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8 IN THE UNITED STATES DISTRICT COURT
9 EASTERN DISTRICT OF CALIFORNIA

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11 UNITED STATES OF AMERICA,
12 Plaintiff,
13 v.
14 SERGIO PATRICK RODRIGUEZ,
15 Defendants.

CASE NO. 1:13-CR-0109 LJO-SKO

UNITED STATES' FORMAL
OBJECTIONS AND SENTENCING
MEMORANDUM

Date: March 10, 2014
Time: 8:30 a.m.
Court: Hon. Lawrence J. O'Neill

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18 Plaintiff United States of America, by and through its counsel of record, hereby submits its
19 formal objections to the presentence report and sentencing recommendations for the Court's
20 consideration.

21 **I. STATEMENT OF FACTS**
22

23 The Court is familiar with the facts having presided at trial in this matter. The basic facts are
24 also set forth in the presentence report.

25 **II. USPO SENTENCING RECOMMENDATION**
26

27 The probation officer recommends a sentence of 168 months as to count 3, Attempted
28

1 Interference with Persons Engaged in the Operation of an Aircraft – Air One, and a consecutive 60
2 month prison term as to count 5, 18 U.S.C. §§ 39A: Aiming a Laser Pointer at an Aircraft or the
3 Flight Path of an Aircraft – Air One. P.S.R. 22.

4 The probation officer determined that the base offense level is 30, pursuant to U.S.S.G. §
5 2A5.2(a)(1)(A). The probation officer did not find that any other enhancements applied. Based on a
6 criminal history category of VI, the probation officer determined that the guideline range is 168 to
7 210 months as to count 3 and 60 months as to count 5.

8
9 The probation officer did not find any factors that would warrant consideration of a sentencing
10 recommendation outside the mandatory minimum range. P.S.R. 21.

11 **III. GOVERNMENT’S SENTENCING RECOMMENDATION**

12
13 The government concurs with the probation officer’s finding regarding the defendant’s base
14 offense level and criminal history category. However, the government believes that additional
15 enhancements for dangerous weapon and official victim apply, as discussed below.

16 17 **A. A Four-Level Dangerous Weapon Enhancement Is Warranted.**

18 A four-level dangerous weapon enhancement is warranted, pursuant to U.S.S.G. §
19 2A5.2(b)(1). The commentary to 2A5.2 cross-references the definition of dangerous weapon in the
20 commentary to 1B1.1. Note 1(D) defines a “dangerous weapon” as, *inter alia*, “(i) an instrument
21 capable of inflicting death or serious bodily injury.” The laser pointer was 13 times more powerful
22 than the legally permissible power limit for handheld lasers. It also bore a danger warning that
23 advised that the device emitted laser radiation and stated “avoid direct eye exposure” and “avoid
24 exposure.” The high-powered laser pointer in this case was clearly capable of inflicting death or
25 serious bodily injury by creating significant visual interference. Without the ability to see, the
26 pilot’s ability to operate the aircraft is greatly diminished. The government’s expert, Joshua Hadler,
27 a physicist for the National Institute of Standards and Technology, testified that the laser pointer in
28 this case emitted a 65 milliwatt laser beam or 13 times the legally permissible limit for handheld

1 laser pointers. Mr. Hadler also testified that the laser pointer was capable of significant visual
2 interference of the airmen in this case, given the distances and altitudes at which the helicopters were
3 traveling when struck. The laser pointer in this case could and did create a distraction, glare, and
4 after image to the occupants of Air-1 and could and did create a distraction for the pilot of Air
5 George.

6 An article published on January 17, 2014, authored by several British ophthalmologists who
7 studied “toy” laser macular burns in children, supports the dangerous weapon enhancement in this
8 case. *See* N. Raoof, T.K.J. Chan, N.K. Rogers, W. Abdullah, I. Haq, S.P. Kelly, and F.M. Quhill,
9 “‘Toy’ Laser Macular Burns in Children,” Natures Publishing Group (2014), attached hereto. Based
10 on their examination of the eyes of children exposed to laser beams emitted from laser pointers, the
11 doctors concluded that laser pointers, often marketed as “toys,” present significant ocular hazards.
12 They specifically noted that they had drafted the article to alert consumers and parents “to the
13 potential danger such so-called laser ‘toys’ pose to vision.”

14 Dr. Leon McLin, a Senior Research Optometrist of the Air Force Research Laboratory in San
15 Antonio, Texas, who qualified and testified as a rebuttal expert on behalf of the government at trial,
16 will also testify at the sentencing hearing of the defendant that the laser pointer in this case is “an
17 instrument capable of inflicting death or serious bodily injury,” thus falling within the definition of a
18 “dangerous weapon.” U.S.S.G. § 1B1.1, Comment., Note 1(D).

19 Dr. McLin’s opinion is based on his significant training and experience in the field of laser
20 effects on the human eye. Dr. McLin leads a vision research team at the Air Force Research
21 Laboratory which studies the visual and functional effects of lasers.

22 **B. A Six-Level Official Victim Enhancement Is Warranted.**

23 The evidence also supports the application of a six-level official victim enhancement,
24 pursuant to U.S.S.G. § 3A1.2. Such an enhancement is warranted in a case when “in a manner
25 creating a substantial risk of serious bodily injury, the defendant . . . knowing or having reasonable
26 cause to believe that a person was a law enforcement officer, assaulted such officer during the course
27 of the offense.” U.S.S.G. § 3A1.2(c). Rodriguez was aware – or, at the very least, had reasonable
28 cause to believe -- that Air-1, the second victim helicopter, was a law enforcement helicopter. Air-1

1 was only 500 feet above ground. It was marked in big black and white letters “Fresno Police.” The
2 helicopter was reflective and well-lit. The Night Sun utilized by the officers emitted a light
3 consistent with the type of spotlight utilized by a police helicopter to apprehend offenders. Coleman
4 admitted to SA Johnston that she was aware of the police helicopter’s presence and during direct
5 examination at trial she testified that she was aware of the police spotlight. Further, the offense of
6 conviction need not be motivated by the official victim status for the enhancement to apply. The
7 defendant assaulted Fresno Police Officers Kenneth Schneider and George Valdez when he aimed
8 the laser pointer directly at the cockpit window of Air-1, emitting the powerful laser beam.

9 **C. The Resulting Guideline Range Should Be 360 Months to Life.**

10 Based on the foregoing, the applicable guideline range is 360 months to life, applying a Total
11 Offense Level of 40 and a Criminal History Category of VI.

12 The government does not object, however, to a below-guideline and recommended sentence
13 of 168 months, as a reasonable sentence in this case.

14 **IV. CONCLUSION**

15 Based on the foregoing, the government respectfully requests the Court sentence the
16 defendant to 168 months as to count 3 and 60 months as to count 5, to run concurrently.

17 The government further requests that the Court make final the Preliminary Order of
18 Forfeiture filed on January 7, 2014.

19 DATED: February 28, 2014 Respectfully submitted,

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24
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'Toy' laser macular burns in children

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CASE SERIES

Abstract

Purpose Laser 'toys' can be purchased online and imported with relative ease; the variety of such devices is a potential public safety concern. We describe five children with maculopathy following exposure to laser 'toys'.

Methods Case series of maculopathy following exposure to laser 'toys'.

Results Five children were seen in our Ophthalmic Unit with macular injuries following exposure to laser 'toys'. Clinically, three children had an acute vitelliform-like maculopathy which resolved to leave sub-foveal retinal pigment epithelium changes with reduced vision. One case was complicated by a choroidal neovascular membrane.

Conclusion Laser 'toys', which resemble laser pointers, are increasingly available over the internet. Such 'toys' may not meet safety standards. Retinal injury in childhood following exposure to laser 'toys' is a public safety concern.

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Keywords: vitelliform maculopathy; toy laser; paediatric; laser injury; laser safety; public safety

Introduction

Legislation covers the manufacture and supply of laser products in the European Union and includes *inter alia* the British Standard on Laser Safety, BS EN 60825-1:2007 (BS EN 60825-1:2007—Safety of Laser Products Pt1: Equipment classification and requirements). Lasers are grouped into 'classes' according to their potential for harm. Public Health England (PHE) recommends that so-called toy lasers should be British Standard Class 2 lasers or less (Public Health England website http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1195733794576). The Food and Drug Administration (FDA) recently alerted

consumers about the risk of eye and skin injuries from exposure to high-powered laser pointers. FDA regulations limit the energy output of hand-held laser pointers to 5 milliwatts (mW).¹ However, laser 'toys', of uncertain safety classification and which resemble low-power laser pointers, can be purchased online from outside Europe and USA. Such lasers have the potential for retinal damage. Importantly as laser technology continues to develop, more powerful portable (hand-held) lasers are being produced at lower cost. We report five local children with maculopathy following exposure to laser toys purchased online and imported to the UK.

Case reports

Case 1

A nine-year-old boy, with a history of right amblyopia, presented on Boxing Day with a 24 h history of painless vision loss in his better eye. He had attended a community optometrist 3 days previously, when his vision was 6/5 in his left eye. At presentation, corrected Snellen vision was 6/12 in the right eye and 6/15 in the left. An acute vitelliform-like maculopathy was present in the left eye (Figures 1a and b), and the right macula was normal. This child initially was commenced on treatment against toxoplasma, with oral steroid cover (20 mg prednisolone/day). Investigations for infective, inflammatory, and paraneoplastic causes all proved negative. Three days later, the vitelliform-like changes resolved to leave RPE changes at the left macula (Figure 1c). The family mentioned that the child had been given a laser 'toy' pointer, purchased via the internet, and had been playing with this on Christmas Day. The child denied looking directly into the laser beam. Examination of the 'toy' laser pointers bought by the family revealed three separate laser devices made in China, blue (405 nm), green (532 nm), and red (650 nm) with outputs of 57 mW (blue laser), 42 mW (green laser) and 72 mW (red laser) respectively (Figures 2a and b). The British Standard states

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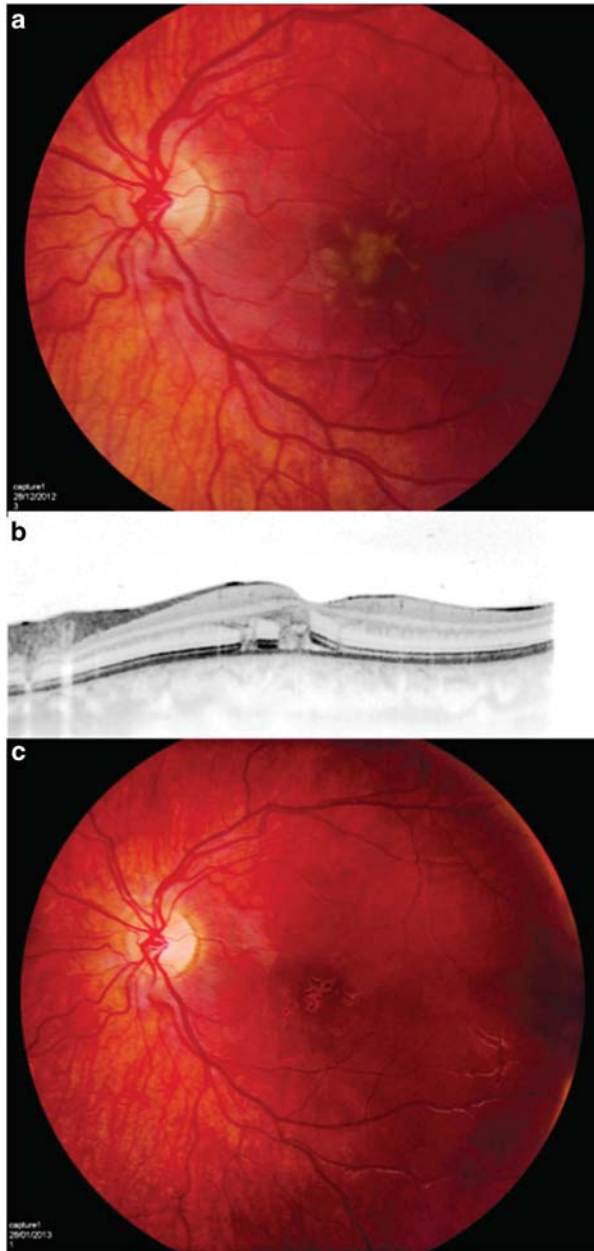


Figure 1 (a) Colour fundus photograph of left eye showing acute phase vitelliform-like maculopathy. (b) Spectral domain OCT image showing outer retinal layer disruption. (c) Retinal pigment epithelial changes at the left fovea 4 weeks post injury.

Class 3R lasers should be <5 mW. At most recent examination, 9 months post presentation, the child's best corrected visual acuity was 6/9.5 and the OCT imaging reveals persistent outer retinal layer disruption at the fovea.

Case 2

An 11-year-old boy was referred by his community optometrist with recent onset bilateral decreased vision

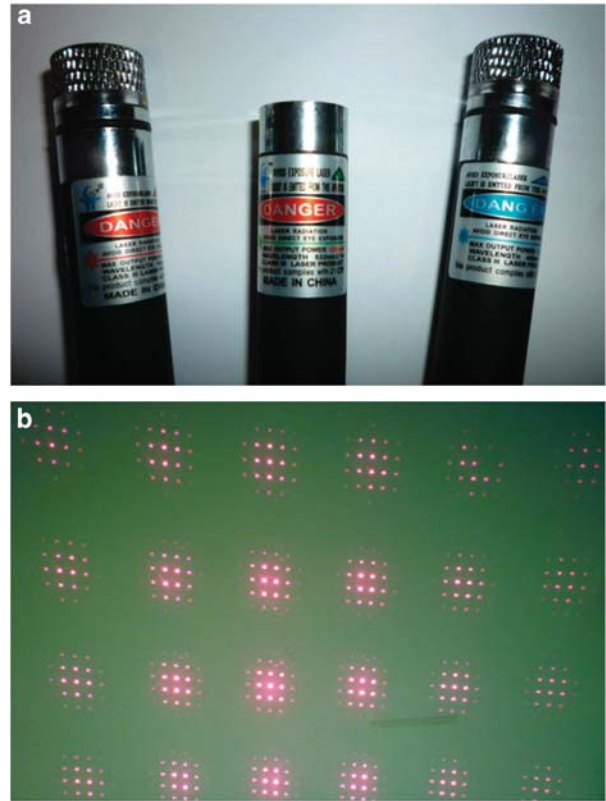


Figure 2 (a) Laser toys purchased via the internet, with label showing class III laser output. (b) Example of a pattern projected by the laser toys.

(best-corrected Snellen acuity of 6/7.5 both eyes at baseline) with bilateral 'yellow' macular lesions. Retinal photographs taken by the optometrist revealed a bilateral vitelliform-like maculopathy, which had resolved to leave sub-foveal RPE changes when he was seen in the paediatric ophthalmology clinic 8 weeks later (Figures 3a and b). At this point his recorded acuities had deteriorated to 6/12 in the right eye and 6/15 in the left eye. This child admitted that a friend aimed a laser 'toy' into both his eyes prior to him developing decreased visual acuity. We were not able to examine the laser device responsible for injury in this case.

Case 3

A 15-year-old girl presented with a 24 h history of blurred vision after shining a laser pointer pen into both eyes for 30 s the previous day. The visual acuity was 6/7.5 in the right eye and 6/6 in the left, although the patient described scotomas in both eyes. Examination revealed a bilateral vitelliform-like maculopathy. This young person has, so far, failed to attend for follow-up after this initial consultation.

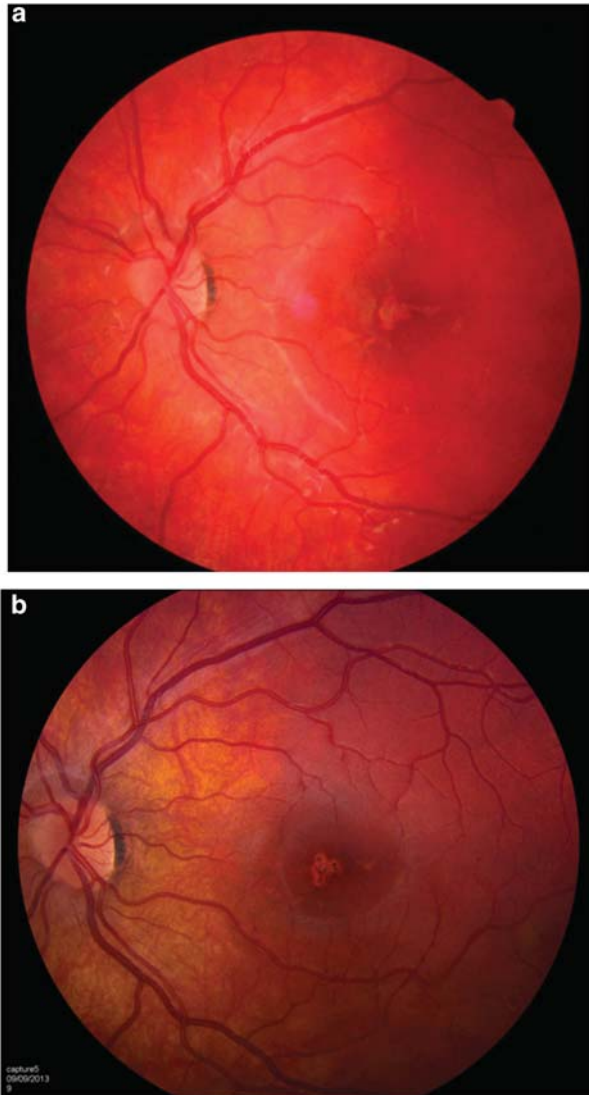


Figure 3 (a) Colour fundus photograph of the left posterior pole, taken by the optometrist, showing an acute vitelliform-like maculopathy. (b) Colour fundus photograph of the left posterior pole showing sub-foveal RPE changes 8 weeks post injury.

Case 4

An 8-year-old boy attended the emergency department following a minor injury. It was noted that his right visual acuity was reduced and a referral to the paediatric ophthalmology service was made. The child was seen the following day. His best-corrected visual acuity was 6/12 in the right eye and 6/6 in the left. There was no history of amblyopia or significant refractive error. Examination revealed retinal pigment epithelial changes at the right fovea, consistent with laser burns. The child admitted to playing with a laser pointer a few months previously,

but denied pointing it directly at his eye. It has not been possible to examine the laser that has caused this injury.

Case 5

A 13-year-old boy presented with a 2-month history of decreased vision in his right eye. On direct questioning, he admitted shining a laser pointer into this eye before noticing a visual decline. On examination, the best corrected vision in his right eye was 6/36 and 6/6 in the left. Examination revealed a fibrosed choroidal neovascular membrane at the right fovea and a normal left eye.

Discussion

Laser technology is evolving and laser products are becoming cheaper. So called laser ‘toys’ can be readily purchased online. It may be difficult to discern if such imported laser toys meet relevant safety standards. Our five children developed maculopathy following exposure to these laser devices, three with a vitelliform-like maculopathy in the acute phase. Similar macular disturbance has been reported following exposure to laser pointers in children.²⁻⁴ Furthermore similar changes occurred wherein a patient with an ocular melanoma was exposed to a Class 3A green laser pointer prior to enucleation.⁵ The retinal damage reported following such injuries is variable.⁴⁻⁶ This is due to variety of laser powers and wavelengths as well as ocular factors such as fundal pigmentation, blink responses, pupil size, and proximity of the laser burn to the fovea.⁵ Assessment of alleged laser eye injury requires accurate history and examination.⁶ Treatment for such laser retinal injuries is uncertain. Oral corticosteroids are sometimes administered.⁷

The present case series highlights the ocular hazards posed by some laser devices, marketed as ‘toys’. With the expansion of online consumer purchasing the regulation and classification of such laser devices is critical. We are also aware of other children in the UK with retinal injury from imported laser pointers purchased in Asia. Such matters have recently been reported from the Kingdom of Saudi Arabia.⁸ Furthermore, one of us (SPK) readily purchased a 1.6 Watt hand-held blue laser pointer from a street vendor in China, which would be classified as Class 4 in UK. We wish to raise awareness of this matter as our experience is that children are often reluctant to admit to such mechanisms of injury. Furthermore, consumers and parents need to be alerted to the potential danger such so-called laser ‘toys’ pose to vision. We suggest that children should not be given laser pointers as toys.

Summary

What was known before

- There are isolated case reports regarding laser pointer injuries in childhood.

What this study adds

- This is the first case series of paediatric laser 'toy' injuries. We highlight a possible public safety issue regarding so-called laser 'toys'. The output of laser 'toys' may far exceed that accepted for a British Standard Class 2 laser.
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Conflict of interest

The authors declare no conflict of interest.

Acknowledgements

We thank Steven Carley of the Medical Physics Dept who undertook the tests in Sheffield and to Dr Colin Swift, Medical Physics and Engineering Department, The Christie NHS Foundation Trust, Manchester. We also thank Dr John O'Hagan from the Laser and Optical Radiation Dosimetry Group, Public Health England. We would also like to thank Kim Foster, of the Photography Department in Sheffield, for help in preparation of images.

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