

Paintball: Dermatologic Injuries

Aparna R. Ambay, MD, MPH, MBA; Erik J. Stratman, MD

The popularity of paintball as an extreme sport has gained momentum in recent years. Injuries related to paintball are growing as the number of participants increases. An increasing percentage of paintball-related injuries have occurred in noncommercial settings, such as backyards. We report distinctive follicular stippling and annular scars resulting from paintball injuries in 2 males. Dermatologists may encounter paintball-related injuries during routinely scheduled visits for acne or nevi surveillance. Patients should be verbally reminded to use protective gear to prevent injuries.

Cutis. 2007;80:49-50.

Case Reports

Patient 1—A 20-year-old healthy white man presented with a 1-month history of an irritated nevus at the site of a close-range paintball injury incurred in a noncommercial setting. The patient complained of burnlike injuries with reddish brown discoloration after being tagged multiple times with paintballs containing a dark blue dye. At the time of injury, the patient was not wearing a shirt. He applied an antibiotic ointment to the lesions for 2 weeks until the discoloration resolved. Physical examination revealed 3 annular well-healed hypopigmented scars with follicular stippling on his mid thoracic spine and right shoulder (Figure 1). A punch biopsy revealed aggregates of pigmented polarizable brown foreign material in the follicular infundibulum without an inflammatory response to the presence of exogenous pigment (Figure 2). The follicular stippling resolved spontaneously within 3 weeks. However, the annular scars persisted.

Patient 2—A 14-year-old healthy white adolescent boy presented with a 1-week history of painful bruising over his back, chest, and left arm. Injuries were sustained in a noncommercial setting following multiple taggings with paintballs containing red-blue dye fired at close range. The patient wore 2 thin layers of clothing at the time of injury. He denied any treatment with topical applications. Physical examination revealed scattered annular ecchymoses with fine follicular-based punctate black dots consistent with follicular stippling on his left upper chest, left antecubital fossa, right upper back, and right flank. The follicular stippling resolved without scarring 1 month after the patient's initial presentation.

Comment

Paintball was introduced as a war game in 1981 and is played worldwide by millions of people in either refereed commercial settings, such as indoor or outdoor paintball arenas, or noncommercial settings, such as backyards.¹ The objective of the sport is for either team to capture the flag of the opposing team and take it to their respective home base. Players try to eliminate their opponents by tagging them with paintballs fired from a paintball gun powered by carbon dioxide, nitrogen, or compressed air. In addition to single-fire paintball guns, semiautomatic or fully automatic guns are available that achieve velocities of up to 300 ft/s. The paintballs are spherical 17-mm capsules weighing approximately 3 g and are made of a gelatin shell filled with water, glycerin, polyethylene glycol, titanium oxide, and colorful water-soluble dyes.² The gelatin shell is designed to rupture on impact, leaving a bright paint mark on the tagged player.

Recent trends indicate an increasing number of injuries resulting from paintball games in noncommercial settings where use of adequate protective gear or close-range play is not monitored.³ There have been numerous ocular injuries resulting in decreased visual acuity, retinal damage, vitreous hemorrhage, choroidal rupture, retinal detachment, retinal dialysis, and open globe injury.^{2,4} Additionally, a temporal artery aneurysm and a myocardial infarction have been reported as direct consequences of paintball injuries.^{5,6} To our knowledge, we describe the first case of follicular stippling

Accepted for publication August 7, 2006.

From the Department of Dermatology, Marshfield Clinic, Wisconsin.

Dr. Ambay also is from the Dean Clinic, Madison, Wisconsin.

The authors report no conflict of interest.

Reprints: Aparna R. Ambay, MD, MPH, MBA, Dean Clinic, Department of Dermatology, 1821 S Stoughton Rd, Madison, WI 53716 (e-mail: aambay@hotmail.com).

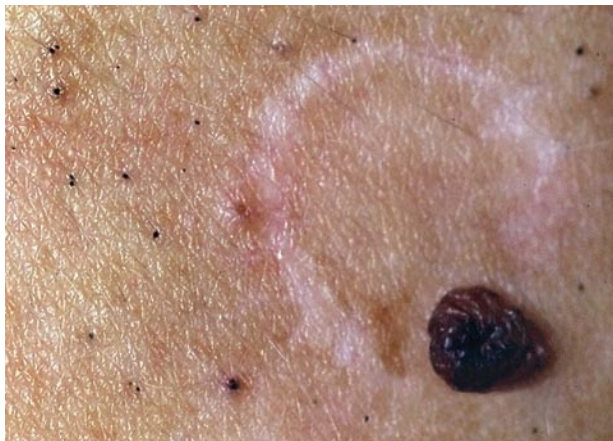


Figure 1. Hypopigmented scar with follicular stippling resulting from a paintball injury.

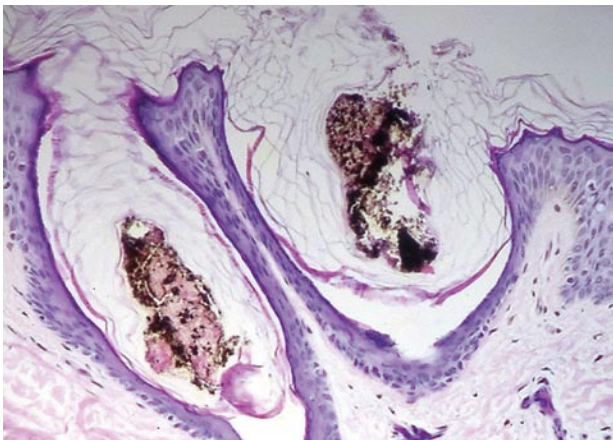


Figure 2. Aggregates of pigmented polarizable brown foreign material in the follicular infundibulum (H&E, original magnification $\times 40$).

and annular scars resulting from paintball injury. Zwaan and colleagues⁴ believe paintball injuries result from a focused release of energy at the site of impact. The tissue damage locally from the paintball is directly proportional to the product of projectile mass and square of the impact velocity. The small size, high mass, and high velocity of paintballs fired from paintball guns can cause severe follicular stippling and scarring. The annular pattern of injury with follicular stippling is consistent with blunt trauma from the impact of the paintball and splattering of the dye.

In 1997, in response to the increasing number of paintball injuries, the American Society of Testing and Materials issued standard specifications for protective gear.⁷ Since then, additional specifications have been added that include standards for safety of paintball playing fields, paintball guns, paintballs, and personal protective devices. Standard specifications for protective clothing have not yet been issued. As a result, clothing worn during paintball games varies.

Conclusion

Dermatologists may encounter paintball-related injuries during routinely scheduled visits for acne or nevi surveillance. Most paintball injuries have been described in adult men aged 18 to 24 years.⁸ Simple verbal reminders during routine visits advocating the use of protective gear during paintball may have a positive impact in prevention of further injuries.

REFERENCES

1. Medem. A special focus on paintball and eye safety. March 2001. Available at: http://www.medem.com/search/article_display.cfm?path=\\TANQUERAY\M_ContentItem&mstr=/M_ContentItem/ZZZD5TRRSKC.html&soc=AAO&srch_typ=NAV_SERCH. Accessed June 1, 2007.
2. Fineman MS. Ocular paintball injuries. *Curr Opin Ophthalmol.* 2001;12:186-190.
3. Fineman MS, Fischer DH, Jeffers JB, et al. Changing trends in paintball sport-related ocular injuries. *Arch Ophthalmol.* 2000;118:60-64.
4. Zwaan J, Bybee L, Casey P. Eye injuries during training exercises with paintballs. *Mil Med.* 1989;161:720-722.
5. Fox JT, Cordts PR, Gwinn BC II. Traumatic aneurysm of the superficial temporal artery: case report. *J Trauma.* 1994;36:562-564.
6. Shah SH, Sketch MH Jr, Tchong JE. Acute myocardial infarction in a young male while playing paintball. *J Invasive Cardiol.* 2002;14:713-715.
7. American Society of Testing and Materials (ASTM). *F1776-97 Standard Specification for Eye Protective Devices for Paintball Sports.* West Conshohocken, Pa: ASTM International; 1997.
8. Conn JM, Annet JL, Gilchrest J, et al. Injuries from paintball game related activities in the United States, 1997-2001. *Inj Prev.* 2004;10:139-143.