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Investigation of the Phenomenon of Pterygium Spread for Ages 20 up to 70 Years in Iraq

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Abstract

A pterygium is a fleshy overgrowth on the conjunctiva grows from the inner corner of the eye which is a common disease of the eye. And thin clear membrane on the surface of the eye. The purpose of the current study is to determine the lesion.

The etiology, symptoms, and effects on the eye. And the impact of plexus on the eye and its associated complications. 100 Patients were specifically chosen. Every patient received a thorough ophthalmological examination, Included a fundus examination, slit-lamp examination, and visual acuity testing (VA). In order to identify remedies that can curtail these phenomena symptoms that in general population.

Conclusion, the pterygium is common in Iraq and has many risks that we have mentioned because neglecting wearing your sunglasses and safety especially during summer when sunlight may cause dry eye with in the summer time.

Keywords: Pterygium, Conjunctiva, Visual acuity and plexus

1. Introduction

The eye is the most perceptive organ in the human body. Which the primary means and complex is of senses which is able to view the most and all-encompassing depictions of the boundless processes of nature (American Academy, 2020).

Since sight provides the 85% majority of our knowledge about the outside world, the eye is among the most complex and delicate organs in the human body. The human eye consists of three main parts that interact with light (American Academy, 2020) and the sclera as the eye's main load-bearing connective tissue, the sclera is centrally important to vision. And the cornea to the optic nerve (Lin *et al.*, 2016). This strong layer of tissue, which thickness is less than 1mm, gives the eyeball its white color. It also protects and supports the eye (Coroneo *et al.*, 2022).

From physical injury which is critical in a world where damage to the visual system is threatened by environmental factors, such as heat. The different structures of the eye play essential roles in protection, with the first line of defense being the eyelids eye movements are important for controlling (Boote *et al.*, 2020). A pterygium is a fleshy overgrowth of the conjunctiva, which is a thin clear membrane on the surface of the eye and pterygium grows from the inner corner of the eye. Pterygium is a common disease of the eye for different ages and both genders (Boote *et al.*, 2020).

According to definitions, pterygium is a hyperplastic proliferative, fibrovascular, triangular, wing-shaped tissue that is actively growing from the conjunctiva limbal area onto the cornea. It develops over the prelim Bal conjunctiva and spreads onto the corneal surface as an external, superficial, raised ocular mass. It normally grows from the nasal side and keeps expanding until it covers the middle of the cornea (Girolamo *et al.*, 2004). usually from the nasal side, but may come' from the temporal side. It is often slightly raised and contains visible blood vessels. The problem may occur on one or both eyes (Ceece, 2018). There have been studies such as;

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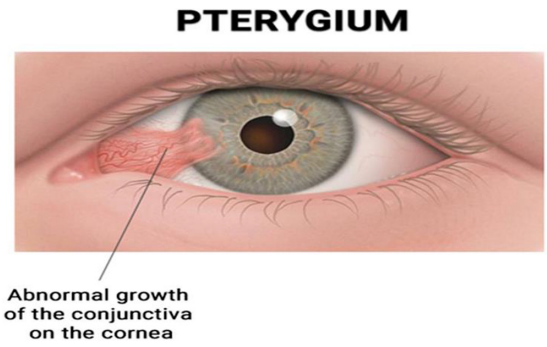

Fig. 1. Pterygium (Boote et al., 2020).

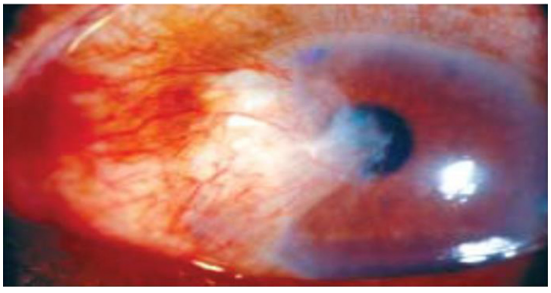

Fig. 2. Pterygium crossing the midline (Farjo et al., 2012).

1. Pterygium and conjunctival ultraviolet autofluorescence in young people: the Raine study by (Charlotte M McKnight, Justin C Sherwin).
2. Pterygium recurrence related to its size and corneal involvement by (Pir Salim Mahar, Aga Khan in University Nabeel Manzar).
3. Pterygium and its impact by (Leila Ghiasian, Bijan Samavat, Yasaman Hadi, Mona Arbab, and Navid Abolfathzadeh).
4. Distinct gene subsets in pterygia formation and recurrence: dissecting complex biological by (Louis Tong, et al, 2009).

2. Occurrence of the eye pterygium

UV light breaks down the proteins in the conjunctiva, causing changes in the tissue and excess growth of the fibrous tissue over time. Light enters the eye and concentrates at the tissues closer to the nose. Therefore, the tissues on that side has more UV exposure, and is, therefore, more likely to develop a pterygium, shown in Fig. 2.

2.1. Relationship between refractive errors and pterygium

Inflammation caused by UV light May dark on the surface of the eye. Pterygium causes flattening of the cornea Ethier with invasion or Visual impairment due to symptoms of astigmatisms (Farjo *et al.*, 2012). Pterygium leads to significant changes in the refractive state of the cornea, which increases with the degree of pterygium and may change improve after pterygium excision.

Pterygium spreading onto a cornea can cause a considerable amount of corneal astigmatism. Hemimeridian corneal astigmatism on the side of the pterygium is typically caused by asthma (International Journal of Ocular, 2017). The quantity of produced astigmatism and the pterygium's expansion onto the cornea are significantly correlate However, there is a little correlation between the topographically measured and evident refraction measured astigmatism caused by pterygium. Reducing pterygium-induced refractive astigmatism and improving VA are the results of a successful pterygium surgery. When the pterygium is so near to the optical axis that it poses a risk of occlusion or causes noticeably irregular astigmatism, then it needed a surgical removal of the pterygium is used (Kobayashi, 2003).

Although exposure to UV-light is undoubtedly a significant risk factor for the development of pterygiums, the exact type of UV-light that causes the condition is not known (Lindsay & Sullivan, 2001).

2.2. Pterygium is prone in humans

Individuals working in specific industries, such as manufacturing, machine operation, labor, and agriculture; also, Regular surfers have an eight-fold increased risk of developing pterygium compared to non-surfers (Patel, 2021).

Treatment: No therapy is needed symptoms don't hurt or impair vision. In order to determine (Thao, 2020). Whether the pterygium is expanding or creating vision issues, arrangement for office visit is decided office visits even after surgical excision. The likelihood of larger lesions developing back is increased.

If the uncomfortable, eye condition is the care professional might suggest: •Over-the-counter eye ointments, lubricating drops, tears, or decongestant drops or surgery. Surgical pterygium have to 30% of recurrence rate.

2.3. The relation of pterygium size and eye varies with the size

- Type 1 Pterygium encroaching 2 mm < area on the cornea, i.e., crossing limbal margin but not reaching the pupillary margin (Myanoff, 2015).
- Type 2 Pterygium encroaching 2–4 mm area on the cornea, i.e., reaching up to pupillary margin but not crossing it.

- Type 3 Pterygium encroaching more than 4 mm area on the cornea, i.e., crossing pupillary margin and coming in the visual axis corneal astigmatism in diopters and keratometry readings (Shuker, 2021).

3. Material and method

The tools employed in this study were: Several tools are available for measuring refractive error; in this study, we shall employ the following tools:

1. Retinoscopy is used to calculate the refractive error of a patient. an objective form of refraction, the patient need not disclose their visual acuity to the practitioner. Subjective refraction occurs when the patient is questioned about their vision instead of objectively measuring it.
2. The slit light is a type of microscope intended especially for ocular examination. It is made up of a light source and a microscope. Is employed to inspect the iris, crystalline lens, anterior chamber, and external ocular structures. Slit lamps come in a multitude of sorts and manufacturers, but there are essentially just two types.
3. In the first, a horizontal prism-reflected light source is employed. The source of illumination in the second one is vertical .100 samples were collected for people with pterygium, The samples are divided into five age groups, taken in the city of Dhi Qar for the period from 1/12/2022 up to 1/3/2023 in Al Ayen University laboratories and Al-Haboubi Medical Hospital. 100 samples were collected for people with pterygium, the samples are divided into five age groups, taken in the city of Dhi Qar for the period from 25/12/2022 to 1/3/2023. From the following places:

   Comprehensive Vision Optics Center, Al-Haboubi Medical Hospital and Al Ayen University laboratories. The sample is not random and includes (100) cases.

Fig. 3. Retina scope.

Table 1. Age (years) and gender of patient's relationship.

Items	Age (years)	Male	Female	Ratio of 100%
1.	20–30	8	1	9%
2.	31–40	29	1	30%
3.	41–50	28	1	29%
4.	51–60	17	3	20%
5.	70–61	9	3	12%
6.	Ratio of 100%	91%	9%	100%

4. Result and discussion

The current study is under investigation. Samples were collected from 100 people suffering from pterygium from hospitals and medical centers.

We find the largest number of patients they were of men (rate of 91%), with number of women (rate of 9 per cent). Distributed among five age groups as in Table 1, where it became clear that from the age of 20 to 30 the number of patients was 9, from the age of 31 to 40 the number was 30, from the age of 41 to 50 the number was 29, from the age of 51 to 60 the number was 20 and from the age of 61 To 70, the number was 12, as the largest number of patients was in between of 31 to 40, and the total number was 30 patients, at a rate of 30. The study shows male number is higher than female, at a rate of 91%, due to their direct work with sunlight.

Find that 35% from who has a pterygium they have a large pterygium size up to 4 mm.

We noticed that the highest number of patients had pterygium size ranging from 2–4 mm at a rate of 35%. We deduce from that that there is a relationship between the size and the spread of the pterygium. The greater the size of the pterygium, the greater the

Table 2. The relationship between the prevalence of pterygium and pterygium size.

Items	Age (years)	0–2 mm	2–4 mm	More 4 mm	Ratio 100%
1.	20–30	2	4	3	9%
2.	31–40	12	8	10	30%
3.	41–50	8	11	10	29%
4.	51–60	6	7	7	20%
5.	70–61	3	5	4	12%
6.	Ratio 100%	31%	35%	34%	100%

Table 3. Showing the relationship between age of patients and symptoms, such as: (blurry vision, sensitivity light, pain, dry eye and other).

Items	Age (years)	Blurry vision	Sensitivity light	Pain	Dry eye	Other	Ratio 100%
1.	20–30	2	3	2	0	2	9%
2.	31–40	8	12	8	1	1	30%
3.	41–50	5	11	8	2	3	29%
4.	51–60	3	7	9	1	0	20%
5.	70–61	2	4	3	2	1	12%
6.	Ratio of 100%	20%	37%	30%	6%	7%	100%

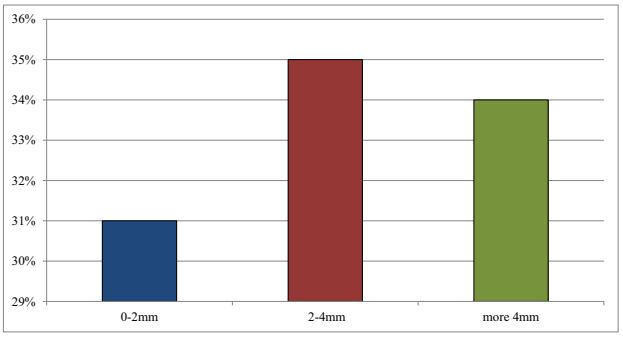

Fig. 4. The relationship between the prevalence of pterygium and pterygium size.

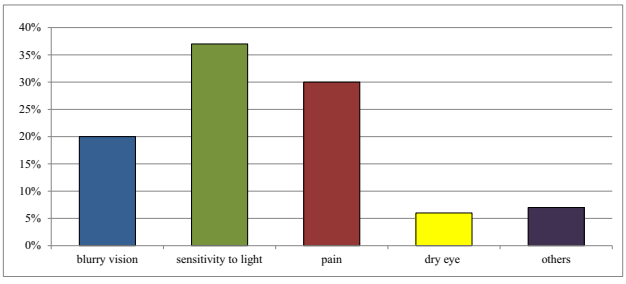

Fig. 5. The relationship between symptoms and the number of symptoms for patents.

visual problems, and the more symptoms appeared, which affected vision.

The highest percentage is associated with at 37% followed sensitivity to light by type pain, at 30%.

The highest percentage is associated with 62%, astigmatism, while 12% has no relation to refraction error. We noticed that the highest refractive error that may accompany the pterygium is astigmatism 62%, due to the tension on the surface of the cornea.

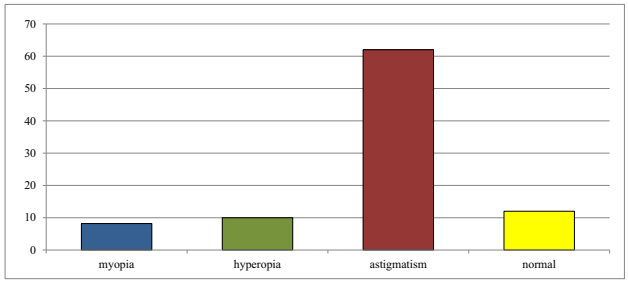

Fig. 6. The relationship between the refraction errors and the pterygium.

This diagram shows 82% of patients do not wear sunglasses, and 18% wear sunglasses.

The rate of people who do not wear sunglasses is more likely to have a plait than people who wear sunglasses 82%, due to the direct effect of sunlight, especially UV.

5. Conclusion

1. This study concludes that pterygium is common in Iraq and has many risks that we have mentioned.
2. Iraq pople are not interested in wearingyour sunglasses and medical sunglasses.
3. This study concludes that the pterygium is common in Iraq and has many risks with Lack of proper attention to eye health.
4. Lack of attention and awareness of the risks that sunlight and heat may cause, reflecting collateral damage.

6. Recommendations

1. Attention to periodic examination by ophthalmologist and optometrist.

Table 4. The relationship between age of patients and refraction errors. Such as: (myopia, hyperopia, astigmatism or normal).

Items	Age (years)	Myopia	Hyperopia	Astigmatism	Normal	Ratio of 100%
1.	20–30	2	0	5	2	9%
2.	31–40	5	4	18	3	30%
3.	41–50	5	2	19	3	29%
4.	51–60	3	1	12	4	20%
5.	61–70	1	3	8	0	12%
6.	Ratio 100%	16%	10%	62%	12%	100%

Table 5. The table shows the number of patients who do not wear sunglasses, who wear sunglasses compared to age.

Items	Age (years)	Not wear	Wear	Ratio of 100%
1.	20–30	6	3	9%
2.	31–40	23	7	30%
3.	41–50	26	3	29%
4.	51–60	16	4	20%
5.	61–70	11	1	12%
6.	Ratio of 100%	82%	18%	100%

Table 6. The table shows the relationship patients age and working hours under sunlight.

Items	Age (years)	2h to 3h	3h to 4h	4h to 5h	More than 5h	Ratio 100%
1.	20–30	0	1	2	6	9%
2.	31–40	1	2	16	11	30%
3.	41–50	2	3	7	17	29%
4.	51–60	4	7	5	4	20%
5.	61–70	1	8	2	1	12%
6.	Ratio 100%	8%	21%	32%	39%	100%

A 39% of patient's work more than 5 hours every day, while 32% work 4–5 hours.

2. Attention to eye health and safety.
3. Wearing sunglasses, medical sunglasses and protective glasses.
4. The need to raise awareness of the risks that may affect the eye.
5. Request to continues our study by:
   A. Collecting more samples.
   B. Conducting tests on more sophisticated devices such as OCT.
   C. Studying the causes of this phenomenon in different cities in addition to villages and countryside.

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