Case Report

Severe Allergic Reaction to Dermabond

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The use of 2-octyl cyanoacrylate (Dermabond; Ethicon, Somerville, NJ) for wound closure is increasingly popular. Problems with Dermabond are generally related to application techniques and rarely relate to the chemical nature of the adhesive. This article describes a severe allergic reaction to Dermabond following breast augmentation/mastopexy. (Aesthetic Surg J 2009;29:314–316.)

Allergic reactions to 2-octyl cyanoacrylate (Dermabond; Ethicon, Somerville, NJ) are rare in the medical literature; there is only one published report.1 There are, however, scattered anecdotal reports of allergies to Dermabond on the Internet. With the escalation in Dermabond usage, which can be attributed to its speed and convenience, more allergic reactions are anticipated. Contraindications to Dermabond use include cyanoacrylate or formaldehyde allergy. We report a case of a fulminant allergic reaction to Dermabond following a mastopexy.

CASE REPORT

A healthy 36-year-old white woman with a deflated silicone gel–filled breast implant underwent uneventful removal of her implants, bilateral capsulotomies, replacement of her implants with 325-cc silicone gel–filled implants, and bilateral mastopexies. She received perioperative cefazolin, and the implants were bathed in bacitracin. Her wounds were closed with Vicryl sutures (Ethicon), deep dermal polydioxanone sutures (Ethicon), key sutures with Prolene (Ethicon), and Dermabond on the skin.

On postoperative day one, she was seen routinely and was well. Three days postoperatively, she reported erythema around her incisions. Her husband, a physician, feared infection and prescribed 1 g of intramuscular ceftriaxone (Rocephin; Roche Laboratories, Nutley, NJ) and oral sulfamethoxazole/trimethoprim (Bactrim DS; Roche Laboratories). She was unable to see the surgeon on that day. The next morning, with worsening erythema and itching, she was seen in the emergency room by the surgeon. She was afebrile and looked well. All incisions were erythematous and pruritic, but not tender. Vesicles similar to those seen with poison ivy were visible throughout all incisions, extending only to the area where Dermabond was applied (Figure 1). An area where the Dermabond had dripped on the lateral side of her breast was also erythematous. An infectious disease specialist was consulted.

The surgeon and infectious disease physician agreed that her erythema was an allergic reaction to the Dermabond. Removal of the Dermabond was attempted, but the incision began to separate. Hydrocortisone ointment was prescribed for the rash and to dissolve the Dermabond. A methylprednisolone dose pack was prescribed (Medrol dose pack, Pfizer Inc., New York). The Bactrim DS was continued for one week because of the broken skin and the danger of superinfection. Within six hours of receiving steroids, the erythema and pruritus were improved. Seven days postoperatively, the patient’s sutures were removed without incident (Figure 2). On postoperative day 13, itching began again laterally and her husband injected a single 40-mg dose of Depo-Medrol (Pfizer Inc., New York). She also took a 20-mg oral dose of prednisolone. Her itching ceased

Figure 1. A 36-year-old white woman on postoperative day four. A severe allergic reaction can be seen; erythema and pruritis are both present along the incisions where Dermabond was applied.
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within hours of these final treatments. Postoperative results following the resolution of this allergic reaction are shown in Figure 3.

Of note, the patient underwent a tubal ligation one year before this procedure. Her incisions were closed with Dermabond. According to the patient, the Dermabond was placed haphazardly during this tubal ligation and reportedly was present within a chronically draining wound for four months. The patient’s husband eventually excised the residual Dermabond and reclosed the wound.

DISCUSSION

Dermabond is a liquid adhesive that contains the monomer of 2-octyl cyanocrylate (at a concentration of 94%). The monomer polymerizes upon contact with the applicator tip, water, and exposure to body temperatures. This creates a functional glue when placed on the skin. Additional components of Dermabond include plasticizers that aid in the flexibility of the wound during the healing process, stabilizers to prolong the shelf life, and polymerization inhibitors to delay the transition of the product from liquid to solid. The polymer hydrolyzes in the body, creating formaldehyde, which causes inflammation.

Dermabond was first approved by the US Food and Drug Administration in 1998 and has steadily increased in popularity. Plastic surgeons now use Dermabond for emergency room laceration repairs and for cosmetic surgery. Dermabond allows for the rapid closure of wounds while eliminating cross- and point-marks associated with suture closure. In addition, the “sutureless closure” has become a marketing tool for surgeons.

Figure 2. The same patient on postoperative day seven. Her reaction is improved; the sutures were removed without incident on that same day.

Figure 3. A, Preoperative view of a 36-year-old woman. B, Two months after breast augmentation/mastopexy and resolution of her allergic reaction to Dermabond.
Dermabond allergy is an extremely rare event. Contact dermatitis from Dermabond appears only once in the literature, although contact dermatitis to cyanoacrylate and formaldehyde are well-reported.5-7

Problems with Dermabond are mostly related to application technique. Skin edges must be absolutely apposed to prevent inversion of the wound edges, which results in wound separation once the Dermabond is removed. Embedded Dermabond may result in a foreign body reaction.8 This report describes contact dermatitis from the use of Dermabond. Given the case history, the patient was likely sensitized to Dermabond from prolonged exposure to embedded Dermabond from a previous procedure. This second exposure to Dermabond caused an intense contact dermatitis that readily resolved with steroid use.

The distinction between infection and contact dermatitis is critical. Systemic steroids are the mainstay of treatment; however, topical petrolatum-based steroids not only treat symptoms but also dissolve the Dermabond. Expeditious removal of the offending agent is critical to the resolution of symptoms, but care must be taken to not open the incision(s). In this case, antibiotics were continued because the vesicular reaction created open wounds near the silicone implants; secondary infection of the dermatitis would have resulted in loss of the implants. 

CONCLUSIONS

Dermabond allergy is a rare event, but one that needs to be recognized and treated promptly. Care must be taken to treat the symptoms of the allergic reaction while maintaining the integrity of the surgical incisions.

DISCLOSURES

Dr. Perry was previously a paid consultant to Ethicon, a Division of Johnson & Johnson and the makers of Dermabond. This relationship ended in 2005. Mr. Sosin has no financial interest in and receives no compensation from manufacturers of products mentioned in this article.

REFERENCES


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