Figure 2 Case 2: Right eye OCTs (a–d), left eye OCTs (e–h). (a) Recurrent vitreous haemorrhage and gross DMO before vitrectomy. (b) Recurrent persistent DMO, 3 years post vitrectomy (4 months post last triamcinolone injection). (c) Partial resolution of DMO 1 week post Iluvien. (d) DMO resolution was complete after 1 year, without further adjunctive therapy. (e) Pre-Iluvien left eye showed refractory gross DMO. (f) Incomplete resolution of DMO 1 month post Iluvien. (g) Recurrence was evident within few months. (h) Improved DMO 2 weeks post vitrectomy. Abbreviations: CRT, central retinal thickness; OCT, optical coherence tomography; VA, visual acuity.

for severe macular traction. Post-vitrectomy DMO was still present despite additional intravitreal therapies. She received Iluvien implant 7 months post vitrectomy. Post-Iluvien DMO resolved with no further adjunctive therapy up to 1 year.

Case 2 A 48-year-old diabetic male with bilateral proliferative retinopathy and DMO received many laser and anti-VEGF therapies (Figure 2), but responded best to repeated IVT injections over a 9-year period. The right eye underwent vitrectomy for recurrent vitreous haemorrhage 3 years before bilateral Iluvien implantations. The right DMO resolved gradually over 1 year without adjunctive therapy; left eye DMO responded only briefly before recurring significantly. Vitrectomy (with the Iluvien implant preserved *in situ*) for the left eye was carried out a year later, and achieved DMO resolution post-vitrectomy.

Comment

Intravitreal steroids and anti-VEGF therapies were known to be effective and may have complementary effects on reducing retinal vascular permeability.[1] Surgical intervention as a means to treat unresponsive DMO however, showed inconclusive benefit in the absence of tractional DMO.[2] Study on non-diabetic rabbits suggested no differences in pharmacokinetics/concentration of short-term intravitreal steroid in vitrectomised *vs* non-vitrectomised eyes,[3] contradicting the positive results of clinical studies on diabetic patients.[4,5]

Given that patient 2 had a dramatic result in a previously vitrectomised eye and then a similar effect in other eye post-vitrectomy, concomitant systemic influence is unlikely to contribute to the positive outcomes. Both patients had good risk-factor control and experienced no adverse effects. Our cases demonstrated that intravitreal Iluvien could achieve desirable anatomical improvement in chronic DMO in vitrectomised eyes, in the first year without adjunctive therapy. It also raised an interesting concept that vitrectomy, indicated for varied clinical reasons, may enhance the performance of Iluvien implant when performed at any stage. Larger controlled studies nevertheless are needed to further evaluate the concept.

Conflict of interest

AM is an Advisory Board Member of Alimera Sciences. The remaining authors declare no conflict of interest.

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Sir,
Cannula-associated ocular injuries during cataract surgery: the North East England Study

Cannula–syringe systems are frequently used during ophthalmic surgeries, including cataract surgery. Although rare, several reports in the literature have described the unfortunate incident of dislodged cannula from the syringe damaging the intraocular structures.[1–4] So far there was no study examined the incidence rate of cannula-associated ocular injury (COI) in the United Kingdom. Our study aims to determine the incidence rate, types and extent, clinical implications, and visual outcome of COI in the North East of England (NEE), UK.

A 10-item questionnaire-based online survey (Table 1) was sent to 81 ophthalmologists, including 48 consultants and 33 specialist doctors/trainees, in NEE to evaluate COI during cataract surgery between January 2005 and December 2014. Surgeons were divided into experienced surgeons (those who had performed ≥ 1000 cases of cataract surgery) and less experienced surgeons (those who had performed <1000 cases) for analytic purpose.

The survey response rate was 65% (53/81). Of the 75275 cataract surgeries over the 10-year period, 7 (0.009%) cases of dislodged cannula from syringe were reported (Table 2). Three (43%) cases of dislodged cannula resulted in intraocular injuries, yielding a COI incidence rate of

Table 1 Questionnaire on cannula-associated ocular injury (COI) during cataract surgery

1. Please give an estimate/range of the total amount of cataract surgery you have performed over the last 10 years.
2. How often do you check the tightness of all cannulas you use during cataract surgery?
3. Have you personally experienced any case of COI during cataract surgery over the past 10 years? (if answered 'No', this survey is completed)
4. How many cases of COI have you personally experienced?
5. At what stage of the cataract surgery did the COI occur?
6. Do you think you had checked the tightness and were holding the hub of the cannula during the COI?
7. Was the cannula connected to a luer-lock syringe?
8. What damage did the patient suffer from the COI intraoperatively and postoperatively?
9. Is there any additional procedures taken?
10. If answered 'Yes' to Question 3, please kindly provide your email address below for further information if required.

Table 2 Clinical and surgical details of dislodged cannulas

Cases[a]	*Stage of injury*	*Cannula checked*[b]	*Luer-lock syringe used*	*Types of damage*
1	VE injection	No	Yes	No damage
2	Hydrodissection	No	Yes	No damage
3	Hydrodissection	No	No	No damage
4	Hydrodissection	No	Yes	No damage
5	Hydrodissection	No	No	PCR

Additional procedures	*Preop BCVA*	*Postop BCVA*	*Long-term sequelae*
No	—	—	No
No	—	—	No
No	—	—	No
No	—	—	No
Anterior vitrectomy	6/60	6/9 (at third month)	No

Abbreviations: BCVA, best-corrected visual acuity; PCR, posterior capsular rupture; VE, viscoelastic. [a]Two other cases were excluded from the data set as they had been submitted to another journal. [b]Cannula tightness checked and hub held during injection.

0.040 per 1000 cases. Only 1 (14%) case specified the cannula tightness been checked and cannula hub held during the injection. No long-term sequelae were reported. The incidence rate of dislodged cannula was similar between experienced surgeons (0.076 per 1000 cases) and less experienced surgeons (0.21 per 1000 cases; $P=0.23$).

Our incidence rate was significantly lower than the rate reported by Rumelt *et al*[5] (0.88 per 1000 cases; $P<0.001$). This could be attributed to several factors, including the types of surgery performed (majority of the COI in their study occurred during extracapsular cataract extraction rather than phacoemulsification), variation in the surgical technique and instrumentation, better awareness of COI in recent years, wider adoption of Luer-lock syringe and potential under-reporting of the incident in our study.

In summary, our survey confirmed that COI is an extremely rare yet potentially sight threatening complication that can occur during cataract surgery. We strongly advocate that all surgeons should always check the cannula tightness and hold the cannula hub during any injection to minimise the risk of this potentially preventable iatrogenic complication.

Conflict of interest

The authors declare no conflict of interest.

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