

Localized Seminal Plasma Protein Hypersensitivity

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ABSTRACT

Human seminal plasma protein hypersensitivity is a rare disorder. Since the first case report in 1958, allergic reactions to semen have gone relatively unnoticed or improperly diagnosed. Dozens of medical case reports and research prove that allergy to seminal fluid is a legitimate health concern. (Allergy and Asthma Proc 25:261–262, 2004)

Human seminal plasma protein hypersensitivity (SPH) is a rare disorder that has become increasingly recognized.¹ Since the first case report in 1958 by Dutch gynecologist Dr. Specken,² allergic reactions to semen have gone relatively unnoticed or improperly diagnosed. Dozens of medical case reports and research prove that allergy to seminal fluid is a legitimate health concern.³

CASE REPORTS

A 22-year-old woman with no significant past medical history came to our allergy clinic complaining of a burning, pruritus and redness of the vulvovaginal area within 2–5 minutes postcoitally. She denied generalized pruritus, rash, dyspnea, or any other respiratory symptoms. These symptoms began 9 months before presenting to our clinic, when she first became sexually active. The patient had coitus with this one partner only. Although recommendations for condom use were made, our patient and her partner refused to use any form of contraception. She denied

any throat or facial irritation during or after oral sex with her partner. She had prior oral sex with others partners without any symptoms. Her gynecologist treated her on several occasions for suspected yeast and/or bacterial infection without any change in symptoms. Her medical history was significant for allergic rhinitis to pollen, cat, and dust mites, which was confirmed by allergy testing. In addition, there was a history of a rash after receiving a sulfa medication. Her physical examination was significant for mild erythema at the opening of the vaginal tract. The labia were not edematous and there was no discharge. The patient refused a speculum examination. The rest of her physical examination was essentially normal. A complete blood count and basic chemistry were normal.

Skin testing to her partners' seminal plasma was performed. After the partner ejaculated into a sterile cup, skin-prick testing was performed with his undiluted/unfractionated semen. Skin-prick testing also was performed to normal saline and histamine, 1.0 mg/mL, as a negative and positive control, respectively. There was a 6-mm wheal and 16-mm flare to the semen, a negative response to the saline, and a 5-mm wheal and 27-mm flare to the histamine control. As a control, the same testing was performed on her partner and revealed a negative response to the semen and saline control with a positive response to the histamine test. As per the protocol laid out by Matloff for the intravaginal desensitization to seminal fluid,⁴ a fresh semen sample was obtained from the patient's sexual partner and diluted using normal saline to concentrations of 1:1000, 1:100, 1:10, and full strength. Then, 2 mL of increasing concentrations of semen was deposited intravaginally using a small plastic tube at 20-minute intervals. Symptoms and vital signs were monitored and recorded.

The patient's genitalia showed slight erythema at the entrance of the vaginal canal. Although no obvious swelling occurred with additional injections of increasing concentration, the patient did describe increasing pain with increasing concentration of semen injection. She described the sensation as uncomfortable and felt vaginal swelling. No changes

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in blood pressure, pulse, and body temperature occurred throughout the procedure. The patient was sent home and was instructed to have intercourse that afternoon and at least every 48 hours from then on. Because her partner was moving to a different state, the patient was taught to self-administer needleless syringes prefilled with 2-cc aliquots of semen. When he visited her every other weekend, he would leave a supply of semen that was kept refrigerated. On 6-month follow-up, the couple was back living together and the patient reported resolution of symptoms with regular sexual activity.

DISCUSSION

Human SPH is a spectrum of physical reactions to components of human seminal plasma. The reaction is an immunoglobulin E-mediated, immediate hypersensitivity response.⁵ In addition to protein antigens in the seminal plasma, other substances carried in the seminal plasma fluid also may be linked to SPH. In one documented case report, a woman allergic to nuts experienced a severe systemic reaction after intercourse with her husband, who had just eaten walnuts.⁶ Walnut protein was later isolated from the husband's seminal plasma. In another case, a woman with a known allergy to penicillin, began having facial swelling, "fullness in her throat," nausea, and eye burning within 30 minutes of unprotected intercourse with her boyfriend, who was taking dicloxacillin for a skin infection.⁷ Similar reactions have been documented when other bodily secretions are involved, such as kissing between a person taking antibiotics and a person allergic to that particular antibiotic.^{8–10}

Allergic symptoms, either localized or systemic, that evolve in and around the time of unprotected intercourse should raise concern about SPH. Common causes of vaginitis should be ruled out. Cessation of symptoms with the use of a condom is highly suggestive of seminal plasma allergy. In patients whose symptoms do not regress, latex allergy has to be ruled out. Reactions to new clothes, detergents, vaginal creams, and other chemicals need to be excluded as culprits for physical symptoms as well. Reproduction of symptoms after intravaginal instillation of semen as a diagnostic test is seldom necessary.

The treatment for SPH can be approached in several ways. Barrier methods such as condoms can be used. This, along with topical cromolyn sodium 8% cream, has shown to be highly successful in selected cases.^{11,12} Another method of treatment includes intravaginal graded challenge as was performed on our patient. To maintain the desensitized state, patients must have intercourse every 24–48 hours. In the one study, it was found that almost all allergic symptoms ceased, as long as the time interval between intercourse did not exceed 48 hours.¹³

Intravaginal desensitization has been successful in allowing women to have unprotected intercourse to conceive. For those women with SPH desiring to conceive in whom

intravaginal graded challenge has failed, subcutaneous injections with fractionated seminal plasma protein should be performed.^{14,15} One tested solution involves "washing the sperm" of the surrounding plasma containing the allergens. If this fails, *in vitro* fertilization and intrauterine insemination have been shown to be an effective method of conception.¹⁶

CONCLUSION

Allergic symptoms, either localized or systemic, which evolve in and around the time of unprotected intercourse, should raise concern about SPH. Women who suffer with SPH experience a significant amount of stress and anxiety, which often leads to deterioration of interpersonal relationships. The inability to have spontaneous, unimpeded sexual intercourse can delay or inhibit the ability to conceive. SPH remains an underdiagnosed and undertreated disorder that needs to be discussed and addressed openly. Treatment is available and should be offered to these patients.

REFERENCES

- Bernstein JA, Sugumaran R, Bernstein DI, et al. Prevalence of human seminal plasma hypersensitivity among symptomatic women. *Ann Allergy Asthma Immunol* 78:54–59, 1997.
- Specken JLH. Fen Merkwadig geval van allrgi in de gynaecologie. *Ned Tijdschr Verloskd Gynaecol* 58:314–318, 1958.
- Aksel S. Immunologic aspects of reproductive diseases. *J Am Med Assoc* 268:2930–4, 1992.
- Matloff SM. Local intravaginal desensitization to seminal fluid. *J Allergy Clin Immunol* 91:1230–1231, 1993.
- Ohman JL, Malkiel S, Lewis S, and Lorusso JR. Allergy to human seminal fluid: Characterization of the allergen and experience with immunotherapy. *J Allergy Clin Immunol* 85:103–107, 1990.
- Haddad ZH. Clearer picture of food allergies is still needed. *Perspect Allergy* 1:2–3, 1978.
- Green RL, and Green MA. Postcoital urticaria in a penicillin-sensitive patient—possible seminal transfer of penicillin. *JAMA* 254:531, 1985.
- Liccardi G, and Gilder JA. Drug allergy transmitted by passionate kissing. *Lancet* 359:1700, 2002.
- Wuthrich B. Oral allergy syndrome to apple after a lover's kiss. *Allergy* 52:236, 1997.
- Meenhorst PL, Mattie H, and Hermans J. Comparative clinical study on the absorption of orally administered amoxycillin and bacapicillin. *J Antimicrob Chemother* 14:267–74, 1984.
- Aksel S. Immunologic aspects of reproductive diseases. *JAMA* 268:2930–2934, 1992.
- Friedman SA, and Bernstein IL. Successful long-term immunotherapy for human seminal plasma anaphylaxis. *JAMA* 251:2684–2687, 1984.
- Matloff SM. Local intravaginal desensitization to seminal fluid. *J Allergy Clin Immunol* 91:1230–1231, 1993.
- Mittman RJ, Bernstein DI, and Adler TA. Selective desensitization to seminal plasma protein fractions after immunotherapy for postcoital anaphylaxis. *J Allergy Clin Immunol* 86:954–960, 1990.
- Bernstein JA, and Herd ZA. Evaluation and treatment of localized vaginal immunoglobulin E-mediated hypersensitivity to human seminal plasma. *Obstet Gynecol* 82:667–673, 1993.
- Shapiro SS, Kooistra JB, Schwartz D, and Yunginger J. Induction of pregnancy in a woman with seminal plasma allergy. *Fertil Steril* 36:405–407, 1981. □

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