Local optometrists are a major source of referrals to a pituitary tumour clinic

Dear Editor,

Pituitary adenomas can be identified pathologically in some 20–25% of autopsy specimens, but only around 1/1000 of the population have clinically significant tumours (Daly *et al.* 2006, Fernandez *et al.* 2010). As the tumour expands, the optic chiasm may be compressed from below, causing visual field abnormalities including the classic bitemporal hemianopia. These visual symptoms are the most common objective manifestations of non-functioning pituitary adenomas, and they demand urgent decompression to increase the probability of a complete normalisation of visual function. Delayed diagnosis may lead to irreversible visual loss, especially if the chiasmal compression is associated with more evident field defects (Lee *et al.* 2013) or if it has been of a long duration (Dutta *et al.* 2016), although further improvement in vision may continue for some time after surgery (Harris *et al.* 1989). In a multivariate analysis, only preceding visual defect predicted the degree of recovery, although this could continue for at least 5 years (Gnanalingham *et al.* 2005). In general, it is anticipated that patients will present to either their general practitioner or to an ophthalmologist complaining of visual changes, but patients may undergo considerable visual loss without realisation of the disorder. The onset of the visual deficit is usually gradual such that many patients might not seek medical consultation for

months or even years. Thus, early diagnosis is critical but may be significantly delayed by a failure of concern by the patient or their clinicians.

During our joint weekly pituitary clinic meeting of the Oxford University Hospitals Endocrinology and Neurosurgical teams, it became apparent that a large percentage of patients with pituitary gland lesions had their problem detected after a routine visit to a local optometrist. With this in mind, we conducted a retrospective study to investigate all referrals to our services over 2 years of patients with diagnosed non-functioning pituitary adenomas who required operative intervention (Fig. 1). This was registered with the Oxford University Hospitals Trust as an audit: audit number ID 4531.

Between January 1st 2014 and August 8th 2016, a total of 180 cases were identified requiring an operation at Oxford University Hospitals to manage the non-functioning pituitary tumour. All patient records were analysed to identify which patients had *first* presented to an optometrist: in our area optometrists are advised to refer patients with visual defects either back to their GP or to an ophthalmologist, unless there is severe and/or sudden loss of vision in which case they are advised

All pituitary referrals who had surgery

Figure 1

Patients with pituitary adenoma who had transsphenoidal adenomectomy (TSA).

Referred due to visual impairment

Figure 2

Patients with pituitary adenoma referred to our services due to visual impairment.

to immediately attend an Accident and Emergency Department.

Of these patients, 59 had visual loss confirmed by Goldmann perimetry on presentation. Of these 59 patients, 16 (27%) had been referred by an ophthalmologist and 35 initially by an optometrist, directly or indirectly (59%). The remaining 8 were referred from a variety of other sources (Fig. 2). Of particular note, of the 35 patients referred by optometrists, 7 of them did not have any complaints at all, 24 of them had noted visual acuity deterioration, while 4 of them presented with new visual acuity symptoms. Thus, the majority of patients presenting with visual loss has been initially seen and referred by an optometrist, while 12% had been referred by an optometrist when the patient was unaware that they had a significant visual problem.

Routine optometric examination will often include visual field assessment, and the identification of such abnormalities may lead to the optometrist to advise the patient to seek specialist advice; in most cases they will advise initial referral to a GP or ophthalmologist. This early referral is likely to render reversible visual loss which may become intractable if the patient were to await significant clinical symptoms. We conclude that optometrists in our region play a major role in diagnosing pituitary tumours at an early stage, almost certainly avoiding irreversible visual loss in some patients.

H Surchi¹

B Jafar-Mohammadi¹

A Pal¹

S Cudlip²

A B Grossman¹

¹Oxford Centre for Diabetes, Endocrinology and Metabolism,
University of Oxford, Oxford, UK

²Department of Neurosurgery, John Radcliffe Hospital,
Oxford, UK

(Correspondence should be addressed to H Surchi;
email: havalsurchi@yahoo.co.uk)

Declaration of interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of this article.

Funding

This work did not receive any specific grant from any funding agency in the public, commercial, or not-for-profit sector.

References

- Daly AF, Rixhon M, Adam C, Demegioti A, Tichomirowa MA & Beckers A 2006 High prevalence of pituitary adenomas: a cross-sectional study in the province of Liege, Belgium. *Journal of Clinical Endocrinology and Metabolism* **91** 4769–4775. (doi:10.1210/jc.2006.1668)
- Dutta P, Gyurmey T, Bansal R, Pathak A, Dhandapani S, Rai A, Bhansali A & Mukherjee KK 2016 Visual outcome in 2000 eyes following microscopic transsphenoidal surgery for pituitary adenomas: protracted blindness should not be a deterrent. *Neurology India* **64** 1247–1253. (doi:10.4103/0028-3886.193829)
- Fernandez A, Karavitaki N & Wass JA 2010 Prevalence of pituitary adenomas: a community-based, cross-sectional study in Banbury (Oxfordshire, UK). *Clinical Endocrinology* **72** 377–382. (doi:10.1111/j.1365-2265.2009.03667.x)
- Gnanalingham KK, Bhattacharjee S, Pennington R, Ng J & Mendoza N 2005 The time course of visual field recovery following transsphenoidal surgery for pituitary adenomas; predictive factors for a good outcome. *Journal of Neurology, Neurosurgery, and Psychiatry* **76** 415–419. (doi:10.1136/jnnp.2004.035576)
- Harris PE, Afshar F, Coates P, Doniach I, Wass JA, Besser GM & Grossman A 1989 The effects of transsphenoidal surgery on endocrine function and visual fields in patients with functionless pituitary tumours. *Quarterly Journal of Medicine* **71** 417–427. (doi:10.1093/oxfordjournals.qjmed.a068336)
- Lee S, Kim SJ, Yu YS, Kim YH, Paek SH, Kim DG & Jung HW 2013 Prognostic factors for visual recovery after transsphenoidal pituitary adenectomy. *British Journal of Neurosurgery* **27** 425–429. (doi:10.3109/02688697.2013.767316)

Received in final form 20 February 2017

Accepted 21 February 2017

Accepted Preprint published online 1 March 2017