preseptal cellulitis, subconjunctival haemorrhage, traumatic cataract, vitreous haemorrhage, macular hole, globe rupture, and panophthalmitis. Following the complications, patients who sustained sight-threatening complications required further surgical interventions.
Conclusion: Acupuncture has significant ocular morbidity if performed incorrectly in the eye or orbital area, ranging from mild to total loss of the eye.
Keywords: acupuncture, intervention, ocular injury, threatening complications

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Kes bersiri kecederaan mata berkaitan dengan akupunktur di Malaysia

Abstrak

Pengenalan: Akupunktur merupakan perubatan komplementari yang semakin popular dalam merawat pelbagai penyakit sistemik termasuk bahagian mata. Namun, terdapat laporan mengenai komplikasi akibat akupunktur di bahagian mata.
Tujuan: Untuk memberi kesedaran tentang komplikasi yang boleh berlaku berikutan akupunktur di bahagian orbit dan mata.
Reka bentuk kajian: Siri kes.
Bahan dan kaedah: Kami melaporkan enam kes di Malaysia mengenai komplikasi selepas prosedur akupunktur pada bahagian mata, bermula pada bulan Ogos 2019 sehingga Disember 2019. Kes-kes ini dikompilasi oleh sekumpulan pakar oftalmologi yang merawat pesakit-pesakit tersebut.
Keputusan: Tahap keterukan komplikasi adalah di antara yang tidak mengancam penglihatan kepada yang boleh mengancam penglihatan, yang memerlukan pengeluaran isi kandungan mata *(evisceration).* Komplikasi yang dikompilasi di dalam siri kes ini adalah termasuk selulitis pre-septal, pendarahan subkonjunktiva, katarak traumatik, pendarahan vitreus, lubang macula, kebocoran bola mata dan panoftalmitis. Berikutan komplikasi tersebut, pesakit yang mengalami komplikasi yang mengancam penglihatan memerlukan pembedahan lanjutan.
Kesimpulan: Akupunktur boleh menyebabkan komplikasi yang signifikan jika dilakukan secara tidak betul di kawasan mata atau orbit, sama ada komplikasi ringan sehingga boleh menyebabkan kehilangan mata.

Kata kunci: akupunktur, intervensi, kecederaan mata, komplikasi terancam

Introduction

Acupuncture is a form of complementary medicine in which fine needles are inserted via skin to specific acupoints on the body to treat various types of health conditions and to relieve pain. Acupuncture was believed to originate in China following the discovery of five silver needles in the tomb of Han Dynasty Prince Liu Sheng in Hebei Province, China.[1] According to the principles of acupuncture, Qi (which means "energy") flows in the vessels and is manipulated by the acupuncturist to restore balance, thus ensuring the success of acupuncture. Over time, acupuncture practices have spread worldwide and assimilated with the modernization of complementary medicine.

Acupuncture treatment, which should be performed by a trained acupuncturist, is purported to treat various systemic illnesses, including eye-related problems such as dry eye syndrome, glaucoma, myopia, squint, and optic nerve problems. Fine needles are introduced to specific acupoints on the periorbital area such as Jingming (UB-1), Zanzhu (UB-2), Yuyao, Sizhukong (SJ 23), and Tongziliao (GB 1), and Qiuhou and Chengqi (ST 1). These acupoints are believed to balance the Qi and improve blood circulation around the eye and ocular structures.

There have been a number of reported cases on acupuncture-related injuries worldwide, especially in China, where acupuncture started and is widely practised.[2] In Malaysia, the establishment of the Traditional and Complementary Medicine Act 2016 (Act 775) regulated traditional and complementary services, including acupuncture.[3] The "Good Practice Guideline in Acupuncture" is published as a guide for complementary medicine practitioners in their daily practice.[4] However, as in many nations around the world, adequate control and monitoring of complementary and alternative medicine is lacking in Malaysia, raising the possibility of complications following acupuncture. Here, we report six patients who presented with various eye complaints following recent acupuncture treatment in the orbit and eye.

Materials and methods

We conducted a retrospective review of six cases of ocular complications following acupuncture procedures to the orbit and ocular structures in Malaysia. We compiled the list of cases from a group of ophthalmologists who encountered such patients presenting from April 2019 to October 2019. The cases were collected from August 2019 to December 2019.

Results

Case 1

Worried about developing glaucoma, a 54-year-old, acupuncture-naïve Chinese male sought acupuncture treatment for slightly reduced vision in both eyes. The acupuncture treatment involved both eyes in the periorbital region. One day after the procedure, he noticed worsening of vision in his right eye, but sought treatment from the ophthalmologist 2 months later. On examination, his visual acuity was hand movement (HM) OD and 6/9 OS. Relative afferent pupillary defect (RAPD) was negative. Anterior segment examination showed hypermature cataract with liquefied lens material and inferiorly sunken nucleus. The anterior capsule was intact. B-scan showed poorly defined lens capsule with suspicion of posterior capsule rupture, opacities in the vitreous, and posterior vitreous detachment (Fig. 1). Combined phacoemulsification with lens aspiration and pars plana vitrectomy was

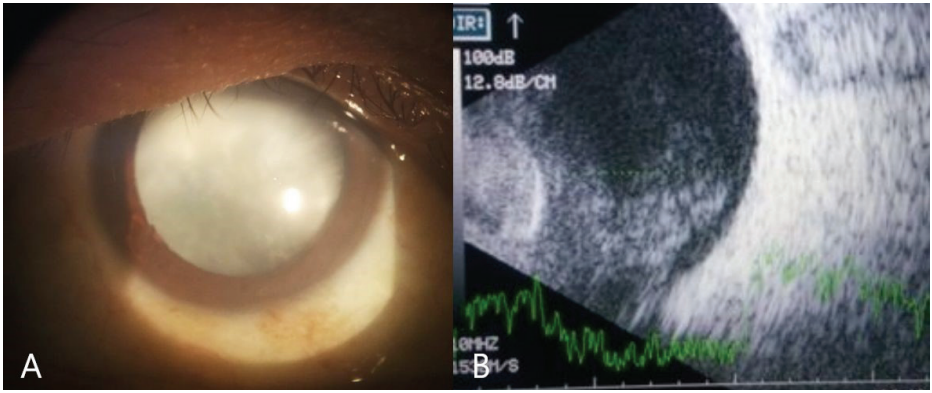

Fig. 1. Case 1. (*A*) Traumatic cataract post-acupuncture. (*B*) Inferiorly sunken lens nucleus with ill-defined posterior capsule (arrow).

performed, during which the leaked lens material was removed and no retinal break was observed. Since the posterior capsule was not intact, the intraocular lens was implanted in the sulcus. Postoperatively, he was prescribed with routine topical antibiotics and steroids. No intravitreal antibiotic was given pre- or intraoperatively. One month postoperatively, his vision improved to 6/9 OD and the retina was flat.

Case 2

A 42-year-old male had acupuncture treatment in his right eye for floaters. He presented to the ophthalmologist 2 weeks later complaining of slightly reduced vision in his right eye since the procedure. On examination, his visual acuity was 6/7.5 OD and 6/6 OS. There were no anterior segment findings of note. There was evident globe perforation inferior to the macula with subretinal haemorrhage and localised retinal detachment. The injury appeared consistent with perforation from a sharp, small object. He was treated with oral moxifloxacin to prevent endophthalmitis. At the 2-week follow-up, the haemorrhage had reduced and there was no evidence of endophthalmitis or retinal detachment. Early epiretinal membrane formation was noted on optical coherence tomography of the macula. However, examination 2 months later found a large macular hole, retinal detachment, and visual acuity of 6/60 (Fig. 2). He then underwent pars plana vitrectomy and internal limiting membrane peel with gas tamponade. One month after surgery, his visual acuity remained at 6/60, but the macular hole had decreased in size. Subjectively, the patient stated that scotoma had decreased postoperatively.

Case 3

A 40-year-old female underwent acupuncture treatment for myopia. She sought ophthalmological treatment 1 week after the procedure, complaining of blurring of vision in her right eye since the acupuncture treatment. There was globe perforation

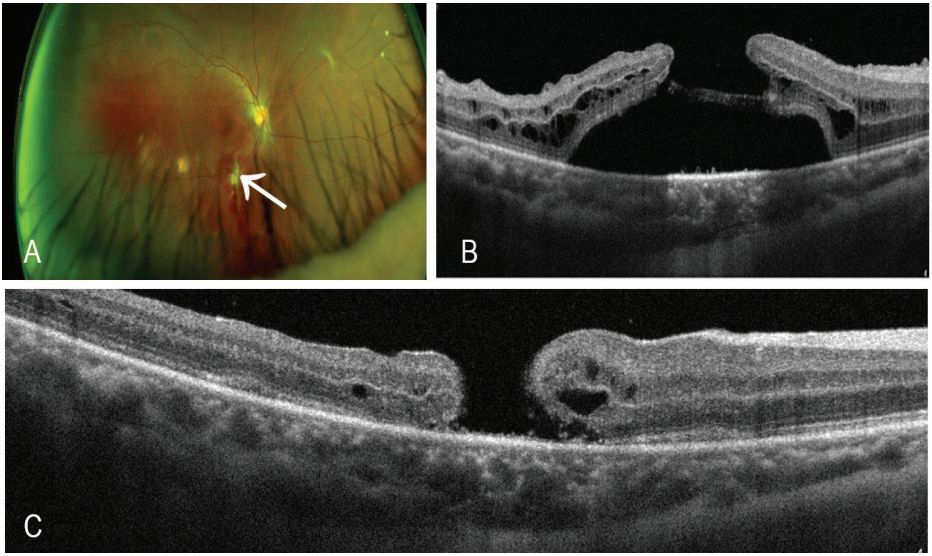

Fig. 2. Case 2. (*A*) Posterior globe perforation near inferotemporal arcade. (*B*) Macular hole formation 2 months after acupuncture treatment. (*C*) Improvement of macular hole size 1 month after surgery.

at the superior aspect of the right eye, with vitreous haemorrhage obscuring the macula. Her preoperative visual acuity was 6/36 OD and 6/6 OS. After pars plana vitrectomy with endolaser and gas tamponade for the vitreous haemorrhage in the right eye, the patient recovered well and regained a visual acuity of 6/6.

Case 4

A 65-year-old woman sought acupuncture treatment for her cataract. Ten days after the procedure, she presented with a complaint of bilateral eyelid swelling, and associated pain and redness. She was afebrile. On examination, her visual acuity was 6/24 OU. RAPD was absent. There was bilateral erythematous periorbital swelling with multiple punctate needle spots around the periorbital area. Extraocular muscle movements were full. Anterior and posterior segment were unremarkable. A diagnosis of preseptal cellulitis was made. She was admitted for intravenous antibiotics and recovered well.

Case 5

A 76-year-old Chinese male with advanced glaucoma in the right eye and absolute glaucoma in his left eye decided to try alternative acupuncture to treat his glaucoma. He had cataract surgery and trabeculectomy a few years prior. According to the patient, four needles were inserted in the periorbital area. Immediately after the procedure, he developed right eye pain associated with swelling and eye discharge.

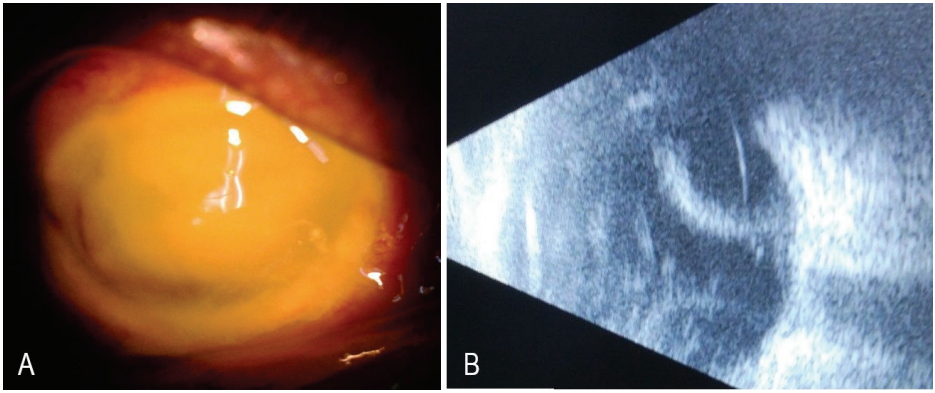

Fig. 3. Case 5. (*A*) Total corneal opacity with melting. (*B*) B-scan showing loculations in the vitreous cavity.

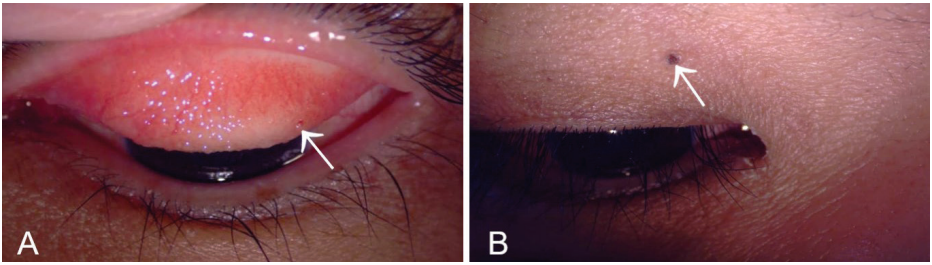

Fig. 4. Case 6. (*A*) Punctate spot from acupuncture needle on the palpebral conjunctiva. (*B*) Puncture mark on external eyelid (white arrows in A and B).

Vision in his right eye worsened and he developed fever soon after. After 8 days, his symptoms got worse and he presented to the eye casualty. On examination, there was no light perception in the left eye and slight light perception in his right eye. The right eyelid was swollen with conjunctival congestion. His extraocular muscle movement was limited in all quadrants. The cornea had melted completely, with formation of descemetocele. The Seidel test was negative. B-scan showed vitreous opacities with choroidal detachment (Fig. 3). He was admitted for impending corneal perforation and exogenous endophthalmitis in the right eye. Vitreous tapping and conjunctival swab cultures grew *Pseudomonas aeruginosa*. Intravitreal ceftazidime 2 mg and vancomycin 1 mg were given and he was started on intensive topical ceftazidime 5%, topical gentamicin 0.9%, and intravenous ciprofloxacin. Despite intensive treatment, his right eye deteriorated and had to be eviscerated at day 10 of symptom onset.

Case 6

A 38-year-old Chinese male had been newly diagnosed with bilateral advanced glaucoma and prescribed two antiglaucoma medications. His initial visual acuity was 6/36 bilaterally. Six weeks after his glaucoma diagnosis, he was noted on examination to have bilateral diffuse subconjunctival haemorrhage. Upon further questioning, he admitted to undergoing acupuncture treatment in both eyes. The haemorrhage started after the last session of a five-day daily treatment. He claimed his vision had improved after the treatment, although objective visual testing failed to demonstrate this. Six weeks after that, he had a similar episode following a similar acupuncture procedure. There was no globe injury (Fig. 4).

Discussion

Despite its global practice in complementary medicine to treat various illnesses, serious adverse events involving systemic and local complications have been reported following acupuncture treatment. Most complications are due to improper acupuncture technique and infections.[5] The reports found that acupuncturists who practice in rural areas were more prone to cause needle injury, which is probably related to a lack of formal education and employment of non-standard techniques among these practitioners.[5] In relation to infection, most cases occurred in rural areas where hygiene was lacking and non-disposable needles were used.[5-6] Diabetic patients are at higher risk of contracting infection-related complications after acupuncture procedures.

In the eye, complications related to penetrating trauma, such as traumatic cataract, retinal detachment, retinal hole, and globe perforation, have been previously reported.[7-11] In our report, four of the patients presented with penetrating eye trauma. We postulate that globe penetration occurred during the introduction of needles to the acupoints at inappropriate depths into the orbital cavity. The orbital cavity is a closed and compact compartment containing the globe and optic nerve as well as multiple fine nerves and vessels. The minute size and close proximity of these structures makes them prone to injury. Eyeball rotation can also occur during the procedure, increasing the likelihood of ocular trauma. Compounding the risk, acupuncture is a blind procedure in which the practitioner's knowledge of anatomical structures and experience are crucial prior to performing the procedure successfully.

Infections following acupuncture procedures range from simple local infections to life-threatening ones with devastating consequences, such as tetanus.[12-13] Infections may develop as early as the same day of the procedure.[9,10] Single-use needles are highly recommended to prevent infections following this procedure. Poorly controlled diabetic patients are not recommended to undergo acupuncture procedures.

Conclusion

We suggest that clear guidelines and safety precautions should be available for acupuncturists treating the eye and surrounding areas. Patients with ocular diagnoses should be advised caution when seeking alternative medical treatments which utilise instruments applied to the ocular region. We also recommend that proper health advisory and certification be made mandatory for any kind of acupuncture involving the ocular area, requiring practitioners to have adequate knowledge of ocular and orbital anatomy and to follow sound hygiene practices to prevent infections in order to minimize the risk of complications, be they mild or potentially sight-threatening.

Acknowledgements

Informed consent to use the clinical information and photographs contained in this report has been granted by the patients via phone calls.

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Case report/Case series
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Modified sewing machine technique in combination with lens aspiration and anterior vitrectomy for large iridodialysis repair

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Abstract

We describe the management of a large iridodialysis repair using the modified sewing machine technique and lens aspiration in a single setting in an eye with blunt ocular injury. We performed the lens aspiration first followed by iridodialysis repair. The technique was easy and fast, with good postoperative anatomical outcome.

Keywords: iridodialysis, modified sewing machine technique, traumatic cataract

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Teknik mesin jahit yang diubah suai dalam pembedahan kombinasi aspirasi kanta dan vitrektomi anterior untuk pembaikian iridodialisis yang besar

Abstrak

Kami menerangkan rawatan pembaikian iridodialisis besar menggunakan teknik mesin jahit yang diubah suai dengan aspirasi kanta dalam satu masa pembedahan pada mata yang mengalami kecederaan okular tumpul. Kami melakukan aspirasi lensa terlebih dahulu diikuti dengan pembaikian iridodialisis. Tekniknya mudah dan cepat, dengan hasil anatomi pasca operasi yang baik.

Kata kunci: iridodialisis, katarak trauma, teknik mesin jahit yang diubah suai

Introduction

Iridodialysis is defined as the separation of the iris from its root at the ciliary body. It commonly occurs due to blunt trauma or following complicated intraocular surgery. A large iridodialysis can lead to monocular diplopia, glare, photophobia, or cosmetic disfigurement, all of which require surgical intervention. The surgical approaches are broadly categorized into the open- and closed-chamber methods (Table 1).[1-7] In this article, we present a case of combined lens aspiration and anterior vitrectomy together with a large iridodialysis repair using a modified sewing machine technique.

Results

A 21-year-old man alleged blunt trauma following a grinding incident. The patient developed sudden loss of vision in the left eye and experienced severe eye pain. Visual acuity was reduced markedly in the left eye (light perception in all quadrants). The cornea was slightly hazy with a central epithelial defect. There was a large iridodialysis extending from the 9 o'clock to the 3 o'clock positions, with the detached iris folded inferiorly and obscuring most of the pupil (Fig. 1). The lens was cataractous with a breached anterior capsule superiorly. Minimal lens material was seen in the anterior chamber with no obvious prolapse of the vitreous.

Table 1. Summary of literature review of techniques for iridodialysis repair

Study	Authors	Instrumentation	Technique
Sewing machine technique for iridodialysis repair	Kumar *et al.* (2014)[1]	26-G needle 10/0 prolene suture 20-G MVR blade	Passage of the needle through the peripheral iris and sclera from inside out. Multiple external loops are formed and each loop is cut and tied.
Cobbler's technique for Iridodialysis Repair	Pandav *et al.* (2016)[2]	100 prolene suture 26-G needle	Multiple loops are formed: the free end of the suture is passed through the loops and tied to form a single knot.
New technique for iridodialysis correction: single-knot sewing-machine suture	Silva *et al.* (2016)[3]	9-0 non-absorbable suture 27-G plastic-handled, 40 mm straight needle	Multiple loops formed; the loops are secured with an auxiliary anchoring suture. In the last loop, the end of the suture is retrieved and tied to the one obtained in the first loop and the auxiliary suture is removed.
Knotless technique for iridodialysis repair	Voykov *et al.* (2015)[5]	Double-armed 10-0 prolene suture Bent 27-G needle	Prolene suture is secured in the sclera using a zigzag shaped intra-scleral suture (Z-suture).

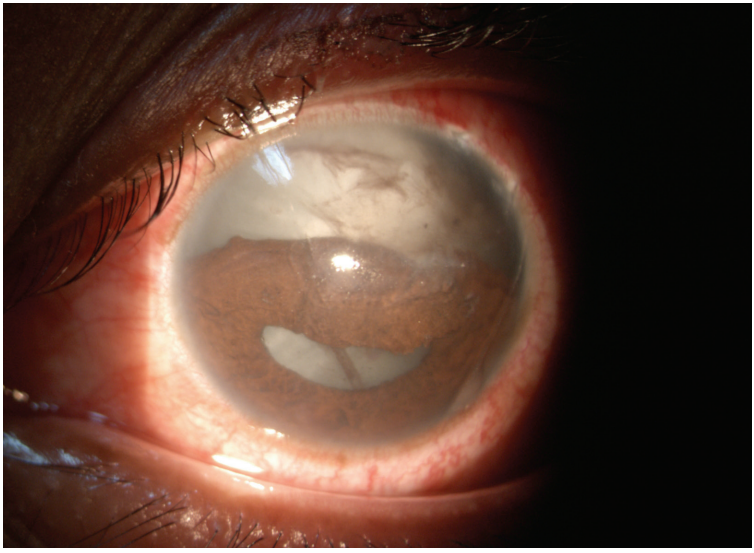
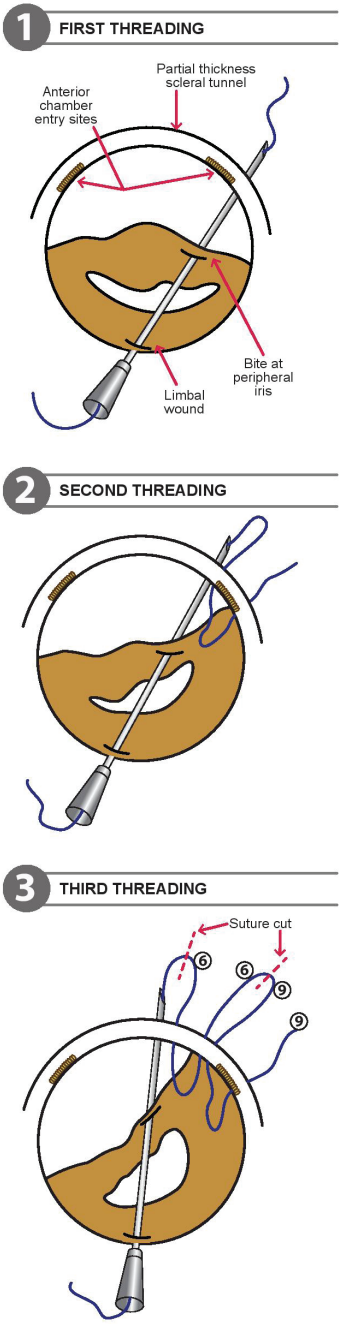


Fig. 1. Left eye anterior segment photo showing large iridodialysis extended from 9 to 3 o'clock with corectopia and breached anterior capsule superiorly.



Surgical technique

Surgery was performed under general anesthesia. Our first aim was to do lens aspiration. A limbal-based conjunctival peritomy was done from 9 o'clock to 3 o'clock, in preparation for both lens aspiration and iridodialysis repair. A partial thickness scleral tunnel was created along the area of the iridodialysis from 9 o'clock to 3 o'clock, approximately 1.5 mm from the limbus. The anterior chamber was entered at 10 o'clock (main wound) and at 1 o'clock (paracentesis port) with a 15° microsurgical ophthalmic knife. Viscoelastic gel was injected to deepen the anterior chamber and separate the iris from the anterior capsule and the crystalline lens. Lens aspiration was performed using the manual Simcoe. A superior breach of the posterior capsule was noted when finalizing the lens aspiration, and the procedure continued with anterior vitrectomy. After the lens aspiration and anterior vitrectomy were completed, we continued with the iridodialysis repair. We started by threading a 10/0 polypropylene suture through a 26 gauge, 1.5-inch long, straight hypodermic needle. The needle with the suture entered the anterior chamber via the inferior limbal wound at the 6 o'clock position and passed through the peripheral edge of the iris at the 9 o'clock position, at the site of the iridodialysis. It exited the anterior chamber through the scleral tunnel. The suture at the tip of the needle was pulled out approximately 2 cm and held with artery forceps.

Fig. 2. Illustration of passage of the 10-0 polypropylene suture from peripheral iris to scleral tunnel inside out and forming multiple suture loops. The suture loops laid over the scleral bed were cut and tied.

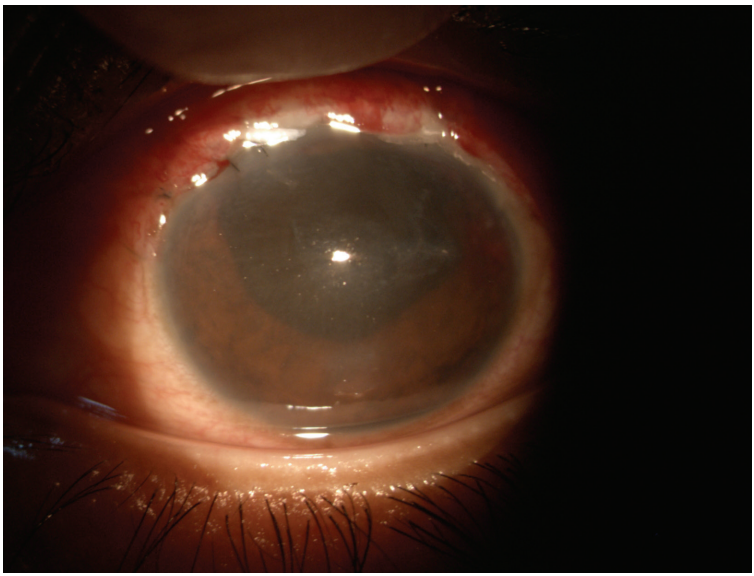


Fig. 3. Day 1 postoperative of the same eye after iridodialysis repair and lens aspiration.

The needle was pulled into the anterior chamber and took up another bite about 1 clock hour apart. The needle was externalized with the same method. A suture loop was created, and the needle was pulled into the anterior chamber again, taking up another bite on the edge of the iris (Fig. 2). This procedure was repeated until the suture loops were created along the iridodialysis. The loops were cut and tied. Precautions were taken to correctly match the ends of the threads before tying the knots. The knots were buried in the scleral tunnel. The eye was left aphakic. The closure of the conjunctival flap was done with 10/0 nylon. Intracameral carbachol solution 0.01% was administered (Fig. 3).

Discussion

Traumatic iridodialysis repair, lens aspiration, and anterior vitrectomy for a traumatic cataract with a breached anterior and posterior capsule rent in the same setting could present a surgical challenge. In the case presented, lens material that escaped from the breached anterior capsule obscured the view of the anterior chamber. Thus, lens aspiration was performed in the early stage of the surgery. There are several techniques reported in the literature for iridodialysis repair. These are categorized into open- and closed-chamber techniques. The open-chamber technique requires the creation of a self-sealed limbal incision or a scleral tunnel incision.

The sewing machine technique was first proposed for iridodialysis repair by Kumar *et al.* in 2014.[1] This technique is relatively easy and has a short learning curve. It is safe due to minimal manipulation and surgical instrumentation. It can be used for large iridodialysis repairs and provides good cosmetic results post-operatively. This technique requires burying multiple suture knots in the sclera. Thus, it may cause suture-related erosion and infection. In our case, the sewing machine technique was modified to accommodate iridodialysis repair with an associated anterior segment complication.

We reviewed other techniques proposed in the literature for repairing a large iridodialysis. Pandav *et al.* described a slightly different technique for iridodialysis repair, which has been named the "Cobbler's technique".[2] In this technique, multiple loops of sutures are formed and laid over the scleral bed. The uniqueness of this technique is that the free end of the suture passes through the loops and is tied to form a single knot. This technique, which has been described as easy, can be used for a large iridodialysis repair and may reduce suture-related complications. Silva *et al.* described a similar single knot technique, but they used the auxiliary anchoring suture, which is passed inside the loop to temporarily secure the loop and prevent slippage. It is slightly time-consuming and requires extra sutures compared to the Cobbler's technique, but it may provide a more secure foundation for the loop intraoperatively.[3]

Other techniques for iridodialysis repair include the knotless technique proposed by Voykov *et al.*[5] The polypropylene suture is secured in the sclera using a zigzag intrascleral suture (z suture). This technique can prevent suture-related erosion and infection, but it is more technically demanding. These techniques were not chosen for our case due to the possibility of adding complexity to a surgery that required lens aspiration at the same time.

The original sewing machine technique described by Kumar *et al.* involves creating a 2 mm long scleral tunnel with a corneal paracentesis wound away from the site of the iridodialysis. However, in our case, we modified the technique by creating a 1.5 mm long scleral tunnel and entering the anterior chamber through the same scleral tunnel at the 10 o'clock and 1 o'clock areas for the lens aspiration and paracentesis. No additional corneal wound was created. We believe that a shorter scleral tunnel provides an advantage for surgical manipulation in the anterior chamber, especially for a post-traumatic injury with multiple anterior segment complications. More importantly, the shorter scleral tunnel was still able to cover the suture knots adequately. Compared to other available techniques, the modified sewing machine technique is easily reproducible and requires a shorter learning curve. In conclusion, the modified sewing machine technique for iridodialysis repair, anterior vitrectomy, and lens aspiration in a single setting is possible and safe, providing a good anatomical outcome.

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Optic neuritis as the ocular manifestation of dengue infection: a case report

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Abstract

Optic neuritis is characterized by decreased vision, impaired colour perception, relative afferent pupillary defects, and scotoma. Optic neuritis following dengue infection is rare and might be underdiagnosed. The pathophysiology of optic neuritis after dengue infection is still unclear and there are only a few reports. We report a case of bilateral simultaneous optic neuritis in a young female adult following dengue haemorrhagic fever. On presentation, she complained of blurred vision, pain around the eyes, central scotoma, and progressively worsening visual acuity to no perception of light in both eyes. The next day, laboratory examination showed leucopoenia (6.74 [4.5–11.5 10^3/µL]) and lymphocytosis (52.7 [18–42%]), suggesting viral infection with positive anti-dengue IgM and IgG. The patient received intravenous pulse steroid therapy according to the Optic Neuritis Treatment Trial. At 3 months follow-up, best corrected visual acuity improved to 6/6, with pale optic discs but normal perimetry. Although complications of dengue fever in the eye are rare, early recognition must be established to prevent permanent vision loss.

Keywords: dengue haemorrhagic fever, optic neuritis, optic neuropathy

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Abstrak

Neuritis optik dicirikan oleh kekurangan ketajaman penglihatan, persepsi warna yang terganggu, kecacatan pupil aferen relatif, dan skotoma. Neuritis optik berikutan jangkitan denggi jarang berlaku dan mungkin tidak didiagnosis. Patofisiologi neuritis optik selepas jangkitan denggi masih belum jelas dan hanya ada beberapa laporan. Kami melaporkan kes neuritis optik serentak kedua belah mata pada seorang wanita dewasa berikutan demam denggi. Ketika ditemui, beliau mengadu penglihatannya kabur, sakit di sekitar mata, skotoma pusat, dan ketajaman penglihatannya semakin teruk sehingga tidak ada persepsi cahaya pada kedua mata. Pada keesokan harinya, pemeriksaan makmal menunjukkan leukopenia (6,74 [4,5-11,5 103 / μL]) dan limfositosis (52,7 [18-42%]), menunjukkan jangkitan virus dengan IgM dan IgG anti-denggi positif. Pesakit menerima terapi steroid secara intravena mengikut Kajian Rawatan Neuritis Optik. Pada tarikh susulan 3 bulan, ketajaman visual terbaik meningkat kepada 6/6, dengan cakera optik kelihatan pucat tetapi uijian perimetri adalah normal. Walaupun komplikasi demam denggi di mata jarang terjadi, pengenalan awal mesti dilakukan untuk mencegah kehilangan penglihatan kekal.

Kata kunci: demam berdarah denggi, neuritis optik, neuropati optik

Introduction

Optic neuritis following dengue infection, or parainfectious neuritis, is still very rare or might be underdiagnosed. Dengue infection is a very common infection in tropical and subtropical areas with a geographical coverage of more than 100 countries worldwide.[1] However, there are very few reports regarding this condition. We are reporting a case of bilateral optic neuritis after dengue infection in a 20-year-old patient with bilateral vision loss. At 3 months of follow-up, there was sharp improvement in visual acuity (VA) to 6/6 after steroid administration.

Case report

Patient characteristics

A 20-year-old female patient presented with acute vision loss in both eyes. One week before that, she had been hospitalized for 5 days at a local hospital because of dengue haemorrhagic fever with a platelet count of 69,000/μL. After 5 days of inpatient treatment, she had been discharged in good condition. Two days after discharge, the patient began to develop blurry vision in both eyes with associated pain around the eyes. On the following day, she felt her central vision decrease in her right eye, which was followed by the left eye.

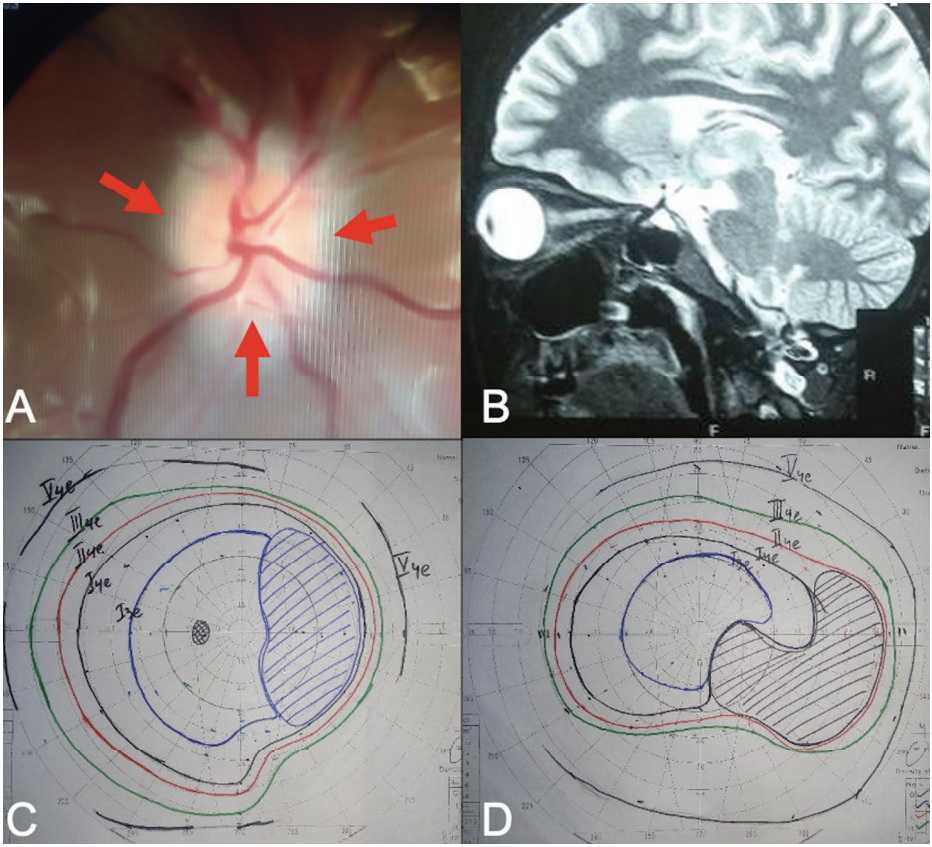

Fig. 1. (*A*) Hyperaemic right optic disc with undefined margin. (*B*) Signs of optic neuritis in the right eye with optic nerve enhancement in T2-weighted magnetic resonance image. (*C*) Goldman kinetic perimetry of the left eye at the 1-week follow-up showing relative paracentral scotoma. (D) Absolute cecocentral scotoma in the right eye.

At the ophthalmological visit, her vision became completely dark. She was in good nutritional status (body mass index: 20) and had no fever. VA at the first visit was no light perception in both eyes, with dilated pupils at 8 mm. The anterior chamber was clear and there were no signs of anterior uveitis. Both optic discs appeared hyperaemic and oedematous (Fig. 1). Colour vision, contrast sensitivity tests, perimetry, and optical coherence tomography (OCT) examinations were not carried out due to the VA conditions at the initial presentation.

Laboratory examination revealed leucopoenia (6.74 [4.5–11.5 10^3/µL]) and lymphocytosis (52.7 [18–42%]), suggesting viral infection with positive anti-dengue IgM and IgG. Other laboratory findings were normal. Magnetic resonance imaging showed bilateral optic nerve oedema strongly suggestive of bilateral optic neuritis

Table 1. Follow-up conditions after hospital discharge

	1 week	2 weeks	3 weeks	4 weeks
Right VA	1 m CF	2 m CF	6/15	6/6
Left VA	2 m CF	6/15	6/9	6/6
Optic discs	Hyperaemic at temporal area	Cup-disc ratio: 0.3 Slightly hyperaemic	Cup-disc ratio: 0.3 Slightly hyperaemic	Cup-disc ratio: 0.3 Temporal pallor
Perimetry	OD: absolute central scotoma OS: relative central scotoma	N/A	Relative paracentral scotoma	Mild peripheral depression
Colour vision	Dyschroma-topsia	Dyschroma-topsia	Dyschroma-topsia	Dyschroma-topsia
Contrast-sensitivity	N/A	N/A	Right eye: 0.15 Left eye: 0.75	Both eyes: 0.6
Laboratory	Anti-dengue IgM: negative Anti-dengue IgG: positive	N/A	N/A	N/A

VA: visual acuity (in Snellen's); CF: counting fingers; N/A: not applicable

(Fig. 1). Pulse steroid therapy (methylprednisolone 1 gr/day) according to the Optic Neuritis Treatment Trial was administered for 3 days.

Follow-up

Follow-up conditions for weeks 1–4 are described in Table 1. At the 3-month follow-up, best-corrected VA was 6/6, with pale optic discs and normal perimetry. The patient did not complain of any visual symptoms and there were no new neurological complaints. OCT examination results showed retinal nerve fibre layer thinning in both eyes (46.39 µm and 42.54 µm in the right and left eye, respectively). Dyschromatopsia was still present in both eyes.

Discussion

While the pathophysiologic mechanism of optic neuritis after dengue infection is still unclear, it is postulated to be caused by an underlying complex vascular leakage process.[2] It might be caused by a direct viral infection (infectious neuritis) or by immune-mediated processes after infection.

Optic neuritis can be an ocular manifestation following dengue fever.[3] Patients with optic neuritis usually complain of decreased vision, impaired colour perception, relative afferent pupillary defects, and scotoma. The incidence of optic neuritis as a manifestation of dengue fever is usually bilateral, although sometimes patients present with symptoms in only one eye.[4] Optic neuritis as optic neuromyelitis after dengue fever has been reported with clinical symptoms of acute, unilateral decreased vision and weakness of limbs with Babinski reflex.[5] Another case report of optic neuritis after dengue virus infection described improvement after intravenous methylprednisolone therapy and physiotherapy.[6,7]

Ocular manifestations due to dengue infection are managed based on clinical presentation, including the provision of anti-inflammatory and immunosuppressive agents.[3] However, since there have been no prospective, large, and randomized studies to date examining the administration of corticosteroid therapy in optic neuritis due to dengue infection, it is still not clear whether improvement is due to the therapeutic benefits or spontaneous disease resolution.

Ocular complications of dengue fever are rare but may involve severe eye conditions such as optic neuritis, usually occurring in young patients. The pathophysiology and mechanism of occurrence of ocular manifestations in patients with dengue fever are still not fully understood.

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Consent to publish the case report was not obtained. This report does not contain any personal information that could lead to the identification of the patient. The authors have no financial disclosures concerning the present report.

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A tale of ptosis, pharmacological tests, and Pancoast tumour

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Abstract

Horner syndrome (HS) classically presents with ipsilateral blepharoptosis, pupillary miosis, and facial anhidrosis and caused by a lesion along the oculosympathetic pathway from the hypothalamus to eye. The diagnosis of HS in a patient presenting with partial ptosis may be easily missed in the Asian patient. This is mainly due to the dark irides, making detection of anisocoria on direct visualization difficult. Index of suspicion must be high, especially in the absence of any extraocular motility or lid abnormalities. We present a case where a healthy asymptomatic patient presented with partial ptosis and diagnosis of Horner syndrome was eventually confirmed through pharmacological tests. Non-targeted imaging with a simple chest x-ray revealed an apical lung lesion which eventually turned out to be malignant. Although it is a typical textbook description, this case highlights the importance of careful history and examination in an otherwise healthy patient presenting with mild ptosis.

Keywords: Horner syndrome, Pancoast tumour

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Kisah ptosis, ujian farmakologi, dan tumor Pancoast

Abstrak

Sindrom Horner (HS) secara klasik menunjukkan adanya blefaroptosis ipsilateral, miosis pupil, dan anhidrosis muka dan ianya disebabkan oleh lesi di sepanjang jalan okulosimpatetik dari hipotalamus ke mata. Diagnosis HS pada pesakit yang mengalami ptosis separa mungkin mudah dilupakan pada pesakit Asia. Ini terutama disebabkan oleh warna gelap, menjadikan pengesanan anisocoria secara pemerhatian terus sukar di visualisasi. Indeks kecurigaan mestilah tinggi, terutama jika tidak ada pergerakan atau kelainan kelopak mata yang luar biasa. Kami menunjukkan kes di mana pesakit asimtomatik yang sihat dengan ptosis separa dan diagnosis sindrom Horner akhirnya disahkan melalui ujian farmakologi. Pengimejan tanpa sasaran dengan sinar-X dada yang sederhana menunjukkan lesi paru-paru apikal yang akhirnya disahkan malignan. Walaupun ini adalah keterangan buku teks yang biasa, kes ini menyoroti pentingnya sejarah dan pemeriksaan yang teliti pada pesakit yang sihat yang mengalami ptosis ringan.

Kata kunci: Sindrom Horner, tumor Pancoast

Case report

A 51-year-old man presented with a 3-day history of painless ptosis in the right eyelid. There was no associated diplopia or blurring of vision. He denied having a history of neck trauma. Systemic investigations were unremarkable. He admitted to smoking heavily but had quit smoking for the past two years. Examination revealed visual acuity of 6/6 in both eyes. His right eyelid had partial ptosis (vertical palpebral apertures were 5 mm and 7 mm for the right and left eye, respectively); both eyes had normal levator function (Fig. 1). There was slight anisocoria: 3 mm in the right pupil and 5 mm in the left pupil under room light. The anisocoria was more prominent in dim illumination, confirming the smaller pupil in the right eye as the pathological one. Cogan twitch sign, fatigability test, and ice pack compression were negative. Examinations of the anterior and posterior segments as well as the cranial nerves were unremarkable. Systemic examination did not reveal any other abnormalities.

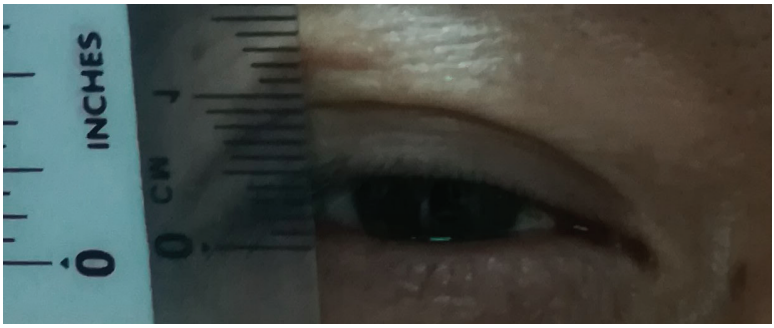

Fig. 1. Partial ptosis of the right eyelid.

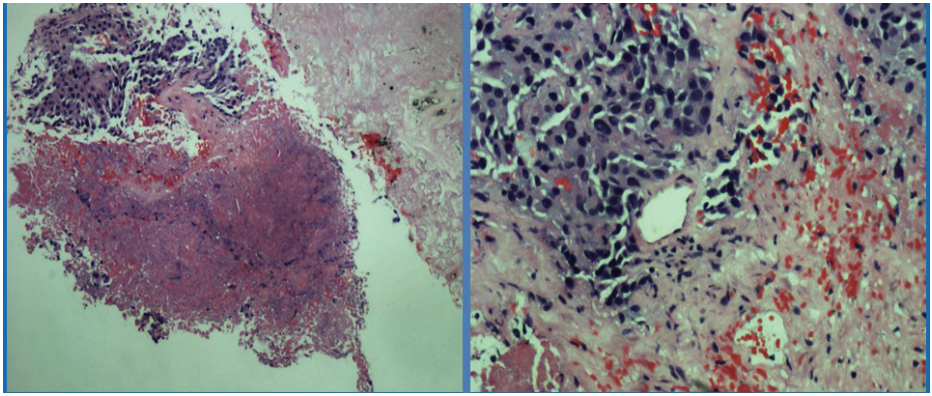

Fig. 2. (*Left*) Low-power view (H&E x 20) showing the clusters of malignant cells with surrounding wide areas of necrosis. (*Right*) High-power view (H&E x 100) showing malignant cells in clusters with pleomorphic hyperchromatic nuclei.

Based on the initial assessment, the provisional diagnosis was Horner syndrome (HS) in the right eye which is a clinical diagnosis of a disruption of oculosympathetic pathway from hypothalamus to the eye classically presents with ipsilateral blepharoptosis, pupillary miosis and facial anhidrosis.[1] This was confirmed a few days later by performing a 10% topical cocaine test where the right pupil failed to dilate. The test was done at a later date as due to difficulties in obtaining the cocaine solution on the same day.

A chest X-ray with apical views was ordered as an initial investigation to rule out an apical lung lesion. It showed lung consolidation at the right upper lobe. He was then referred to the respiratory team for a computerized tomography-guided lung biopsy. Biopsy results showed a poorly differentiated non-small cell carcinoma (Fig. 2). The patient unfortunately developed complications during surgery to remove the tumour and passed away.

Discussion

The presence of recent onset HS with anisocoria and ptosis in an otherwise healthy adult should always alert the clinician to an underlying systemic cause. In this case, the patient presented with ptosis as the main symptom. The role of imaging is thus very important in determining the aetiology. The yield of targeted imaging in cases where the aetiology of HS is unknown through history and examination is usually very low.[1] In a case series of 88 patients with HS, only one patient was found to have an asymptomatic malignancy as the aetiology.[2] In the current literature, only nasopharyngeal carcinoma and syringomyelia have been reported to present with isolated HS.[2,3] Even in Pancoast tumours, 44% to 96% of patients have an initial presentation of shoulder pain and not HS.[4,5] Early lesions of Pancoast tumour are known to present with constantly severe, constant pain in the shoulder radiating to the ulnar nerve distribution (pressure or damage of brachial plexus), ipsilateral weakness and atrophy of the small muscles of the hand (paraesthesia, dysesthesias), rib and vertebral body destruction, and HS (invasion of the sympathetic nerve).[6,7] In our patient, the apical lung lesion was evident from a simple chest X-ray ordered on the same day. Hence there was no delay of this grave diagnosis.

This case highlights several important learning points in the assessment of a patient with HS. Firstly, the presence of anisocoria may be easily missed, especially in Asian eyes with dark irides. As this is usually not a presenting complaint, the clinician needs to be on the lookout for this clinical sign in patients presenting with ptosis. Confirmatory tests as described in textbooks (10% cocaine) are usually difficult to obtain on the spot in most clinical settings. Simple but potentially lifesaving investigations, such as chest X-rays, are absolutely essential in cases with isolated HS. These can usually be obtained faster and should not be delayed whilst wating for the confirmatory pharmacological tests.

In conclusion, non-targeted imaging in cases of isolated HS is essential and should not be delayed until confirmatory pharmacological tests are done. Although the yield is low, it may allow early diagnosis of potentially fatal lung lesions.

Acknowledgements

Due to the patient's untimely death during tumour removal, the authors were unable to seek consent for publication. However, all details contained in this case report have been sufficiently anonymized to protect the patient's identity.

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Ocular marginal zone B-cell lymphoma of mucosa-associated lymphoid tissue masquerading as chalazion: a case report

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Abstract

A case of ocular marginal zone non-Hodgkin B-cell lymphoma of mucosa-associated lymphoid tissue of the conjunctiva masquerading as chalazion is reported in a 57-year-old Chinese man, known to have diabetes mellitus. He presented with painless swelling of the lower lid and redness in the right eye for 3 months duration. A diagnosis of chalazion was made, and incision and curettage were performed by a general ophthalmologist. The swelling worsened and spread to the whole lower lid. Magnetic resonance imaging showed a lesion involving the right periorbital region limited to the anterior orbital septum that was hypointense on T1 and hyperintense on T2. A diagnosis of periorbital cellulitis with possibility of lymphoma was suggested.

When he came to our eye clinic for expert opinion, his visual acuity, anterior segment and fundus were normal except early cataract changes in both eyes. There was a hard, non-tender, immobile mass within the lower eyelid associated with conjunctival injection and chemosis. Histopathology of the conjunctival biopsy showed features of low-grade non-Hodgkin B-cell lymphoma and the immunohistochemistry report was suggestive of marginal zone lymphoma. He was treated with chemotherapy (cyclophosphamide, vincristine, prednisolone) and radiotherapy, following which the swelling resolved.

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When patients do not respond to treatment as expected after incision and curettage of chalazion, a high index of possibility of malignancy should be kept in mind whenever a recurrence of hard swelling is observed at the same site in the eyelid. All suspicious lesions should be biopsied to find out the correct diagnosis.

Keywords: chalazion, conjunctival tumour, marginal zone lymphoma, non-Hodgkin B-cell lymphoma, radiotherapy

Limfoma sel B zon marginal tisu limfoid berkaitan mukosa yang menyamar sebagai kalazion: laporan kes

Abstrak

Kes limfoma sel B non-Hodgkin sel limfoma tisu limfoid yang berkaitan dengan mukosa konjunktiva yang menyamar sebagai kalazion dilaporkan pada seorang lelaki Cina berusia 57 tahun, yang diketahui menghidap diabetes mellitus. Dia mengalami bengkak tanpa rasa sakit pada kelopak mata bawah dan kemerahan di mata kanan selama 3 bulan. Diagnosis chalazion dibuat, dan prosedur insisi dan kuretej dilakukan oleh pakar oftalmologi umum. Pembengkakan menjadi bertambah buruk dan merebak ke seluruh penutup bawah. MRI menunjukkan lesi yang melibatkan kawasan periorbital kanan yang terhad kepada septum orbital anterior yang hypointens pada T1 dan hyperintens pada T2. Diagnosis selulitis periorbital dengan kemungkinan limfoma diusulkan sebagai diagnosis.

Ketika kehadiran beliau ke klinik mata kami untuk konsultasi pakar, ketajaman penglihatan, segmen anterior dan fundusnya normal kecuali perubahan katarak awal pada kedua matanya. Terdapat ketulan yang tidak lembut dan tidak bergerak di kelopak mata bawah yang berkaitan dengan suntikan konjunktiva dan kemosis. Histopatologi biopsi konjunktiva menunjukkan ciri limfoma sel B bukan Hodgkin kelas rendah dan laporan imunohistokimia menunjukkan limfoma zon marginal. Dia dirawat dengan kemoterapi (siklofosfamid, vincristine, prednisolone) dan radioterapi, setelah itu pembengkakannya hilang.

Jika pesakit tidak bertindak balas terhadap rawatan seperti yang diharapkan setelah prosedur insisi dan kuretej kalazion, kecurigaan yang tinggi akan kemungkinan malignan harus diingat setiap kali berlaku pembengkakan yang keras secara berulang diperhatikan di tempat yang sama di kelopak mata. Semua luka yang mencurigakan harus dilakukan biopsi untuk mengetahui diagnosis yang tepat.

Kata kunci: chalazion, limfoma sel B bukan Hodgkin, radioterapi, tumor konjunktiva, limfoma zon marginal

Introduction

Ocular adnexal lymphoma (OAL) or orbital lymphoproliferative disorders include a heterogeneous group of lymphoid cell disorders that can affect orbital soft tissues, conjunctiva, eyelid, or adnexal structures such as the lacrimal drainage system or lacrimal gland.[1] Generally, they are classified as Hodgkin and non-Hodgkin lymphoma (NHL).[2] The most common primary OAL is low-grade malignant extranodal marginal zone B-cell lymphoma (EMZL) of mucosa-associated lymphoid tissue (MALT) type.[1] Ocular and adnexal lymphomas comprise 5–10% of all extranodal lymphomas.[3] However, OAL is the most common orbital tumour, especially in older populations, with an incidence ranging from 11% to 24% of all orbital tumours.[3] Most cases involve adults over 60 years old, with no gender predilection.[4] Bilateral disease is observed in approximately 10–15% of cases.[3] The incidence of NHL in the general population is on the rise, most likely due to immunodeficiency syndromes, organ transplantation, autoimmune diseases, and involvement of several pathogenic viruses. Depending on location, OAL can present with a spectrum of clinical manifestations. Presentations include proptosis, mass at the eyelid, conjunctival mass, ocular motility restriction, or diplopia. However, visual deterioration is uncommon. Conjunctival OAL is classically seen as a salmon pink patch at the bulbar conjunctiva.

A literature search in PubMed, Science Direct, and Google Scholar did not reveal any case reports of ocular marginal zone NHL from Malaysia. Therefore, we report the first case of ocular marginal zone non-Hodgkin B-cell lymphoma of MALT in the eyelid masquerading as a chalazion.

Case report

A 57-year-old Chinese man, known case of type II diabetes mellitus, first presented in August 2016 with a complaint of a painless lower lid swelling and redness in the right eye for 3 months duration. It was gradually increasing in size and associated with foreign body sensation. Initially, he was treated conservatively by a private ophthalmologist as lower eyelid chalazion with oral antibiotics, but the condition did not improve. He sought treatment at another centre, and an incision and curettage of the lesion was performed. However, the lid swelling and conjunctival injection worsened, prompting magnetic resonance imaging of the orbit. The result showed lesions involving the right periorbital region limited to the anterior orbital septum measuring 2.9 cm (W) x 1.3 cm (AP) x 2 cm (CC). The lesions involved the lower lid,

Fig. 1. Mass (4 x2 cm) in the lower eyelid below the lid margin and chemosis of the conjunctiva in the right eye.

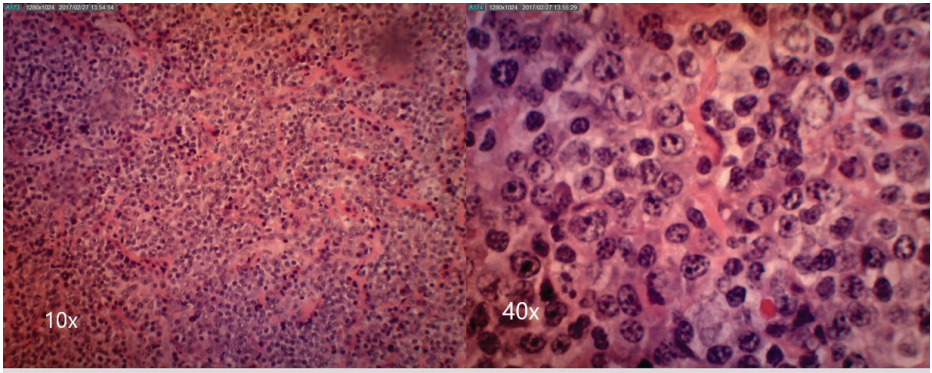

Fig. 2. H&E stain showing the mixed population of lymphoid cells ranging from small, condensed nuclei with scanty cytoplasm to larger vesicular nuclei with prominent nucleoli. Plasma cells are also seen.

which was hypointense on T1 and hyperintense on T2, not suppressed on T2 fat suppression and enhancing on gadolinium. No involvement of other structures was noted. The diagnosis given was suggestive of periorbital cellulitis with a differential diagnosis of lymphoma. He presented to our eye clinic for expert opinion. He denied any constitutional symptoms and family history of malignancies. His visual acuity was 6/6. Examination of the right eye showed a hard, non-tender, immobile mass measuring 4 x 2 cm within the lower eyelid associated with conjunctival injection and chemosis (Fig. 1). Examination of other ocular structures showed no abnormalities except for early cataract in both eyes.

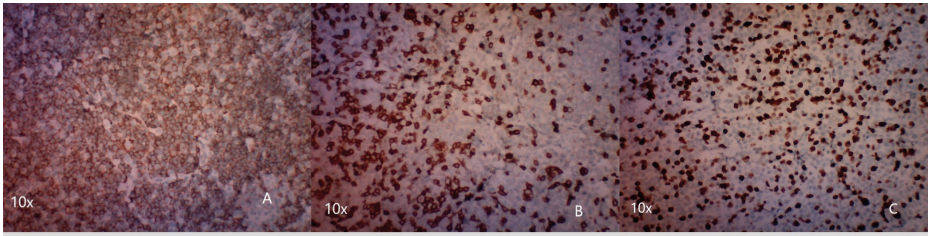

Fig. 3. Immunohistochemistry results. (*A*) Lymphoid cells with larger cytoplasm positive for CD20 (B-cells). (*B*) Lymphoid cells with smaller cytoplasm positive for both CD3 (T-cells) and CD20 (B-cells). (*C*) Ki-67 highlights raised mitotic activity and present in both larger and smaller lymphoid cells.

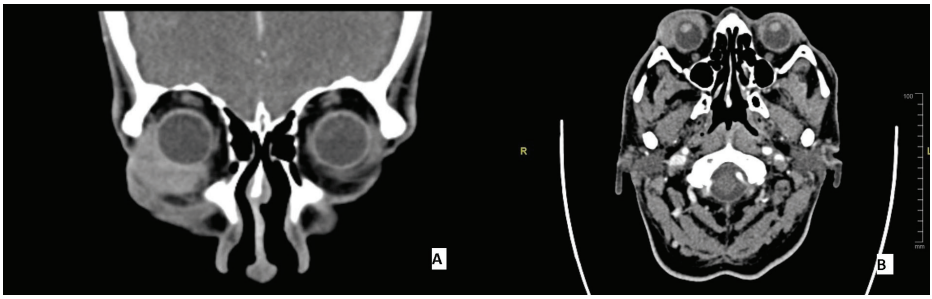

Fig. 4. Coronal computerized tomography cuts of the brain and orbits showing enhancing soft tissue mass in the right lower eyelid (*red arrow*).

Biopsy of the conjunctiva showed features of a low-grade non-Hodgkin B-cell lymphoma (Fig. 2). The histological features and immunohistochemistry results were suggestive of marginal zone lymphoma (Fig. 3). The immunophenotype markers results were positive for CD3 and CD20, negative for CD5, CD10, CD23, and cyclin-D, and 30% Ki-67.

Bone marrow aspiration and trephine examination showed no evidence of systemic NHL. A computerized tomography of the brain, neck, thorax, abdomen, and pelvis done for staging showed an enhanced soft tissue mass in the right lower eyelid measuring 1.0 x 3.0 x 1.4 cm with no evidence of lymphadenopathy (Fig. 4). Thus, the diagnosis was T1cN0M0 based on TNM clinical staging for OALs.[5]

The patient was subsequently referred to the haematology team, where a chemotherapy regime of cyclophosphamide, vincristine, prednisolone (CVP) was started in November 2016. Nonetheless, the lesion and swelling worsened. Re-biopsy was consistent with previous findings. He was then started on radiotherapy in March 2017, which he completed for 15 cycles. Ten months post-completion of radiotherapy, the patient showed improvements, with resolved lid swelling and conjunctival injection (Fig. 5). A repeat scan showed stable lymphoma.

Fig. 5. Right eye showing marked reduction in the size of the conjunctival tumour in the lower eyelid 10 months post-completion of radiotherapy.

Discussion

We have reported the first case of conjunctiva marginal zone-B cell lymphoma of a MALT tissue masquerading as a chalazion in Malaysia. OAL can present with sinister onset, gradually progressive, and non-painful mass that can involve the eyelid, orbital soft tissue, conjunctival tissues, muscle, or lacrimal gland. Age of appearance is generally between 50 and 70 years of age, with no gender predilection.[4] It is the most common orbital tumour (accounting for 24% of cases) in the age group > 60 years. The most common type of OAL is EMZL of MALT lymphoma. It is a feature in more than 50% of cases.[5] EMZL most commonly involve the orbit (60%) followed by conjunctiva (33%), lacrimal gland (4%), and eyelid (3%).[4]

Conjunctival lesions typically present as mobile pink infiltrates ("salmon-pink patch") in the substantia propria either at the palpebral or inferior bulbar conjunctiva, causing conjunctival swelling, redness, and irritation. As the lesion arises from the substantia propria, the covering epithelium is typically normal.

This patient sought treatment at multiple centres for a prolonged period. Initial treatment centred on the diagnosis of localized infection, which did not resolve with antibiotics as well as surgical incision and curettage of the lesion.

There has been a report of conjunctival lymphoma mimicking allergic or chronic conjunctivitis in which presentation involved bilateral, atypical, normal-coloured, papillae-like lesions, and inflammation.[6] Previously, a primary cutaneous EMZL of the eyelid skin has been reported presenting as blepharitis and chalazion.[7]

When patients do not respond to treatment as expected after incision and curettage of chalazion, a high index of possibility of malignancy should be kept in mind whenever a recurrence of hard swelling is observed at the same site in the

eyelid. All suspicious lesions should be biopsied to find out the correct diagnosis. Heightened awareness and quick recognition of malignancy are essential to avoid oversight and misdiagnosis, as well as the subsequent delay in commencing treatment and missing the probable systemic involvement.

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Evans syndrome in child with sudden blindness

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Abstract

A 3-year-old girl presented with sudden onset of bilateral vision loss on waking up from sleep. There had been no associated eye pain, eye redness, fever or history of trauma in the days leading up to the presentation. She had been diagnosed with Evans syndrome at the age of 18 months and started on a regular dose of oral prednisolone under regular follow-up at the paediatric clinic. Upon presentation, her visual acuity was light perception bilaterally, with relative afferent pupillary defect in the right eye and sluggish pupils bilaterally. Bilateral fundus examination showed normal macula and pink optic discs without papilloedema. Other systemic examinations were unremarkable. The provisional diagnosis was severe bilateral retrobulbar optic neuritis, prompting further investigations to rule out infectious or vasculitic causes. Extensive investigations were carried out during admission including infective screenings of blood and urine, all of which were negative. A contrasted magnetic resonance image of the brain showed both orbital segments were swollen and appeared hyperintense, with involvement of the intracanalicular and intracranial segments, suggesting an inflammatory or demyelinating aetiology. A visual evoked potential test to rule out demyelination disease was also normal. As intravenous methylprednisolone treatment appeared to have a slow effect, the treatment was switched to intravenous gammaglobulin. The patient responded well to treatment, and her latest visual acuity assessment 1 month after presentation showed bilateral vision of 6/24. This is the first-ever Evans syndrome patient to be reported worldwide with bilateral optic nerve sterile inflammation.

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Keywords: Evans syndrome, gammaglobulin, optic neuritis

Sindrom Evans pada kanak-kanak dengan kebutaan secara tiba-tiba

Abstrak

Seorang gadis berusia 3 tahun mengalami kemerosotan penglihatan pada kedua belah mata secara tiba-tiba ketika bangun dari tidur. Tidak ada kaitan dengan sakit mata, kemerahan mata, demam atau riwayat trauma pada hari-hari sebelum konsultasi. Dia telah didiagnosis dengan sindrom Evans pada usia 18 bulan dan memulakan dos prednisolon oral dengan kerap di klinik pediatrik. Semasa kehadiran beliau diklinik mata, ketajaman penglihatannya adalah persepsi cahaya secara pada kedua mata, dengan kecacatan pupil relatif relatif di mata kanan dan pupil tidak bertindakbalas dengan baik pada kedua-dua mata. Pemeriksaan fundus kedua mata menunjukkan makula yang normal dan warna cakera optik normal tanpa papilloedema. Pemeriksaan sistemik lain adalah normal. Diagnosis utama adalah neuritis optik retrobulbar kedua mata yang teruk, mendorong penyelidikan lebih lanjut untuk memastikan ianya disebabkan jangkitan atau vaskulitik. Siasatan menyeluruh dilakukan termasuklah pemeriksaan darah dan air kencing untuk jangkitan, dan semuanya negatif. Gambar resonans magnetik (MRI) otak berkontras menunjukkan kedua-dua segmen orbit membengkak dan terdapat tanda hiperintens, iaitu menglibatkan segmen intrakanalikular dan intrakranial, yang menunjukkan etiologi inflamasi atau demilining. Ujian potensi yang dihasilkan secara visual untuk menyingkirkan kemungkinan penyakit demyelinasi juga normal. Oleh kerana rawatan metilprednisolon intravena nampaknya memberi kesan yang perlahan, rawatan tersebut ditukar kepada gammaglobulin intravena. Pesakit memberi respons yang baik terhadap rawatan, dan penilaian ketajaman visual terbarunya 1 bulan selepas persembahan menunjukkan penglihatan kedua belah mata ialah 6/24. Ini adalah pesakit sindrom Evans pertama yang dilaporkan di seluruh dunia dengan keradangan steril saraf optik kedua mata.

Kata kunci: gammaglobulin, neuritis optik, sindrom Evans

Case report

A 3-year-old girl with underlying Evans syndrome (ES) presented with sudden onset, bilateral visual loss upon waking up from sleep. There had been no associated eye pain, eye redness, fever or history of trauma in the days leading up to the presentation. She had been diagnosed with ES at the age of 18 months, presenting with recurrent infections, autoimmune haemolytic anaemia, and thrombocytopenia. After diagnosis, the patient was on a maintenance dose of prednisolone syrup 2.5 mg daily, which had been successfully tapered off after six months.

Upon ophthalmological assessment, her visual acuity was light perception bilaterally. There was relative afferent pupillary defect (RAPD) in the right eye. A sluggish pupillary light reaction on direct pupillary light reflex was observed bilaterally. A fundus examination turned out normal in both eyes, with absence of papilloedema. Other systemic examinations were unremarkable.

The provisional diagnosis was bilateral retrobulbar optic neuritis. Extensive examinations and investigations were carried out upon admission including vasculitis and infective screening of blood and urine, all of which were negative. Serum aquaporin 4 and anti-myelin oligodendrocyte glycoprotein (MOG) were negative, ruling out neuromyelitis optica spectrum disorder. Magnetic resonance imaging (MRI) with contrast of the brain showed swelling of the orbital portion of both optic nerves, which appeared to be hyperintense on the T2-weighted image, with involvement of the intracanalicular and intracranial segments, suggesting an inflammatory or demyelinating aetiology (Fig. 1). Analysis of a cerebrospinal fluid sample obtained

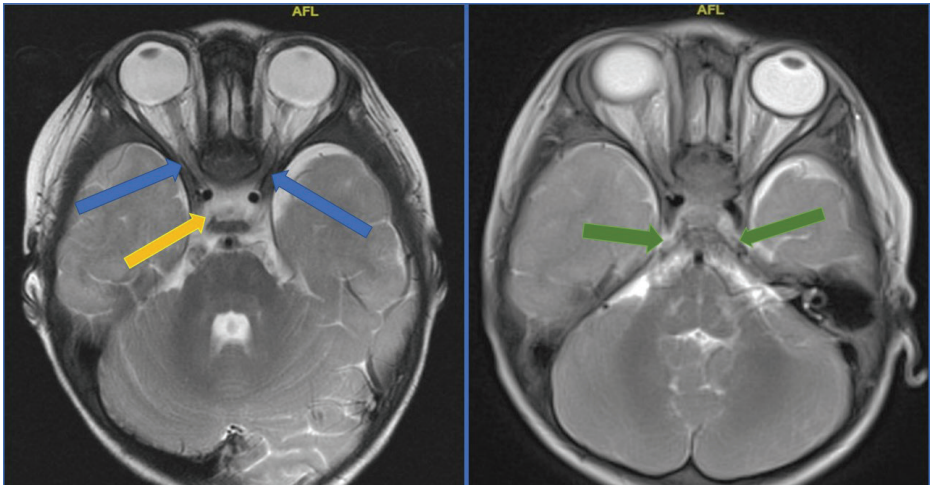

Fig. 1. A contrasted brain MRI at orbital cut (T2-weighted axial view) showing the bilateral optic nerve (*blue arrow*), chiasm, (*yellow arrow*) and optic tract are oedematous and swollen. Both optic tracts are hyperintense (*green arrow*).

from the lumbar puncture was normal. Interestingly, a visual evoked potential (VEP) test showed no obvious waveforms to suggest defects in the visual pathways.

Intravenous methylprednisolone 370 mg daily (30 mg/kg) was commenced on the day of admission and extended until day 7. The response to treatment was monitored using Optokinetic Drum, Teller Acuity Chart, and RAPD on a daily basis. By day 7 of treatment, there was only subtle evidence of ophthalmologic clinical improvement. She was then started on intravenous (IV) infusion of immunoglobulin 12.5 g daily (1g/kg/day) for 2 days, in view of the slow and poor response.

After she completed the immunoglobulin, her visual acuity improved to at least 6/60 bilaterally. She was able to navigate her way around a room. The right-eye RAPD was still positive. Since she had shown good response to treatment, she was discharged home with a tapering dose of prednisolone syrup of 10 mg daily for the first week, 5 mg daily for the second week, and 2.5 mg daily for the third week. During the last follow-up, 1 month after initial presentation, her visual acuity had improved to 6/24 bilaterally, and both optic discs still appeared to be normal. Her parent reported that she was able to walk around the house without bumping into objects and could point at objects correctly.

Discussion

ES is a combination of Coombs positive autoimmune haemolytic anaemia, immune thrombocytopenic purpura, and, less commonly, autoimmune neutropenia. It is a diagnosis of exclusion after all infections, malignancies, autoimmune diseases, recent vaccinations, drugs, or a family history of immune disorders have been ruled out.[1] The pathophysiology of ES is not clearly understood, but it is postulated to involve autoantibodies directed against a base protein of an Rh blood group, thus destroying red blood cells, and a separate group of autoantibodies directed against platelet GPIIb/IIIa, thus destroying platelets.[1,2] Interestingly, nearly 50% of cases of ES are associated with autoimmune conditions such as systemic lupus erythematous, lymphoproliferative disorders, and common variable immunodeficiency. Its chronic course is characterized by recurrent relapses and remissions.[1-3]

Ocular complications are rarely reported in patients with ES. There is one particular case that reported an association with atypical retinitis pigmentosa and central retinal artery occlusion.[4] As both optic neuritis and ES share a common underlying autoimmune pathology, it could be postulated that dysregulation of autoimmune antibodies derived from peripheral or central nervous system-infiltrating plasma cells occurs.[5] Another study on a long-term follow-up of children with ES found that the disease may be an initial expression of immunologic disease, such as systemic lupus erythematous, which is known to be associated with optic neuritis.[6] The combination of ES and optic neuritis in this young patient is rare, but not inexplicable. To date, no randomized, controlled trial has been established as

a standardized treatment for ES. However, immunoglobulin infusion is well known to be used in cases of severe relapse where there was refractory response towards high-dose corticosteroids.[7] VEP has a sensitivity of 60–80% in acute optic neuritis cases.[8] In cases of clinical optic neuritis with a normal VEP, as in this particular case, a multifocal VEP may offer higher accuracy.[9]

This is the first case of ES associated with severe bilateral optic neuritis in the available literature worldwide. Intravenous methylprednisolone remains the first-line treatment, and switching to immunoglobulin infusion should be considered in steroid non-responder cases.

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The patient's parent provided informed consent for the use and publication of the clinical details and images contained in this case report.

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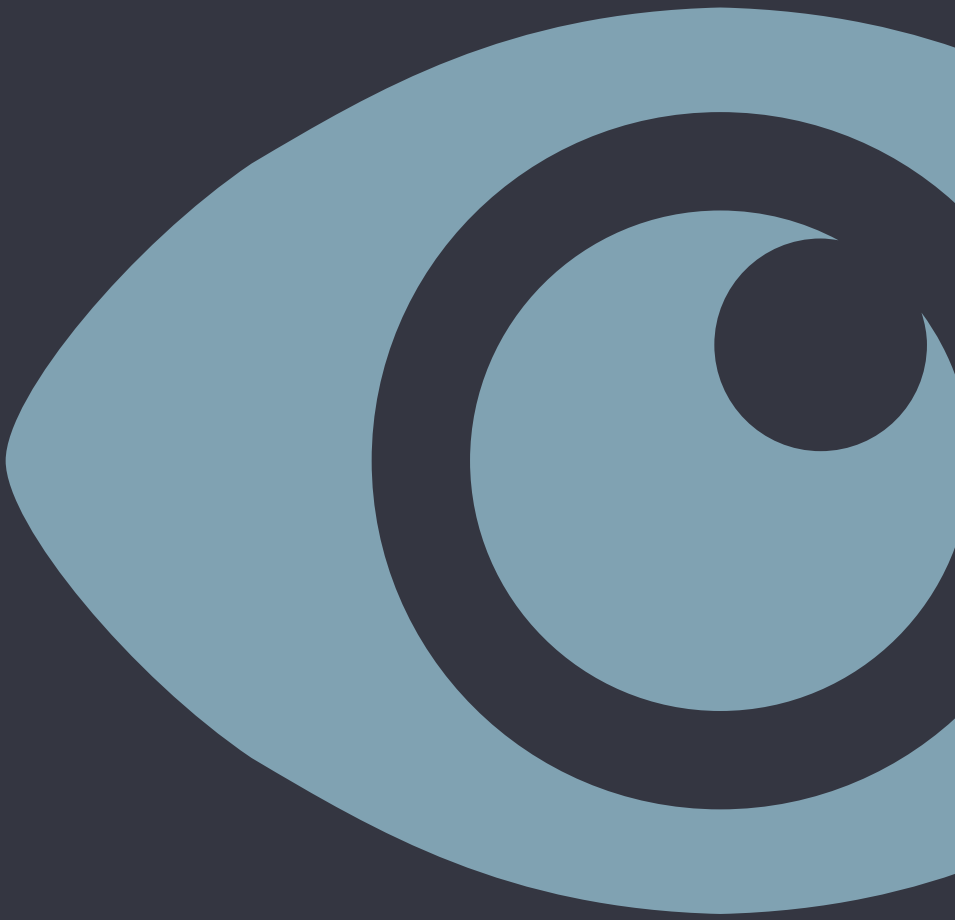

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