Nature and Origin of "Squirting" in Female Sexuality

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ABSTRACT

Introduction. During sexual stimulation, some women report the discharge of a noticeable amount of fluid from the urethra, a phenomenon also called "squirting." To date, both the nature and the origin of squirting remain controversial. In this investigation, we not only analyzed the biochemical nature of the emitted fluid, but also explored the presence of any pelvic liquid collection that could result from sexual arousal and explain a massive fluid emission.

Methods. Seven women, without gynecologic abnormalities and who reported recurrent and massive fluid emission during sexual stimulation, underwent provoked sexual arousal. Pelvic ultrasound scans were performed after voluntary urination (US1), and during sexual stimulation just before (US2) and after (US3) squirting. Urea, creatinine, uric acid, and prostatic-specific antigen (PSA) concentrations were assessed in urinary samples before sexual stimulation (BSU) and after squirting (ASU), and squirting sample itself (S).

Results. In all participants, US1 confirmed thorough bladder emptiness. After a variable time of sexual excitation, US2 (just before squirting) showed noticeable bladder filling, and US3 (just after squirting) demonstrated that the bladder had been emptied again. Biochemical analysis of BSU, S, and ASU showed comparable urea, creatinine, and uric acid concentrations in all participants. Yet, whereas PSA was not detected in BSU in six out of seven participants, this antigen was present in S and ASU in five out of seven participants.

Conclusions. The present data based on ultrasonographic bladder monitoring and biochemical analyses indicate that squirting is essentially the involuntary emission of urine during sexual activity, although a marginal contribution of prostatic secretions to the emitted fluid often exists. **Salama S, Boitrelle F, Gauquelin A, Malagrida L, Thiounn N, and Desvaux P. Nature and origin of "squirting" in female sexuality. J Sex Med 2015;12:661–666.**

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Introduction

During sexual arousal or orgasm, some women report the involuntary emission of variable amounts of fluid [1] varying from 0.3 mL to more than 150 mL [2]. Although the prevalence of this phenomenon is difficult to evaluate, authors estimate that 10–40% of women may experience regularly or sporadically an emission of fluid during orgasm [2–4].

The exact nature of this fluid emission has been controversial for decades [5]. Indeed, whereas this fluid represents, for some authors, a mere vaginal hyper-lubrification [6]; for others, it is produced by the Bartholin's glands [7] or by the Skene's glands [8,9], also referred to as female prostate [10,11]. For some other authors, this fluid is rather a urinary emission [12,13]. More recently, insights were obtained into this issue, in particular, with the demonstration that

the fluid is actually emitted through the urethra instead of the vagina or the Bartholin's glands [14]. One plausible reason for this debate is the discrepant characterization, among authors, of the amount of fluid emitted by these women, which is, for some, limited to few milliliters, also referred to as the expulsion of scanty fluid like "watered-down" or "fat-free milk," whereas for others, the amount of liquid is much larger, often exceeding 150 mL [15]. Both these phenomena result from different physiological mechanisms. Therefore, we elected, in the present study, to not consider individuals reporting slight fluid emission but to focus only on those that related a regular and massive liquid discharge during arousal or orgasm, also known as "squirting."

Aims

In this investigation, we aimed at analyzing the biochemical nature of squirting but also at exploring the presence of any pelvic liquid collection that could result from sexual arousal and explain a massive fluid emission.

Material and Methods

Population

Seven female volunteers were included in this prospective study. All of them were referred by other physicians who were aware of the purpose of our investigation. Inclusion criteria were: (i) report of regular liquid expulsion during arousal or orgasm that was comparable with, at least, that of a glass of water, which abundantly wetted bed sheets; (ii) age >18 years; and (iii) body mass index (BMI) ranging from 18 and 25 kg/m^2. Exclusion criteria were: (i) chronic systemic or neurological disease; (ii) history of stress urinary incontinence (urine leakage during physical effort) or urinary incontinence during vaginal penetration; (iii) uterine or adnexal pathologies, in particular, ovarian cysts or hydrosalpinx; (iv) urinary or vaginal infections; and (v) pregnancy. All participants signed an informed consent, and this investigation received the approval of our Institutional Review Board.

Study Design

All participants were first invited to fill out a questionnaire detailing their medical history and sexuality, in particular, focusing on their experience of regular fluid emission during arousal or orgasm. Then, they were asked to urinate to empty completely their bladder, and a sample of urine was collected for further analysis (urinary sample before sexual stimulation [BSU]). Immediately after, each participant underwent a baseline ultrasonographic examination (US1) using a Voluson I equipped with a vaginal probe 3.7–9.3 MHz (RIC 5–9 H, General Electric Medical System, General Electric Healthcare, Vélizy, France) to confirm normal pelvis morphology and complete bladder emptiness. Each participant was then left alone in the same examination room and started sexual stimulation by herself (with or without a sex toy) or with the help of her partner. In case of sexual intercourse, a condom was systematically used to prevent all genital contamination with ejaculate. As soon as the participant felt sufficiently aroused, a second ultrasonographic examination (US2) was performed to identify any noticeable modification in the pelvic anatomy and to assess the size of the bladder (measurement of the three orthogonal diameters). Left by herself again, each individual continued sexual stimulation until squirting occurred. The expelled fluid was collected into proper plastic bags. A sample of it was then aspirated for further analysis (squirting sample [S]). Immediately after this, a third ultrasonographic examination (US3) was performed as at US2. Finally, they were asked to urinate again, and another sample of urine was collected for further analysis (urinary sample after squirting [ASU]). All liquid samples (BSU, S, and ASU) were immediately frozen and stored at –20°C for centralized analysis. All ultasonographic examinations were performed by the same operator (SS).

Biochemical Measurements

In all samples (BSU, S, and ASU), concentrations of urea, creatinine, and uric acid were determined using a Cobas 6000 system (Roche Diagnostics, Meylan, France) to explore the potential renal origin of S. In addition, concentrations of the prostatic-specific antigen (PSA) were also measured using a Immunoanalysor-Kryptor system (B.R.A.H.M.S, Asnières sur Seine, France) to explore the potential prostatic origin of S.

Statistics

Because normality of data distribution could not be ascertained, we preferred to use the median as the measure of central tendency and minimum–maximum values as the measure of variability. Possible differences among groups BSU, S, and ASU with regard to biochemical data were assessed