

SIDE EFFECT TO POLYDIOXANONE

F. Della Torre (1), E. Della Torre (1),
F. Di Berardino (2)

SUMMARY: It is the first case reported of delay hypersensitivity due to polydioxanone (PDS II).

Key-words: Dermatitis - Drug allergy - Patch test - Polydioxanone.

CASE REPORT

A 76 year-old woman was operated on for arthrodesis of the right wrist. Ten days after the operation the surgical wound in the volar face of the right wrist was closed, but she was suffering for pruritus and erythema in the site of the wound. These symptoms were worsening day by day with a bad oedema, vescicles and exudates. The surgeon suggests an allergy to the metal of the prothesis.

The patient was not atopic. We carried out a patch test with European standard battery and latex and titanium used in the prothesis. But the result was negative. So we tested the filament used in the suture and after 48 hours was observed an erythema, infiltration and papules lasting until 96 hours. The filament was under derma and impossible to remove it.

She was treated locally with an antibiotic drug, mercury-chromium, and an anti-inflammatory drug, corticosteroid ointment.

It need six months to recover.

DISCUSSION

The filament used was polydioxanone (PDS* II) Suture Made in U.S.A.*Trademark ©ETHICON, INC. 1992,388W91 (1).

(1) INRCA Casatenovo LC, Italy.

(2) G.P. ASL Milan, Italy.

PDS* II is a monofilament synthetic absorbable suture prepared from the polyester, poly (p-dioxanone). The empirical molecular formula of the polymer is (C₄H₆O₃)_x.

Polydioxanone polymer has been found to be nonantigenic, nonpyrogenic and elicits only a slight tissue reaction during absorption (2, 3).

PDS II synthetic absorbable suture has been formulated to minimize the variability of tensile strength retention and the absorption rate (loss of these mass) and to provide wound support through an extended healing period.

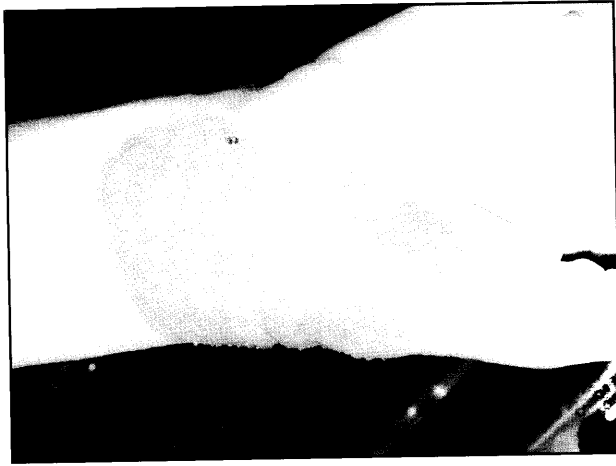
The results of implantation studies of PDS II monofilament suture in animals indicate that approximately 70% of its original strength remains two weeks after implantation.

At four weeks post-implantation, approximately 50% of its original strength is retained, and at six weeks, approximately 25% of the original strength is retained.

Data obtained from implantation studies in rats show that the absorption of these sutures is minimal until about the 90th post-implantation day. Absorption is essentially complete within six months (4, 5, 6).

Our patient needed this time to recover nevertheless the therapy.

We have not found any report of this kind of allergy in the literature.



References

- (1) www.ecatalog.ethicon.com
- (2) Ping Ooi C., Cameron R.-E. - The hydrolytic degradation of polydioxanone (PDSII) sutures. Part I: Morphological aspects. *J Biomed Mater Res.* 2002;63(3):280-90.
- (3) Ping Ooi C., Cameron R.-E. - The hydrolytic degradation of polydioxanone (PDSII) sutures. Part II: Micromechanisms of deformation. *J Biomed Mater Res.* 2002;63(3):291-8.
- (4) Durselen L., Dauner M., Hierlemann H., Planck H., Claes L.-E., Ignatius A; - Resorbable polymer fibers for ligament augmentation. *J Biomed Mater Res.* 2001;58(6):666-72.
- (5) LaBagnara J Jr. - A review of absorbable suture materials in head & neck surgery and introduction of monocryl: a new absorbable suture. *Ear Nos Throat J* 1995 Jun;74(6):409-15.
- (6) Molea G., Schonauer F., Bifulco G., D'Angelo. - Comparative study on biocompatibility and absorption times of three absorbable monofilament suture materials (Polydioxanone, Poliglecaprone 25, Glycomer 631. *Br J Plast Surg.* 2000 Mar;53(2):137-41.

ASTHMA HOSPITALIZATIONS DUE TO POOR INHALED MEDICATION ADHERENCE, FROM THE JOURNAL OF ALLERGY & CLINICAL IMMUNOLOGY

The majority of hospitalizations for asthma may be the result of people not taking their inhaled steroid medications, according to new research featured in the December 2004 Journal of Allergy & Clinical Immunology (JACI). The JACI is the peer-reviewed scientific journal of the American Academy of Allergy, Asthma & Immunology (AAAAI).

L. Keoki Williams, MD, MPH, and colleagues from the Henry Ford Health System in Detroit, and the Medical College of Georgia are the first to study the relationship between medication adherence and asthma related outcomes in adult patients with asthma. They examined the records of 405 asthma patients ages 18-50 to determine if poor adherence to directions for taking inhaled steroids resulted in poor asthma-outcomes. Researchers analyzed outpatient visits, emergency department visits, hospitalizations and oral steroid use.

The study found:

Overall adherence to inhaled steroids was approximately 50%.

Patients who missed one out of four doses of their prescribed inhaled steroid doubled their risk of being hospitalized.

60% of hospitalizations could have been prevented had patients taken their inhaled medication as directed.

Poor medication adherence was also associated with emergency department visits and the need to use oral steroid medications, which are associated with more severe asthma.

Inhaled steroids have become the standard in the treatment of persistent asthma. They have been shown to significantly improve asthma symptoms and reduce asthma complications. However, adherence to the prescribed inhaled steroids is poor among adult asthma patients.

While improving medication adherence is difficult, researchers in the current study suggest that increasing education on the importance of adherence may result in better asthma control.

The AAAAI is the largest professional medical specialty organization in the United States representing allergists, asthma specialists, clinical immunologists, allied health professionals and others with a special interest in the research and treatment of allergic disease. Established in 1943, the AAAAI has nearly 6,000 members in the United States, Canada and 60 other countries. The AAAAI serves as an advocate to the public by providing educational information through its Web site at www.aaaai.org or the toll-free physician referral and information line at 1(800) 822-2762.

EDITOR'S NOTE: This study was published in the peer-reviewed, scientific journal of the American Academy of Allergy, Asthma & Immunology, but does not necessarily reflect the policies or the opinions of the Academy. To receive a copy of the study, contact John Gardner (jgardner@aaaai.org) at (414) 272-6071. For more information and access to the archive of past JACI news releases, visit the Media Center of the AAAAI Web site, www.aaaai.org.