



## Letters to the Editor

### Prevalence of pterygium and identification of associated factors in a German population – results from the Gutenberg Health Study

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Editor,

Pterygium is a benign, slowly progressing disease of bulbar conjunctival tissue growing onto the cornea. Known risk factors are chronic irritation of the conjunctiva, UV light exposure, dry climate and exposition to dust and pollution as well as any corneal and conjunctival surgery compromising the ocular surface and the limbus (Asokan et al. 2012). In the literature, the prevalence of a pterygium varies a lot between different countries and ethnicities, as a recent systematic review has reported (Rezvan et al. 2018). So far, prevalence data from Germany were not available and are herewith presented.

The Gutenberg Health Study (GHS) is a population-based cohort study in Germany (Hohn et al. 2015). Objective refraction, distant-corrected visual acuity, noncontact tonometry and anterior segment photography were part of the 5-year follow-up examination. The anterior segment photographs were graded at Mainz Ophthalmic Reading Center for the presence of pterygium. Prevalence estimates were computed, and multivariable logistic regression analysis was applied to determine associated factors including sex, age, socio-economic status, migration background,

smoking, alcohol intake, diabetes, arterial hypertension, dyslipidaemia, obesity, spherical equivalent, wearing spectacles (for distance) and wearing sunglasses.

In the GHS, 12,423 subjects of the original 15,010 subjects took part in the 5-year follow-up examination. Of these, 9,888 right and 9,826 left eyes of 9,927 subjects (49.2% female) were included in this cross-sectional analysis. The mean age of the study participants was  $59.2 \pm 10.8$  years, 9.7% had a first generation migration background, 10.0% had diabetes, 53.3% arterial hypertension and 25.7% were obese (BMI  $\geq 30$ ).

Hundred participants (1.0 %; 95% CI: 0.8–1.2%) had pterygium in only one eye while 20 participants (0.2 %; 95% CI 0.1–0.3%) had pterygium in both eyes. The weighted prevalence for the German population at age 40–80 years is 0.9% (95% CI: 0.8–1.2%) in any eye.

In multivariable analyses, the presence of pterygium was associated with male sex (OR = 1.63,  $p = 0.0087$ ), higher age (OR = 1.58 per decade,  $p < 0.0001$ ) and migration background (OR = 2.01,  $p = 0.0042$ ), while no association was found with cardiovascular diseases such as diabetes, dyslipidaemia or obesity (Table 1).

**Table 1.** Associations between pterygium and systemic diseases.

<i>N</i> = 19,472 eyes	OR	95% CI	<i>p</i> -value
<i>Anthropometric parameter</i>			
Sex (male)	1.63	1.13–2.34	<b>0.0087</b>
Age (decade)	1.58	1.30–1.92	<b>&lt;0.0001</b>
Socio-economic status	1.00	0.95–1.04	0.88
Smoking (yes)	0.80	0.44–1.45	0.46
Alcohol intake (yes)	0.84	0.55–1.27	0.41
Migration background (yes)	2.01	1.25–3.23	<b>0.0042</b>
<i>Systemic diseases</i>			
Diabetes	0.67	0.36–1.25	0.21
Arterial hypertension	1.42	0.93–2.15	0.10
Dyslipidaemia	0.98	0.67–1.42	0.91
Obesity	0.94	0.60–1.45	0.76
<i>Ophthalmic parameter</i>			
Spherical equivalent (dpt)	1.04	0.97–1.12	0.31
Wearing spectacles (distance)	0.85	0.57–1.24	0.39
Wearing sunglasses	1.18	0.82–1.72	0.37

Data from the population-based Gutenberg Health Study in Germany (2012–2017). Multivariable logistic regression analysis with generalized estimating equations was conducted to determine associated factors.

Significant values are presented in bold.

With respect to the region of migration background, pterygium was associated with migration from Arabic–Islamic countries, the former Soviet Union and former Yugoslavia.

Our study provides prevalence estimates for pterygium in Germany. It is 0.9% in the population between 40 and 80 years and increases with age. In about one sixth of the participants with pterygium, the disease was present in both eyes. The prevalence is lower when compared with other Caucasian population-based studies, that is in Spain the prevalence of pterygium is higher and estimated to be 5.9% (95% CI: 4.3%–7.9%) (Viso et al. 2011) or in Australia, the ‘Visual Impairment Project’ reported a prevalence of 2.83% (McCarty et al. 2000) The lower prevalence in our study could be due to a lower sun exposure in Germany compared to Spain and Australia. Looking at participants who migrated from Arabic–Islamic countries, former Soviet Union and former Yugoslavia, we found a higher prevalence than in nonmigrants, which is in line with potentially higher sun exposure in persons born in countries with higher sun exposure.




Our study has several limitations. Evaluation of anterior segment photographs was not possible in every subject. Nevertheless, our item-nonresponder analysis revealed no obvious differences between those with and without gradable photographs. Furthermore, we could not evaluate duration and intensity of sun exposure in the past, which is believed to be a risk factor for pterygium (Coroneo 1993).

In summary, we report data on the prevalence of pterygium in Germany. 0.9% at age between 40 and 80 years suffer from pterygium, especially men, older people and those with migration background from Arabic–Islamic countries, former Soviet Union and former Yugoslavia.

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## Bilateral endophthalmitis following bilateral same-day anti-VEGF injections

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Editor,

An 82-year-old immunocompetent female presented with reduced vision in her left eye of 8-hr duration, reporting onset of pain whilst waiting to be seen. The patient was undergoing treatment for wet age-related macular degeneration (wAMD) with 25 previous aflibercept injections in her right eye and 27 in the left. Bilateral injection was performed 2 days before presentation, with note made of iodine allergy necessitating chlorhexidine antiseptics. Her most recent visual acuity was 0.40 OD and 0.20 OS (LogMAR).

On presentation, visual acuity was 0.38 OD, hand movements OS.

Examination showed left conjunctival injection, with anterior chamber cells but no hypopyon. Dilated examination showed vitreous haze (Fig. 1D) and retinal haemorrhages in four quadrants. Right eye examination showed no new pathology (Fig. 1C). She was diagnosed with left postoperative endophthalmitis. Ninety minutes later, vitreous tap was performed with injection of vancomycin 1 mg and ceftazimide 2.5 mg before starting oral moxifloxacin 400 mg.

Nine hours later, she reported right visual decline. Acuity had dropped to 0.80, and slit-lamp examination showed similar anterior uveitis, vitreous haze and retinal haemorrhages (Fig. 1E), leading to a diagnosis of bilateral endophthalmitis. The right eye underwent identical management 3 hr later.

Due to the bilateral involvement and acute presentation (Clarke et al., 2018), she underwent right pars plana vitrectomy (PPV) 36 hr postdiagnosis and left PPV 72 hr postdiagnosis, both eyes with further antibiotics and air