

TRUCAB technique is best reserved for use as a *palliative procedure* in the high-risk patient population in whom there is no intention of ever reoperating. In this context, there may be a small subset of younger patients in whom the "H" arrangement could be used as a temporizing procedure when it is anticipated that the whole length of the IMA will be needed for more extensive revascularization procedures in the years ahead.

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Anaphylactic Aprotinin Reaction

To the Editor:

We refer to the article by Cohen and colleagues [1] presenting the unusual case of a 3.5-year-old boy with a near-fatal reaction to a test dose of aprotinin administered intravenously before complete surgical repair of tetralogy of Fallot. The boy survived thanks to resuscitation using cardiopulmonary bypass support. An enzyme-linked immunosorbent assay (ELISA) revealed aprotinin-specific IgE. Former contacts or cross-sensitizations seemed to be disclosed.

We congratulate the authors for managing this near-fatal situation and saving the boy's life, but question some details of the case. The history as presented does not disclose previous aprotinin contacts. However, formation of aprotinin-specific IgE is very improbable without former antigen contacts. As intravenous contacts and cross-sensitizations are ruled out, hidden local contacts by fibrin tissue adhesives have to be considered. Most commercially available fibrin sealants contain small doses of aprotinin which can induce temporarily detectable levels of specific IgE as we have observed in a study of 49 children [2]. Even self-made fibrin glues may contain aprotinin [3]. Repeated local contacts can also cause generalized allergic reactions [4]. In the present case report we miss a statement on the possibility of former local aprotinin contacts although it had not been documented.

The formation of allergen-specific antibodies is a time-dependent dynamic process. Antibody screening tests must be interpreted with regard to the time lapse between the last allergen contact and the time of antibody screening. Concerning aprotinin, we have made some observations, which could con-

tribute to the discussion of the present case. Aprotinin-specific IgE may become detectable 1 week after primary aprotinin contact [2]. Consequently, only positive IgE tests dating from before or immediately after the reaction indicate preexistent sensitization. If the highly positive IgE test in this boy dates from later than a few days after the reaction, it can also be due to the primary immune response to the test dose. Then the adverse reaction would not have been IgE mediated and thus not anaphylactic. However, this consideration does not rule out aprotinin from being the causative agent, because there is still the possibility of an antibody-independent anaphylactoid reaction. For precise assessment of the actual mechanism of the case presented, the authors need to report the exact time lapse between the incriminated aprotinin administration and the time of IgE testing thereafter.

According to our experience, it is extremely difficult to obtain reproducible ELISA results for aprotinin-specific IgE as the authors did. This is due to the extremely low amount of specific serum IgE. Therefore we rely on a fluorescence enzyme immunoassay, which is more sensitive for allergen-specific IgE.

We do agree with Cohen and colleagues that the possibility of an allergic reaction should be considered whenever aprotinin is used. But we have doubts concerning the interpretation of the present case as an anaphylactic reaction due to a primary exposure.

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Collagen-Thrombin-Plasma Composite Hemostat

To the Editor:

In connection with the paper: "A sprayable hemostat containing fibrillar collagen, bovine thrombin, and autologous plasma," I would like to sound a serious caveat. As the paper illustrates, microfibrillar collagen is a needle-shaped substance with a small diameter and a considerable length. We have also found it (mixed with plasma components) to be most effective in inducing hemostasis [1]. Our studies, however, also revealed that if shed blood, which contains microfibrillar collagen, is reintroduced into the circulation, such as it may occur through cell-saver devices, it has a high potential of causing severe organ,