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CASE REPORT

Allergic contact dermatitis associated with Biosyn suture in a patient with gastroesophageal junction cancer

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Abstract

A PUBMED literature review revealed no reports of allergic contact dermatitis to Biosyn™ suture material. We present the first case of such an allergic reaction. The case emphasizes the need to remember that suture material can occasionally elicit an allergic dermatitis which may increase the complications and morbidity associated with any surgical procedure.

Keywords: Suture, allergic reaction, dermatitis

Inflammatory or foreign body reactions are not infrequent in response to superficial surgical sutures. Such reactions are harmful because they can delay wound healing and decrease resistance to infection. The inflammation will often correlate with the amount of suture that is placed in a wound, particularly in relation to suture size and knot volume. Clinicians and researchers occasionally see granuloma or type I allergic reactions in response to silk sutures and chromic gut sutures as well as various other suture components, such as Ethylene oxide (a compound used in suture sterilization) (1,2).

Allergic contact dermatitis manifesting in type IV delayed hypersensitivity reactions is significantly less common. A study by Bhutani et al. describes an antimicrobial agent, Triclosan (a component of Vicryl Plus Antibacterial Sutures) as a potential allergen causing contact dermatitis (3). Suture dyes have also been incriminated in causing contact dermatitis—one case study noted the reaction with the dye Acid Blue 158 and another reported that the combination of acid blue 158 and epsilon-caprolactam elicited the same reaction (4,5). Occasionally sutures themselves can induce a contact dermatitis; a few studies note allergic contact dermatitis reactions to nylon and polypropylene fibers, both of which can be used as suture (6–8).

Our patient was a 43-year-old Caucasian woman with poorly differentiated adenocarcinoma of the gastroesophageal junction, clinical stage T3N1 Stage IIIa, on no medications and with no known allergies. For treatment, she received neo-adjuvant chemotherapy with Cisplatin/5FU, followed by an elective exploratory laparoscopy with placement of a jejunostomy tube. The surgery was uncomplicated, requiring only three small incisions (a periumbilical 10 mm incision as well as two 5 mm incisions of the right and left abdomen). The fascia was closed using 0 Vicryl sutures, and the skin closures were performed using Biosyn™ undyed size 4 sutures. Sterile dressings were applied post-operatively. Approximately 4 weeks after surgery, the patient noted that over the suture sites of the umbilicus, L abdomen, and R abdomen there were approximately 2–6 cm non-sharply demarcated, erythematous dermatitic pink-red thin plaques (see Figures 1, 2). The sutures themselves were no longer visible, as they had been fully absorbed. The patient had not been using any topical ointment or bandages on the sites. As mentioned, she had no previous allergic history, and she had undergone both a tubal ligation as well as a breast augmentation without the development of similar dermatologic symptoms. She was sent to a dermatologist who diagnosed a delayed

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Figure 1. Dermatitis at the site of laparoscopy.



Figure 2. Dermatitis at the site of feeding tube and laparoscopy.

type hypersensitivity reaction to the suture material used. Patch testing was not performed at the patient's request. The patient was started on clobetasol cream TID to the affected areas.

Biosyn™ are Glycomer™ monofilament synthetic absorbable sutures manufactured by Covidien. They are used for soft tissue ligation or approximation, and are composed of a polyester made from glycolide, diocanone and dimethylene carbonate. They are available with a violet pigment as well as undyed, size 2 through 7. The suture is normally absorbed using a mild acute inflammatory reaction, whereby the suture is encapsulated by fibrous connective tissue and absorbed by hydrolysis. Ultimately, the suture is broken down into glycolic acid, dioxanoid acid, propane diol and carbon dioxide which can be absorbed by the body. The entire absorption process takes approximately 90–110 days (9).

A PUBMED literature review revealed no reports of allergic contact dermatitis to Biosyn™. One study looking

at wound healing and infection in subcutaneous closure noted that Biosyn™ sutures resulted in an increased fibrotic process and inflammatory infiltrate as well as the formation of foreign body giant cells when compared with other suture materials; however, this was not due to an allergic reaction, but rather part of the normal absorption process (10). In our case, the reaction was clearly more than a normal inflammatory response, but rather was a delayed hypersensitivity reaction. Because the suture is undyed, the reaction was most likely in response to the monofilament itself and not to any pigmentation. Unfortunately, because patch testing was never performed, it is impossible to truly rule out other possible causes of allergic contact dermatitis, such as an antiseptic or bandage used postoperatively. In the future, a patch test with late reading would be imperative to establish a firm diagnosis. Nonetheless, the case emphasizes the need to remember that commonly used surgical materials can occasionally elicit an allergic dermatitis which may increase the complications and morbidity associated with any procedure.

Declaration of interest

The authors have no conflict of interest.

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