



— REVISTA DE —

MEDICINA DE LABORATORIO

**Anafilaxia del líquido seminal:
una afección clínica poco común**

**Seminal fluid anaphylaxis. A rare
clinical condition**

10.20960/revmedlab.00104

05/17/2022

Case Report

Seminal fluid anaphylaxis. A rare clinical condition

Anafilaxia del líquido seminal: una afección clínica poco común

Marta Sofia Carvalho Fernandes¹, Rosa Anita Fernandes² and Cristina Lopes²

Serviço de Patologia Clínica¹ and Unidade de Imunolaregologia².
Unidade Local de Saúde de Matosinhos (ULSM). Hospital Pedro Hispano (EPE). Matosinhos, Portugal

Correspondence: Serviço de Patologia Clínica. Unidade Local de Saúde de Matosinhos (ULSM). Hospital Pedro Hispano. Rua Dr. Eduardo Torres, 4464-513. Senhora da Hora. Matosinhos, Portugal
e-mail: martascf23@gmail.com

Accepted: 21/11/2021

Received: 30/09/2021

CASE REPORT

A 27-year-old female was referred to our department for complaints of generalized urticaria, chest tightness, dyspnea and hypotension following sexual intercourse.

For 3 years, the patient has experienced similar reactions with previous partners and as a result, now carries an epinephrine auto injector. The patient avoids systemic reactions by practicing abstinence and the use of latex condoms.

The patient denied having localized symptoms, history of food or drug allergies but did report a positive skin *prick* test that tests to dogs.

Our institution conducted a female skin prick test using the partner's seminal fluid (SF) supernatant. A fresh semen sample that was requested from the male partner, was centrifuged at Clinical Pathology laboratory, at 387 G for 15 minutes to separate the

spermatozoa from the supernatant, which was used for immediate testing. The male partner also served as negative control for skin tests to exclude false-positive irritant reactions in the female patient. The results were observed 15 minutes later (Fig. 1).



Figure 1. Male (left) and female (right). Skin *Prick* Test using partner's SF.

Male: S-SF. wheal: 0 mm; flare: 0 mm; CN: negative, control: 0 mm (saline solution); Hist: positive control. Wheal: 6 mm; flare: 12 mm (histamine solution).

Female: S-partner's SF. Wheal: 6 mm; flare: 12 mm; CN: negative control, 0 mm (saline solution). Hist: positive control. Wheal: 6 mm. Flare: 12 mm (histamine solution).

Consequently, the diagnosis was confirmed by the patient's significant positive reaction to the male partner's supernatant SF which resulted in a 6 mm diameter wheal with a surrounding flare (positive control histamine 6 mm) and negative result to saline solution (negative control). He had a negative result and, had a positive reaction to histamine.

Additionally, other complementary serologic tests were requested. A sample of total peripheral blood from the female patient was collected to a serum gel separator tube 4.9 ml (Sarstedt S-Monovette®, German). After a centrifugation (2754 G for 10 min), the serum was removed and stored in a micro sample tube adequately at -20 °C. Then a specific serum IgE antibodies to the SF proteins using immunoCap assay (Phadia®, Sweden) and a molecular *Canis familiaris* allergen 5 (Can f 5), were performed.

The patient displayed a negative result to IgE antibodies to the SF proteins (< 10 KU/L) and a significant sensitization to dog allergen Can f 5 (22.4 KU/L), a protein homologous to human prostate specific antigen (PSA).

To prevent subsequent reactions, condom usage and epinephrine auto injector was suggested.

Finally, the couple was referred to a fertility clinic to help in the management of artificial insemination due to the high risk of anaphylaxis with the alternative method of intravaginal graded desensitization to dilutions of SF.

DISCUSSION

Less than 90 cases of human SF allergy have been reported worldwide (1). It affects young women with serious impact on their relationships. Misdiagnosis and the socially delicate nature, results in uncertainty regarding their prevalence (1-3).

A variety of reactions have been reported ranging from vulvar or vaginal pain, pruritus, dermal reactions to systemic allergic reactions including anaphylaxis or both (1,4). In most of the cases the signs and symptoms began within the first 30 minutes following ejaculation and after a first episode of sexual intercourse (1,3).

The PSA was identified as the major allergen. Some data suggests the existence of cross-reactivity between the human PSA and a dog allergen prostatic kallikrein. This protein is found in dog urine, a component of dog hair and epithelia, now known as Can f 5, suggesting a possible link to her SF allergy (6,7).

In this case, female skin prick testing was conducted using the partner's SF with a positive result to confirm the clinical suspicion of SF anaphylaxis. Serologic testing, a specific serum IgE assay to the SF result negative, but this test is rarely positive and has not been clinically validated. A positive test result to Can f 5 (a protein homologous to human PSA) is a suitable molecular marker to dog allergy (1).

General preventative measures include condom usage, abstinence, prophylactic premedication, intravaginal or subcutaneous SF desensitization (1).

As the presented female has a life-threatening systemic reaction to SF and wishes to conceive, the use of washed spermatozoa in artificial insemination was recommended (1,3).

POINTS TO REMIND

- Despite being a rare clinical condition, SF anaphylaxis is a hardship on couples that are affected by it.
- Caused by IgE mediated sensitization to human SF proteins during or after coitus.
- Symptomatology ranges from local pruritus to serious, life-threatening systemic reactions.
- By way of cross-reactivity, it is possible that women with pre-existing dog allergy might react more severely to human SF.
- There is a need to raise awareness of this condition which will help with the stress and concerns that patients may have. Early detection will enable providers to direct appropriate treatment.

REFERENCES

1. Bernstein DI. Allergic reactions to seminal plasma. Up to date 2019.
2. Wolthers OD. A five-year follow-up of human seminal plasma allergy in an 18-year-old woman. Case Rep Med 2012;257246.
3. Lema VM. Allergy to human seminal plasma: Case report and literature review. Women`s Health & Gynecology 2017;3(3).
4. Puerta-Suárez J, Cardona-Maya W. Alergia al plasma seminal humano: ¿mito o realidad? Rev Chil Ginecol 2013;78(3):193-200.
5. Herrero Gil D, Garcés Sotillos M, Bartolomé B, Fuentes Cuesta M, Manzanedo Ortega L, Pérez Giménez R, et al. Hipersensibilidad al fluido seminal humano. Alergol Inmunol Clin 2000;16:308-328.

6. Basagaña M, Bartolome B, Pastor-Vargas C, Mattsson L, Lidholm J, Labrador-Horrillo M. Involvement of Can f 5 in a case of human seminal plasma allergy. *Int Arch Allergy Immunol* 2012;159(2):143-6.
7. Mattsson L, Lundgren T, Everberg H, Larsson H, Lidholm J. Prostatic kallikrein: A new major dog allergen. *J Allergy Clin Immunol* 2009;123(2):3628.

LABORATORIO DE
—REVISTA DE—
MEDICINA