

Urticaria and angioedema during insemination with fluid containing bovine serum albumin

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Bovine serum albumin (BSA) is often present in the dilution fluid added to semen for artificial insemination. A case of serum sickness due to BSA after a first in vitro fertilization has been reported (1), in addition to an IgE-mediated reaction to BSA in a case of anaphylaxis due to infusion of autologous bone marrow (2). To our knowledge, no case of IgE-mediated reaction to BSA after insemination has yet been reported.

Case Report

A 36-year-old nonatopic female developed generalized urticaria and angioedema 30 min after her 1st course of artificial insemination. The fluid inseminated contained her husband's semen diluted in a solution of antibiotics (penicillin and streptomycin) and BSA. Until 8 years previously, she had worked for 8 years as a laboratory technician handling pig and horse sera. She had no previous history of food allergy or adverse drug reactions. A 2nd course of artificial insemination, using only her husband's semen, did not induce allergic symptoms.

Prick tests with the dilution fluid and extracts of albumin or sera of pig, horse, cat, dog and bovine origin (Sigma, St. Louis, Mo) were all positive at dilutions varying from 10^{-2} to 10^{-3} g/l protein. A prick test was considered positive when the mean diameter of the wheal ($D+d/2$) induced by the allergen was $\geq 75\%$ of the mean diameter obtained with the histamine control (1 mg/ml). A prick test with human albumin was negative. Control tests in nonatopic and 2 grasspollen-allergic patients were negative to albumin or sera of pig, horse, cat, dog and bovine origin. Prick, intradermal and patch tests with various penicillins (Allergopen, Allergopharma, Germany) and neat aminoglycosides (Streptomycin, Diamant Lab., France; Kanamycin, Bristol Lab., France) were all negative.

Intramuscular injection of penicillin G (100,000 IU) did not induce a reaction. Positive RAST results were obtained with the same albumins and sera of pig, horse,

cat, dog and bovine origin by covalently coupling these extracts (20 μ g protein/disk) to cyanogen-bromide-activated disks. RAST to human albumin was negative. A RAST was considered positive when the mean value of radioactive counts bound to the solid-phase antigen was greater than the mean +2 standard deviations of radioactive counts obtained with the negative control, the atopic control and the nonatopic control. Commercial RAST to penicillin was negative. The patient's specific IgE to horse serum was inhibited by BSA and pig serum.

Comment

The clinical history and results of skin tests, RAST and RAST inhibition, demonstrated an IgE-cell-mediated reaction to BSA and other mammalian albumins. Homology has been previously shown between several mammalian serum proteins (3) and this case report suggests that handling pig and horse sera may have accounted for the development of sensitization to BSA. Thus, introduction of a heterologous protein such as BSA via artificial insemination could be responsible for sensitization to mammalian albumin and represents a risk for subjects already sensitized to albumin.

References

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Hand dermatitis in a hand cleanser salesman

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Key words: irritant contact dermatitis; hand cleanser; salesman; occupational.

A 40-year-old sales representative developed hand dermatitis which he attributed to work. He had a dermatitis confined to the finger webs of both hands. It improved

on holidays and worsened several days after returning to work. He had had a similar rash 27 years earlier spraying paint in a car body repair shop.

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