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Joseph G. Bohlen

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ADVERSARIA
Commentaries, Remarks, and Notes Pertaining to Sex Research

"FEMALE EJACULATION" AND URINARY STRESS INCONTINENCE

Joseph G. Bohlen

An initial article by Sevely and Bennett (1978) and three subsequent articles (Addiego, Belzer, Comolli, Moger, Perry, & Whipple, 1981; Belzer, 1981; Perry & Whipple, 1981) discuss the evidence of female orgasmic expulsion from functional female "prostate-like" tissue that is palpable through the anterior vaginal wall. Prior to publication of these recent articles, this phenomenon had received some attention in the research literature, and the collection of respective glands and ducts had accumulated an assortment of names: glandulae urethrales, urethrae femininae [Nomina Anatomica], periurethral glands, Skene's glands, Guerin's glands, and now "Grafenberg spot" (Addiego et al., 1981).

The previously accepted notion that all fluid expelled during a woman's orgasm is urine is now being challenged. Sexologists are advised, therefore, not to label a woman's expulsion of fluid during orgasm as urinary incontinence without considering whether it might be "female ejaculate"—a partial infertile homologue of male ejaculate (Belzer, 1981). Conversely, sexologists must take care not to assume now that any fluid produced at orgasm is "female ejaculate."

This paper is intended to promote the development of rigorous procedures for identifying the source or sources of such fluid. Two kinds of evidence are available for investigation from which inferences can be made: (a) the fluid produced, and (b) the palpable zone from which the fluid is presumed to originate.

Fluid

Volume. The amount of fluid secretion depends on glandular size and storage capacity. Male semen volume of a single ejaculation ranges from 0.2 to

Joseph G. Bohlen, MD, PhD, is Director of the Physiology Research Laboratory at the University of Minnesota Medical School.

Requests for reprints should be sent to Joseph G. Bohlen, MD, PhD, Physiology Research Laboratory, 860 Mayo Memorial Building, 420 Delaware Street S.E., University of Minnesota Medical School, Minneapolis, MN 55414.

6.6 ml (95% c.i.), with 13 ml the highest ever recorded (MacLeod, 1951). About 13 to 33% of the total ejaculate volume is from the prostate, 46 to 80% from the seminal vesicles, and 10% from the epididymides (Lundquist, 1949). It is doubtful that the female's vestigal periurethral glands could produce volumes in excess of the (considerably larger) male's prostate. Therefore, volumes of emitted fluid above 5 ml are unlikely to have been produced solely from the periurethral glands. In none of the cases studied has the volume of emitted fluid been published. From watching a film of one woman's orgasmic expulsions, I guessed that the volume was between 10 and 25 ml. Thus, it is important to collect the entire fluid volume in order to make inferences about the relative contributions from the periurethral glands, the bladder, and perhaps other minor sources.

To date, methods for collecting the emitted fluid have been unsophisticated, e.g., letting the fluid run down past the stimulating fingers or from a speculum blade into a clean glass (Addiego et al., 1981). A device for collecting the total volume of glandular fluid has been developed for sampling saliva. A cup of about 1 cm diameter has an inner collecting chamber and a concentric outer vacuum chamber. A tube from the inner collecting chamber drains off fluid and a tube from the outer ring maintains a vacuum from a suction bulb, causing the cup to adhere tightly. Such a collection device would probably be small and secure enough when placed over the urinary meatus to avoid dislodging by digital stimulation in the vagina.

Characteristics of fluid expulsion. A pulsatile expulsion at the linearly increasing intervals of orgasmic pelvic contractions (Bohlen, Held, Sanderson, & Ahlgren, 1982) is not conclusive evidence that the mechanism is the same as pulsatile ejaculation of semen. Such expulsion could also result from the synchronized rhythmic orgasmic contractions of the bladder sphincter (Petersen & Stener, 1970), causing pulsations during voiding. On the other hand, if expulsion at orgasm is steady, this could be accounted for by smooth muscle contraction around the periurethral glands, or by bladder detrusion following completion of the series of regular orgasmic contractions.

Constituents of fluid. Prostatic acid phosphatase (PAP) is an enzyme marker identifying "prostatic-like" glandular products. The presence of PAP in emitted fluid, however, may not necessarily indicate that the fluid, or all of the fluid volume, was produced by periurethral glands. "Grafenberg spot" stimulation to bring about orgasm and "female ejaculation" requires strong digital pressure, moving from deep to shallow along the anterior vaginal wall. Such pressure would also "milk" the periurethral glands of fluid, which fluid would be diluted by any urine passing through the urethra, thus explaining how PAP, urea, and creatinine is present in the ejaculate samples. One way to determine whether the fluid is actively emitted by the periurethral glands, rather than passively stripped by digital pressure, would be to test for PAP in fluid emitted during orgasm reached by clitoral or vulvar stimulation.

An uncomplicated method of detecting water cleared by the kidneys in the expelled fluid is to observe the presence, if any, of blue dye following the administration of Urosed (Belzer, 1981).

Enlarged Zone

Until a method is developed for positive identification of the "female prostate homologue," its presence must be determined by exclusion of all other possibilities. Addiego et al. (1981) questioned whether the palpable area might be a sphincter, urethral caruncle or other tumor, or female prostatic homologue. Other possibilities might include a cystocele, urethrocele, or urethral diverticulum. Cystourethroscopy could examine the urethra and bladder directly for evidence of these sphincters, protuberances, hernias, or outpouchings, and for evidence of periurethral glands and ducts. A lateral cystourethrogram would determine the presence of any abnormalities of the bladder and urethra and would also describe the urethrovesical angle (UVA). (In cases of urinary stress incontinence, a high proportion of women have a poor or absent UVA).

Other Procedures

Two further procedures would be useful in ruling out urinary stress incontinence and pelvic relaxation: the "Marshall test" to determine whether urine is discharged from a full bladder during coughing or straining and, if so, whether the discharge can be stopped by elevating the anterior vaginal wall manually, and the "chain cystogram" to diagnose pelvic relaxation.

All of the above objective measures can be combined with a focused gynecological and obstetrical history and pelvic examination to provide convincing evidence:

History

- Urinary—bladder trauma
  - —pelvic surgery or injury
  - —incontinence under any circumstances
- Obstetrical—parity
  - —type of delivery, complications, use of instruments
  - —dystocia

Examination

- Congential defects—urethrovesical widening
  - —deficient sphincter tissue development
- Acquired disorders
  - Lower urinary tract—cystourethrocele, urethral scarring, poor or absent UVA, urinary tract infection
  - Pelvic floor structures—obstetrical damage, weakened levator musculature
  - Nervous system—myasthenia gravis
  - Endocrine system—diabetes mellitus

Sexologists must not hastily settle the issues of "female ejaculation" and urinary stress incontinence, for the danger of creating a new myth is as serious as failing to dispel an old one (Belzer, 1981). Collection of historical, anatomical, and physiologic data using the most up-to-date techniques will help in the continued careful deliberation of these issues.

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