

## SHORT COMMUNICATION

# Prevalence of congenital optic disc pits in adult Chinese: The Beijing Eye Study

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**PURPOSE.** *To determine the prevalence of optic disc pits in the elderly Chinese population.*  
**METHODS.** *The Beijing Eye Study, a population-based, cross-sectional cohort study, included 4439 subjects out of 5324 subjects invited to participate (response rate 83.4%) with an age of 40+ years. The present study included 4027 (90.7%) subjects for whom readable optic disc photographs were available.*

**RESULTS.** *A pit of the optic nerve head was detected in one (0.02%) patient. Prevalence was  $0.02 \pm 1.58\%$  (95% confidence interval:  $-0.02, 0.07$ ).*

**CONCLUSIONS.** *A congenital optic disc pit was found in one subject of the present population-based study in mainland China. In a mathematical sense, the calculated prevalence of optic disc pits in the whole population would be  $0.02 \pm 1.58\%$  (95% confidence interval:  $-0.02, 0.07$ ) or about 1:4.000 subjects. From a statistical point of view, however, population-based studies with about 10,000 subjects are necessary to confirm this finding. (Eur J Ophthalmol 2006; 16: 863-4)*

**KEY WORDS.** *Optic nerve head pit, Optic disc, Optic nerve head, Visual loss, Visual impairment, Low vision*

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## INTRODUCTION

Congenital pits of the optic disc are focal depressions located at the bottom of the optic nerve head close to the inner optic disc border (1-3). Usually occurring in large optic nerve heads, optic disc pits can be associated with localized defects in the retinal nerve fiber layer, corresponding circumscribed visual field defects, and a non-rhegmatogenous central retinal detachment. With its pathogenesis still unclear, some hypotheses point towards a pathologic communication between the retrobulbar cerebrospinal fluid space and the subretinal space. A previous report showed the occurrence of bilateral optic discs in monozygotic siblings although a genetic trait has not been shown otherwise. From a therapeutic point of view, procedures such as scleral buckling procedures or pars plana

vitrectomy combined with intraocular gas tamponade without laser photocoagulation to the margin of the optic nerve have been discussed (2). Data on the prevalence rate of congenital optic disc pits have been widely missing so far. It was, therefore, the purpose of the present study to evaluate the frequency of optic disc pits in a population-based study.

## METHODS

The Beijing Eye Study is a population-based cohort study in Northern China, carried out in four communities from the Haidian urban district in the northern part of Central Beijing and in three communities from a rural district in the village area of Yufa (Daxing District) in the south of Beijing (4-6). The Medical Ethics

Committee of the Beijing Tongren Hospital had approved the study protocol and all participants had given informed consent, according to the Declaration of Helsinki. At the time of the survey in 2001, there were 5324 individuals aged 40 years or older residing in those seven communities. In total, 4439 individuals (2505 women) participated in the eye examination, corresponding to an overall response rate of 83.4%. The present study included 4027 (90.7%) subjects for whom readable optic disc photographs were available. Mean age was  $55.2 \pm 10.0$  years (median, 55 years; range, 40–101 years), mean refractive error was  $-0.33 \pm 2.07$  diopters (median, 0 diopters; range,  $-18.75$  diopters to  $+7.50$  diopters). After receiving informed consent, the participants underwent a thorough ophthalmic examination as described in detail previously (5). It included measurement of visual acuity, visual field examination by frequency-doubling perimetry using the screening program C-20-1 (Zeiss-Humphrey, Dublin, CA), and assessment of intraocular pressure. Digital photographs of the cornea, optic disc, and fundus, and retroilluminated photographs of the lens were taken using the Neitz CT-R camera (Neitz Instruments Co., Tokyo, Japan) after dilatation of the pupil. Diagnostic criterion for an optic disc pit was its typical ophthalmoscopic appearance with deep circumscribed depression at the bottom of the optic disc close to its inner border.

## RESULTS

An optic disc pit was detected in 1 (0.02%) 68-year-old man with a refractive error of  $+2.0$  diopters. Op-

tic disc size was  $4.79 \text{ mm}^2$ ; markedly larger than the mean optic disc area of  $2.61 \pm 0.50 \text{ mm}^2$  in the remaining study participants.

## DISCUSSION

A congenital optic disc pit was found in one subject of the present population-based study in mainland China. In a mathematical sense, the calculated prevalence of optic disc pits in the whole population would be  $0.02 \pm 1.58\%$  (95% confidence interval:  $-0.02, 0.07$ ). From a statistical point of view, however, it remains questionable how far the finding of a disease in one subject out of a whole study population is valid to conclude about the frequency of the disease in the whole population. It is reflected in the wide range of the 95% confidence interval of the frequency of optic disc pits in the present study ranging between 0% and 0.07%. The data of the present study may, therefore, serve to give a hint on the prevalence figure of optic disc pits in the adult population of mainland China. Future population-based studies with twice or three times the volume of the present investigation may provide the exact figures of the prevalence of optic disc pits in mainland China.

*Proprietary interest: none.*

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