

CASE REPORT

Potential perils of peri-Pokémon perambulation: the dark reality of augmented reality?

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Abstract

Recently, the layering of augmented reality information on top of smartphone applications has created unprecedented user engagement and popularity. One augmented reality-based entertainment application, Pokémon Go (Pokémon Company, Tokyo, Japan) has become the most rapidly downloaded in history. This technology holds tremendous promise to promote ambulatory activity. However, there exists the obvious potential for distraction-related morbidity. We report two cases, presenting simultaneously to our trauma center, with injuries sustained secondary to gameplay with this augmented reality-based application.

INTRODUCTION

The dramatic increase in smartphone adoption and computing power on ever more capable mobile computing platforms has been associated with a rise in reports of distraction-related injury and death [1–5]. Recently, the layering of augmented reality information on top of smartphone applications has created further levels of user engagement and popularity. One augmented reality-based entertainment application, Pokémon Go (Pokémon Company, Tokyo, Japan) has become the most rapidly downloaded in history (Fig. 1) [6]. This technology holds tremendous promise to promote ambulatory activity. However, there exists the obvious potential for further distraction-related morbidity. We report two cases, presenting simultaneously to our trauma center, with injuries sustained secondary to engagement with this augmented reality-based application.

CASE REPORT

Our first case involved four passengers involved in a single vehicle rollover accident. Patient number 1, the driver of the

pickup truck, was a 19-year-old male. Alert and oriented upon admission to the trauma center, he volunteered that while piloting the pickup truck he lost control at a speed of ~40 miles per hour. He reported that he was ‘hunting Pokémon’ while driving and got distracted when he found one ‘sitting across the road’ in his direct path. Seeing this, he attempted to ‘flick his Pokémon ball to capture the [aforementioned] Pokémon’ and lost control of the vehicle, rolling it and ejecting passengers 2, 3 and 4 from the bed of the pickup. Per reports from emergency personnel, the other passengers rolled the vehicle off of the patient. A CT scan of the head was identified a small focus of subarachnoid hemorrhage; however, there was no evidence of increased intracranial pressure and Glasgow coma scale of 15. An abdominal scan identified a 3.9 × 1.8 cm liver laceration involving the caudate lobe. Patient number 2 complained primarily of headache and back pain upon presentation. Per emergency personnel, he was found underneath the tire of the truck, which was on top of his left chest. The patient had two scalp lacerations and the remainder of his work up was negative. Patients 3 and 4 also had non-specific complaints of neck and lower back pain following pickup-bed ejection. Both had

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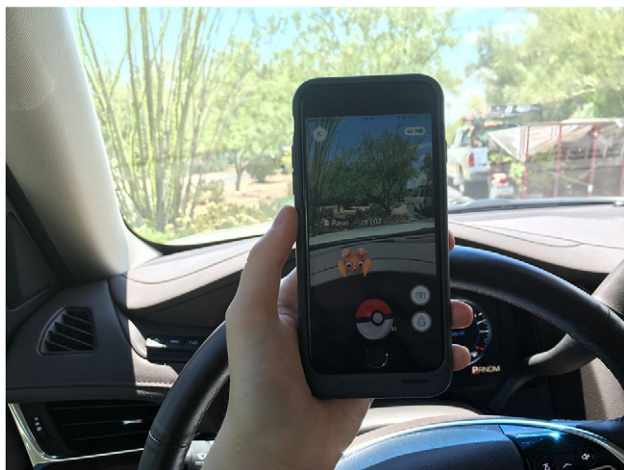


Figure 1: Pokémon Go screen overlaying augmented graphic information via video-passthrough with natural environment. Note the Pokémon character displayed on the road.

reported ‘blacking’ out, but after a thorough work up were fortunate enough to leave the unit with no injuries.

Our second case, a 58-year-old woman involved in a single motor vehicle accident, presented to the same trauma unit contemporaneously with the first case. She collided with a utility pole after swerving off the road to avoid hitting a pedestrian. She presented with severe pelvic pain and was found to have multiple pelvic fractures that were treated non-operatively. Scene reports from bystanders and Emergency Medical Services indicated that the aforementioned pedestrian (uninjured) was engaged in a game of Pokémon Go and had wandered into the middle of the street to catch a Pokémon, thereby precipitating the car versus pole collision.

DISCUSSION

Mobile entertainment applications such as Pokémon have the laudable ability to promote user engagement and increased physical activity [7]. Still other types of connected wearables have helped both consumers and clinicians dose activity much as we might dose a drug [8, 9]. Rapidly evolving technologies that overlay information on top of a natural environment can also likely be beneficial in a wide variety of environments [10]. However, there exists a sinister side to these types of connected devices as well. Entertainment apps may promote more sedentary behavior [11]. Mobile and mobile-augmented reality applications can promote distraction [12]. To our knowledge, these constitute among the first reports in the medical literature of an augmented reality application-related injury requiring acute intervention in a trauma center. We look forward to future works that can perhaps better characterize and classify the most common types of injuries that may ultimately result from increased use and adoption. We also look forward toward efforts in striking a happy balance between engagement, activity and distraction.

CONFLICT OF INTEREST STATEMENT

None declared.

FUNDING

No sources of funding for this report.

CONSENT

Although no photographs were taken and patients all received an anonymous trauma name on admission to the trauma center, media consent was signed.

GUARANTOR

Bellal Joseph, MD, first author, will serve as a guarantor.

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