

Human Seminal Plasma Allergy in India

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ABSTRACT

Human seminal plasma allergy (HSPA) in women has been documented in the West. We describe here the first case of HSPA reported in India. An 18-year-old married woman presented with a 2-year history of episodic wheezing dyspnea. She had always had local postcoital symptoms since her first intercourse. Systemic symptoms developed subsequently. Despite more than 2 years of unprotected coitus, the patient had not conceived. The intradermal tests with seminal plasma antigen prepared from her husband's semen and from a healthy volunteer were markedly positive in the patient. Similar tests on her husband were negative. HSPA, especially the local forms, may be difficult to identify in our social conditions.

INTRODUCTION

Human seminal plasma allergy (HSPA) in women is an exceptionally rare phenomenon. It was first reported by the Dutch gynecologist Specken in 1958 (1). Halpern et al. (2) reported the second case of HSPA. Subsequently, sporadic reports have documented

the existence of this unusual syndrome in the West.

This little-known disorder is usually caused by sensitization to proteins present in male seminal fluid, leading to immediate hypersensitivity manifestation in a woman during or after intercourse, and is mediated by the classical IgE-mediated pathophysiological

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mechanism. The reactions have ranged from local pruritus to life-threatening anaphylaxis and can thus be classified as either local or systemic. A familial form with local symptoms has also been reported by Chang (3). An exceptional case of postcoital anaphylaxis has been documented in which a female patient allergic to walnuts experienced a severe reaction after intercourse with her husband, who had just eaten walnuts. Walnut protein was isolated from the husband's seminal plasma (4).

We report the first case of this extraordinary phenomenon from India.

MATERIALS AND METHODS

Clinical Features

An 18-year-old woman who had been married for 2½ years reported to our institute with a history of episodic wheezing dyspnea for the past 2 years. There was no suggestion of an atopic background in either her personal or her family history. On interrogation, the following facts emerged: (1) her respiratory symptoms commenced 5 months after her marriage; (2) she was symptom-free during her menstrual periods; (3) her symptom-free period generally coincided with her visits to her paternal home, when she was unaccompanied by her husband. These facts led us to suspect her of having HSPA. On further probing, she revealed the following facts:

1. Ever since her first intercourse, she had experienced intense burning and irritation of the vagina immediately after her husband's ejaculation. This was associated with pruritus, erythema, and swelling of the genital region. These symptoms slowly subsided in 1 to 2 hours, but had steadily increased in severity with time. She also suffered from severe itching and burning whenever her husband's seminal fluid came in contact with her skin.

2. Five months after marriage, in addition to local symptoms, the patient started experiencing wheezing dyspnea and tightness of the chest after every intercourse. This commenced immediately after ejaculation and

lasted for 10 minutes but subsided without medication.

3. Although they had practiced unprotected coitus since marriage, the patient had never conceived.

Physical examination was normal and her routine laboratory studies, including skiagram chest, hemogram, stool, and urine, detected no abnormality. Intradermal tests with the usual set of inhalant allergen extracts revealed no significant positivity. The diagnosis of bronchial asthma was confirmed by a positive bronchial provocation test (BPT) with histamine aerosol challenge (5). After inhalation of 0.016% histamine for 1 minute, the patient experienced a fall of 39.5% in specific airway conductance (SG_{aw}).

After her husband began to use a condom, on our advice, our patient reported a dramatic relief of symptoms, and with that she was no longer available for further studies.

SPECIFIC INVESTIGATIONS

Preparation of Seminal Plasma Antigen

Fresh semen from the patient's husband was allowed to liquify at room temperature for 45 minutes, followed by centrifugation at 3000 rpm for 30 minutes at 4°C. The clear supernatant was filtered through a Whatman no. 1 filter paper. The filtrate was diluted 1:1 with buffered saline (BS) and subsequently sterilized by filtration through a Millipore filter membrane (0.22 μ m).

Further dilutions were made with buffered saline to obtain 1:2, 1:10, 1:100, and 1:1000 v/v dilutions of seminal plasma antigen (SPA). Similarly, SPA was prepared in 1:2, 1:4, 1:20, and 1:200 v/v dilutions from a healthy volunteer.

Performance of Intradermal Tests

The intradermal tests were performed on the patient in serial dilutions of the husband's SPA along with a negative control (BS) and a positive control (histamine 100 μ g/ml) and was graded according to methods already reported (6).

As a double control, the intradermal tests with SPA obtained from a healthy volunteer were also performed. All these tests were duplicated simultaneously on the husband, who functioned as a control.

RESULTS

Intradermal Tests

The patient had markedly positive skin reactions to 1:2 and 1:10 dilutions of her husband's SPA, while identical tests on her husband were uniformly negative (Table 1). We achieved similar results in both the patient and her husband with the SPA obtained from the healthy volunteer (Table 2). The patient complained of intense burning, irritation, and itching immediately after the intradermal tests with the SPA obtained from both the husband and the volunteer.

DISCUSSION

After the initial presentations of Specken (1) and Halpern et al. (2), cases of adverse reactions to seminal plasma have been reported from the West (7–22). However, ours is the first report of HSPA from India. The natural course of events in women with HSPA has yet to be fully established.

Contrary to most previous reports, our patient did not possess either a personal or family history of atopy. Her history of local symptoms since her first intercourse conforms with the majority of previous reports. Some

authors have reported an interesting temporal relationship between seminal fluid allergy and coitus during or immediately after pregnancy (13,15,17) and, in one case, the first coitus after hysterectomy (20).

An important feature in our patient was that the postcoital symptoms had progressed insidiously from local to systemic manifestations. This occurred in one previous report (13).

Despite unprotected coitus since her marriage 2½ years before, our patient had not conceived. Pregnancy has not yet been recorded in such patients once the diagnosis of HSPA was established. Only one previous report is available of a successful induction of pregnancy in a patient suffering from HSPA. This was achieved by artificially inseminating spermatozoa separated from seminal fluid (23).

The exact nature of allergenic components present in human seminal fluid is not known. Saad and Burka (24) have recently reported isolation of leukotriene C4 and phospholipase A2 in human seminal fluid. The role of these substances and other proteins in HSPA needs to be investigated.

Although this is the first report of HSPA from India, this phenomenon may not be as rare as it appears. We did encounter two other female patients in whom we made a provisional diagnosis of HSPA. Unfortunately, these patients did not consent to be investigated. Furthermore, our social conditions, busy outpatient departments, and lack of physician and patient awareness make this disease entity difficult to recognize, especially the local forms.

Table 1. Results of Intradermal Tests with Husband's Seminal Plasma Antigen on the Patient and Control (Husband)

TEST REAGENTS	PATIENT		HUSBAND	
	DIAMETER (mm)	GRADE	DIAMETER (mm)	GRADE
Buffered saline	2 × 2	–	5 × 5	–
Histamine (100 µg/ml)	12 × 15	++	12 × 14	++
Husband's SPA				
1:1000	5 × 5	–	6 × 6	–
1:100	6 × 6	–	7 × 7	–
1:10	12 × 14	++	7 × 7	–
1:2	15 × 15	++±	6 × 6	–

Table 2. Results of Intradermal Tests with Healthy Volunteer's Seminal Plasma Antigen on the Patient and Control (Husband)

TEST REAGENTS	PATIENT		HUSBAND	
	DIAMETER (mm)	GRADE	DIAMETER (mm)	GRADE
Buffered saline	2 × 2	—	3 × 3	—
Histamine (100 µg/ml)	9 × 9	++	9 × 9	++
Volunteer's SPA				
1:200	7 × 5	—	— ^a	— ^a
1:20	7 × 7	+	— ^a	— ^a
1:4	10 × 8	++	6 × 6	—
1:2	10 × 8	++	6 × 6	—

^aTest not performed.

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