"Here’s egg in your eye": a prospective study of blunt ocular trauma resulting from thrown eggs

R M K Stewart, J M Durnian, M C Briggs

Objective: To see if a public awareness campaign might be justified around Halloween with regard to the dangers of egg throwing.

Method: A prospective study was carried out of all patients who attended the St Paul’s Eye Unit’s Primary Care Department with ocular injuries resulting from a thrown egg over a 14-month period from November 2004. All injuries were classified as minor, intermediate or major and patients were followed up until discharge.

Results: 13 ocular injuries that were attributed to assault with a raw egg were reported. In all the 13 cases, the eggs had been thrown by strangers. 12 of the patients were men and the average age of the victims was 27.9 years. 9 patients were injured in the left eye and there were no bilateral injuries. On presentation, only 1 patient had a visual acuity of 6/6, 7 presented at 6/9, with the remaining having 6/18 or worse. All the patients had closed globe injuries. 8 injuries were classified as major injuries. 4 patients had permanent sequelae, with one suffering permanent, severe visual loss.

Conclusions: Although most of our patients showed improvement in visual acuity, there were severe injuries, with the potential for severe ocular morbidity. We conclude that there is sufficient injury caused by this prank to warrant a public health message. At the least this practice should not be promoted by the press.

METHODS

This was a prospective, observational study of all patients who attended St Paul’s Primary Care Department, Royal Liverpool University Hospital, Liverpool, UK, between 1 November 2004 and 31 December 2005, with ocular trauma as a direct result of a thrown egg. All patients were followed up until discharged from care. The patients were treated by the duty ophthalmologist as he or she thought appropriate.

RESULTS

During the study period there were 18 651 admissions to our primary care department, and of these 13 were due to ocular injuries attributed to assault with a raw egg (0.07%; table 1). All 13 eye injuries were due to eggs thrown by strangers. Twelve patients were men and the average age of the victims was 27.9 years. Nine patients were injured in the left eye and there were no bilateral injuries. On presentation only one patient had a visual acuity of 6/6, seven presented at 6/9.
Blunt ocular trauma resulting from thrown eggs

There have been previous reports of ocular trauma caused by assault with thrown egg in the 1996 paper, and that would seem coincident with the rise in popularity of this prank. Most of the victims are young men. There was no mention of cases. Our case series shows similarity to these results in that all patients had closed globe injuries; however, only three injuries were classified as minor with corneal abrasions, subconjunctival haemorrhage or, as in one patient, a simple lid haematoma. As would be expected with such injuries, all were given antibiotic treatment and discharged from care.

Two injuries were classified as intermediate injuries. One patient presented with an amblyopic eye with a corneal abrasion and traumatic uveitis—this had settled at the 1-week review after treatment with steroid and antibiotic. On presentation, the vision was 6/60 due to amblyopia and on discharge this remained unchanged. The second case was a subconjunctival haemorrhage with traumatic uveitis that again settled after appropriate treatment.

Most of the injuries (n = 8) were classified as major ocular injuries. Five of these had various combinations of commotio retinae, IOP rise and hyphaema, all of which settled after appropriate treatment. We will discuss the remaining three cases in detail.

Case 1 was a 27-year-old man who presented with marked dry eye (2/60) after being hit with an egg while he was a passenger in a moving car. Examination showed subconjunctival haemorrhage and corneal abrasions; however, there was marked commotio of the macula region (Berlin’s disease; fig 1). On review, although the anterior segment injuries and, clinically, the commotio settled, the patient’s vision did not improve. Electrodiagnostic testing 2 months after the incident showed permanent damage to the middle and outer retinal layers of the macula corresponding to the photoreceptor layer. Testing showed the ganglion cell layer to be functioning. Clinically, he developed mottling of the macula region, signifying retinal pigment epithelium damage. In addition, there was angle recession of the anterior segment, giving the patient a lifelong risk of developing glaucoma. On discharge, his vision remained poor at 3/60.

Figure 1 Marked commotio of the macula (Berlin’s disease).

Case 4 presented, immediately after an assault with an egg thrown from a passing car, with pain and mildly reduced vision. Examination showed a subconjunctival haemorrhage, hyphaema, mild vitreous haemorrhage and extensive commotio retinae involving the macula; no retinal breaks were identified. Over the next few visits he gradually improved. However, 35 days after the injury he sneezed and noticed an immediate drop in visual acuity (6/18). Examination showed a marked vitreous haemorrhage, and due to the mechanism of injury he underwent vitrectomy and cryotherapy to a large inferior retinal tear and gas endotamponnade. Follow-up in our vitreoretinal service showed satisfactory progress, but 3 months after the initial injury he developed a macula on retinal detachment that necessitated further vitrectomy with gas tamponnade. This treatment was successful and the patient was discharged from care with no retinal detachment and vision of 6/6, six months after the incident.

Case 8 was a 22-year-old man who presented immediately after the alleged assault with a visual acuity of 6/18. On examination, there was a large corneal abrasion, small hyphaema with secondary rise in IOP (31 mm Hg), and extensive inferior commotio retinae with some peripheral retinal haemorrhages. As the hyphaema settled, inferior angle recession was also noted. On day 34 after the injury, his vision had improved to 6/9 and IOP was normal, with no drugs being taken. A thorough examination showed no retinal breaks. As with case 1, this patient now has a higher probability of developing glaucoma throughout his life and must undergo yearly checks with his ophthalmologist.

Table 1 Classification of ocular injuries in 13 patients

<table>
<thead>
<tr>
<th>Case</th>
<th>Age</th>
<th>Month</th>
<th>Sex</th>
<th>Eye</th>
<th>Presenting VA</th>
<th>Injury classification</th>
<th>Discharge VA</th>
<th>Sequelae</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>27</td>
<td>November</td>
<td>Male</td>
<td>Left</td>
<td>2/60</td>
<td>Major</td>
<td>3/60</td>
<td>Macula damage, angle recession</td>
</tr>
<tr>
<td>2</td>
<td>17</td>
<td>April</td>
<td>Male</td>
<td>Right</td>
<td>6/24</td>
<td>Major</td>
<td>6/6</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>April</td>
<td>Male</td>
<td>Left</td>
<td>6/18</td>
<td>Major</td>
<td>6/9</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>21</td>
<td>May</td>
<td>Male</td>
<td>Left</td>
<td>6/9</td>
<td>Major</td>
<td>6/6</td>
<td>Retinal detachment</td>
</tr>
<tr>
<td>5</td>
<td>24</td>
<td>May</td>
<td>Male</td>
<td>Right</td>
<td>6/9</td>
<td>Major</td>
<td>6/9</td>
<td>None</td>
</tr>
<tr>
<td>6</td>
<td>32</td>
<td>June</td>
<td>Male</td>
<td>Left</td>
<td>6/9</td>
<td>Minor</td>
<td>6/9</td>
<td>None</td>
</tr>
<tr>
<td>7</td>
<td>44</td>
<td>June</td>
<td>Male</td>
<td>Left</td>
<td>6/24</td>
<td>Major</td>
<td>6/9</td>
<td>None</td>
</tr>
<tr>
<td>8</td>
<td>22</td>
<td>July</td>
<td>Male</td>
<td>Right</td>
<td>6/18</td>
<td>Major</td>
<td>6/9</td>
<td>Angle recession</td>
</tr>
<tr>
<td>9</td>
<td>16</td>
<td>October</td>
<td>Male</td>
<td>Left</td>
<td>6/9</td>
<td>Major</td>
<td>6/6</td>
<td>None</td>
</tr>
<tr>
<td>10</td>
<td>20</td>
<td>October</td>
<td>Female</td>
<td>Right</td>
<td>6/9</td>
<td>Minor</td>
<td>6/9</td>
<td>None</td>
</tr>
<tr>
<td>11</td>
<td>50</td>
<td>October</td>
<td>Male</td>
<td>Left</td>
<td>6/9</td>
<td>Major</td>
<td>6/9</td>
<td>None</td>
</tr>
<tr>
<td>12</td>
<td>54</td>
<td>October</td>
<td>Male</td>
<td>Left</td>
<td>6/6</td>
<td>Intermediate</td>
<td>6/5</td>
<td>None</td>
</tr>
<tr>
<td>13</td>
<td>16</td>
<td>October</td>
<td>Male</td>
<td>Left</td>
<td>6/60 (amblyopic)</td>
<td>Intermediate</td>
<td>6/60</td>
<td>None</td>
</tr>
</tbody>
</table>

VA, visual acuity.
had permanent loss of vision. In 2003, three patients were reported from Ireland, one of whom had severe visual loss.

Thankfully, with one exception, all our patients did recover well, although when looking at the major injuries in detail, we find some potentially serious injuries such as macular damage, retinal detachment and angle recession. Although the final visual acuities in most cases are reassuring, we must look at the potential serious long-term damage when discussing such injuries. One limitation of our study is that our department does not deal with childhood injuries and this may have led to under-reporting. However, we may expect the younger members of our community to do most of the egg throwing, but their targets may be the older population.

The dimensions of an egg are similar to those of a squash ball, with a considerably greater weight, meaning that eggs, as missiles, can easily fit in the orbital rim, causing severe blunt injury even when thrown by hand. In our series, there were no cases of open globe injury, which is the immediate fear with such a mechanism of injury, but other sequelae of severe, blunt trauma—hyphaema, commotio, retinal tears, haemorrhage—were present.

As is evident from the table, although these cases are spread across the period, there is a cluster in October, which is coincident with the Halloween season. This sort of mischief can be interpreted as innocent, but as seen in our series, can lead to severe ocular morbidity. For years now, resources have been placed on public education surrounding the dangers of fireworks, but no mention has been made of the dangers of egg throwing either around Halloween or at other times. Obviously, you cannot educate people against throwing objects at each other; you rely on their common sense. However, the recent advertising stunt by a leading supermarket in re-branding their eggs as mischief eggs (fig 2) must at least be considered to be irresponsible and at worst almost incitement to this type of assault. The medical community should expect those with most access to the nation’s conscience—advertisers, retailers and TV programme makers—to act in a responsible manner against these and other easily preventable injuries.

![Commercial brand of eggs.](image)

**Figure 2** A commercial brand of eggs.

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**REFERENCES**