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Letter to the Editor

Omalizumab for hypersensitive reaction to seminal plasma: A case report

Dear Editor,

Seminal plasma hypersensitivity (SPH) is a rare local or systemic allergic reaction that occurs during or after coitus,¹ with a peak of prevalence among 20-to-30-year-old women. Immunoglobulin (Ig) E-mediated reactions to seminal proteins activate basophils and mast cells that have the high-affinity IgE receptor (FcεRI+). Upon activation, basophils and mast cells release preformed histamine, which prompts an acute inflammatory reaction that may involve erythema, burning, and itching. The inflammatory reaction tends to be localized, but systemic symptoms such as rhinoconjunctivitis and asthma, or in severe cases, anaphylactic shock may develop.² The first report of this disorder was published in 1958 by Specken³; since then, about a 100 cases have been reported worldwide. In this report, we described a case of SPH that was a successfully treated with immunotherapy.

A 28-year-old female was admitted into emergency unit with anaphylactic shock after having sexual intercourse with her husband. The episode started with cutaneous (angioedema in eyes and lips, and urticaria), respiratory (cough and difficulties for breathing) and cardiovascular symptoms (Hypotension) about 30 min after sexual intercourse (Fig. 1). Upon antihistamine (Loratadine, 10 mg) and steroid treatment (Dexametasona, 8 mg) symptoms disappeared within 2 h. The patient referred having experimented the same symptoms for six years being the first time in 2007 and since then about nineteen times, but increasing in severity and shortening in time of appearance. The patient also reported symptom-free intercourses with her husband during the first three years of marriage.

She was recommended a prophylactic antihistamine (Loratadine, 10 mg) treatment 30 min before intercourse, but mentioned no improvement on a control visit. The patient is married and has two children. The first gestation had been without complications, but local symptoms like itch and edema in genitals followed by angioedema in face developed during the second, a non-planned pregnancy. On one occasion during the second pregnancy and after intercourse, she was admitted for an anaphylactic process with fetal bradycardia. After the administration of adrenaline (0.5 mg), the process was reverted and the patient dismissed the hospital after 6 h in observation. The patient denies the use of lubricants.

Skin prick tests using Latex[®] and seminal fluid of her husband were carried out, resulting negative latex but positive for seminal fluid. Anti-seminal fluid IgE reactivity was confirmed by the

ImmunoCAP[®] platform and it was observed a value of 3.03 kUA/L (clinical cut-off 0.35 kUA/L).

The patient started treatment with Omalizumab at one dose of 450 mg per month. Omalizumab is a recombinant DNA-derived humanized IgG1 monoclonal antibody that binds specifically to free human IgE and to membrane-bound IgE on B lymphocytes, but not to IgE bound to FcεRI. After the third application an improvement was observed since the patient had repeated symptom-free intercourse. A year later, the dose was reduced to 300 mg per 6 weeks. IgE monitoring revealed that anti-husband's seminal fluid-IgE remained high (20.1; 17.2 and 13.0 kUA/L, respectively). Currently, the patient does not use condom for intercourse and no symptoms have presented.

SPH is most of the time underdiagnosed, and it is normally confused with Latex[®] sensitivity.⁴ About 40–50% of SPH allergies can appear upon first intercourse.⁵ The gold standard treatment is seminal fluid avoidance, either by abstinence or condom usage. But in the cases where the couple is looking for conception, alternative treatment such as immunotherapy by desensitization is the first option⁶; nevertheless, some cases with pre-intercourse antihistamine treatments reported successful pregnancies.⁷ The goal of the treatment herein described, was disappearing the allergen reaction since the patient reported was not looking for a third baby. First approach, prophylactic anti-histamine was not successful, and desensitization is not currently in practice, as this is the first report of a SPH case in Monterrey, Nuevo Leon. Omalizumab has been effective against asthma and chronic urticaria that do not respond to standard H1-antihistamine or corticosteroid treatment.^{8,9} Although the reported working mechanism of omalizumab is the depletion of free serum IgE which eventually down-regulates the responsiveness of FcεR+ cells, it is not well-investigated with allergen-specific acute allergic reactions. Our patient presented a trend of diminishing specific IgE levels, but still far above the common clinical cut-off of 0.35 kUA/L. These relatively high levels can be explained by repetitive stimulation of reactive (memory) B-cells, which, once converted into plasma cells, liberate newly synthesized IgE. Despite the relatively high IgE levels, the patient has remained symptom-free for over more than a year. Therefore, the treatment is considered successful. It is recommended to be attentive to possible adverse allergic reactions to omalizumab itself, though anaphylaxis to omalizumab is relatively low among antibody drugs.

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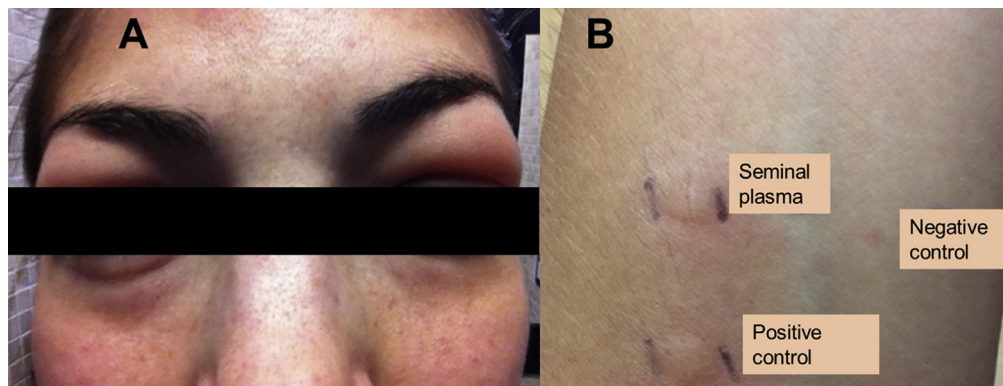


Fig. 1. . Clinical manifestation of SPH. **A)** Angioedema in eyes is observed 30 min after sexual intercourse. **B)** Results of the prick test, showing wheals in both positive control (histamine) and seminal plasma, while the injection of saline solution did no react. Images published with permission of the patient.

As far as we know, this is the first report on the successful application of omalizumab-based immunotherapy to treat SPH non-responsive to antihistamines.

Patient did not present symptoms after sexual intercourse and is under vigilance for possible adverse reactions due to omalizumab. Finally, although this patient did not intend to conceive, reports indicate that administration of this molecule during pregnancy in asthmatic women did not increase the rate of congenital defects compared to the rates reported in the general population with asthma. This last, opens a new pertinence for the use of omalizumab in cases with SPH, in young couples with expectations of pregnancy.¹⁰

Conflict of interest

The authors have no conflict of interest to declare.

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References

1. Presti ME, Druce HM. Hypersensitivity reactions to human seminal plasma. *Ann Allergy* 1989;**63**:477–81.
2. Shah A, Panjabi C. Human seminal plasma allergy: a review of a rare phenomenon. *Clin Exp Allergy* 2004;**34**:827–38.
3. Specken J.L.H. Een merkwaardig geval van allergie in de gynaecologie. *Ned Tijdschr Verloskd Gynaecol* 1958;**58**:314–8.
4. Bernstein JA, Sugarman R, Bernstein DI, Bernstein IL. Prevalence of human seminal plasma hypersensitivity among symptomatic women. *Ann Allergy Asthma Immunol* 1997;**78**:54–8.
5. Sublett JW, Bernstein JA. Seminal plasma hypersensitivity reactions: an updated review. *Mt Sinai J Med* 2011;**78**:803–9.
6. Lee J, Kim S, Kim M, Chung YB, Huh JS, Park CM, et al. Anaphylaxis to husband's seminal plasma and treatment by local desensitization. *Clin Mol Allergy* 2008;**6**:13.
7. Song WJ, Kim DI, Kim MH, Yang MS, Kim YJ, Kim SH, et al. Human seminal plasma allergy: successful pregnancy after prophylactic anti-histamine treatment. *Asia Pac Allergy* 2011;**1**:168–71.
8. de Dios-Velázquez A, González-de Arriba M, Beteta-Gorriti V, Macías E, Campanón-Toro V, Dávila I. Effectiveness of omalizumab in severe solar urticaria. *Ann Allergy Asthma Immunol* 2016;**116**:260–2.
9. Trivedi A, Pavord ID, Castro M. Bronchial thermoplasty and biological therapy as targeted treatments for severe uncontrolled asthma. *Lancet Respir Med* 1996;**4**:585–92.
10. Namazy J, Cabana MD, Scheuerle AE, Thorp Jr JM, Chen H, Carrigan G, et al. The Xolair Pregnancy Registry (EXPECT): the safety of omalizumab use during pregnancy. *J Allergy Clin Immunol* 2015;**135**:407–12.

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