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## Local intravaginal desensitization to seminal fluid

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This report describes a patient with local hypersensitivity to seminal fluid who was successfully treated with local intravaginal desensitization.

### CASE REPORT

A 28-year-old married woman was referred for evaluation of a 4-year history of postcoital vaginal and perivaginal swelling that occurred immediately after ejaculation during intercourse. The patient has had one sexual partner for the past 6 years and first noticed this problem 2 years after she began having intercourse with this partner. The vaginal and perivaginal angioedema typically persisted for 12 to 24 hours after intercourse and would spontaneously resolve with no specific therapy. One year ago, these episodes began to get more severe and were associated with severe itching, burning, and discomfort. Warm baths immediately after intercourse helped to accelerate resolution. The reactions were not associated with other symptoms of systemic anaphylaxis.

The patient was only taking an oral contraceptive. Her husband was not taking medication. The patient was advised to use condoms and had

immediate resolution of all postcoital symptoms for several months. Although intercourse with condoms was always tolerated without adverse effects, the patient and her husband did not find this to be a satisfactory solution.

A skin prick test with her husband's fresh undiluted seminal fluid demonstrated a small positive wheal and flare (mean wheal diameter, 5 mm  $\times$  mean flare diameter, 30 mm), with a positive histamine control (5 mm  $\times$  40 mm) and negative saline control. An ELISA, in which previously described methods were used,<sup>1</sup> was negative for serum IgE to seminal fluid antigen. An active fraction of seminal fluid protein was used for the assay.

Local desensitization was performed by depositing progressively greater concentrations of her husband's semen intravaginally at 20-minute intervals (Table I). No local reactions occurred at dilutions of 1:1,000, 1:100, and 1:10. After the undiluted semen sample was deposited, a slight degree of swelling of the labia minora occurred after 15 to 20 minutes, with minimal burning and itching at the introitus. The patient judged the reaction to be minimal, relative to her previous reactions, and it lasted for only 30 minutes.

The patient was instructed to have frequent intercourse without condoms to maintain the desensitized state. She had intercourse every 24 to 48 hours for 2 months without experiencing any local perivaginal angioedema, pruritis, or discomfort. A 10-day hiatus in this routine resulted in return of symptoms. The desensitization proce-

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*J ALLERGY CLIN IMMUNOL* 1993;91:1230-1

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0091-6749/93 \$1.00 + .10 1/54/46299

cedure was repeated without adverse effects, and the patient has not subsequently experienced any angioedema, pruritis, or other symptoms of immediate hypersensitivity with regular intercourse every 24 to 48 hours.

## DISCUSSION

The clinical manifestations of seminal fluid hypersensitivity have been well described.<sup>2, 3</sup> Some patients present with local hypersensitivity reactions, which may progress to systemic hypersensitivity. The incidence of these reactions is unknown. They are considered to be IgE-mediated, and the clinical manifestations are considered to be directly related to mast-cell mediator release.

The management of seminal plasma hypersensitivity has included abstinence, condom usage, pharmacologic treatment, and immunotherapy (desensitization). Abstinence and condom usage are unacceptable for many patients and their partners. Bosso et al.<sup>4</sup> reported the successful prevention of local and cutaneous hypersensitivity reactions to seminal fluid with intravaginal cromolyn sodium pretreatment. Prophylactic antihistamine therapy has been ineffective.<sup>5</sup> Parenteral desensitization (immunotherapy) has been successful in some patients with systemic anaphylaxis.<sup>1, 6</sup> Patients with local hypersensitivity reactions to seminal plasma are usually not considered candidates for parenteral desensitization.

No cases of local desensitization have been previously reported in the literature. This patient appears to have responded to a rapid local desensitization procedure with seminal fluid. The mechanism is not known. It is possible that this rapid desensitization procedure depletes local mast-cell-derived mediators, although other unknown mechanisms may be important. The term *desensitization* has been used in an operational sense, for convenience, because evidence of reduced sensitivity to semen components (e.g., less prick test reactivity) is not available.

This patient has subsequently been able to have intercourse without local adverse reaction to seminal fluid. It would be prudent to study this procedure in other subjects to assess its efficacy and safety before routine use of this procedure can be recommended. Patients with systemic reactions, who have been desensitized by the parenteral route, have been able to remain desensitized with intercourse at a frequency of two to

**TABLE I.** Local intravaginal desensitization to seminal fluid

| Dose no. | Seminal fluid concentration* | Volume (ml) |
|----------|------------------------------|-------------|
| 1        | 1:1,000                      | 2.0         |
| 2        | 1:100                        | 2.0         |
| 3        | 1:10                         | 2.0         |
| 4        | Undiluted                    | 2.0         |

Doses were deposited intravaginally at 20-minute intervals.

\*Dilutions were made with sterile albumin saline solution with phenol diluent (Hollister Stier Laboratories, Spokane, Wash.) containing 0.9% sodium chloride, 0.03% albumin (human), and 0.04% phenol as preservative in water.

three encounters per week.<sup>7</sup> This patient reported that a maximum interval of 48 hours is well tolerated. The feasibility of prescribing intercourse frequency as a method of desensitization may not be realistic for some individuals. It is not known whether the natural history of this disorder will lead to spontaneous remission.

I thank John Ohman, MD, for performing the ELISA assays for seminal plasma IgE, Ann Rowen, RNP, for performing the intravaginal instillations of seminal fluid, and Mary Jane Doyle, RN, for her assistance with the care of this patient.

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