



European Association of Urology

GUIDELINES ON DISORDERS OF EJACULATION

G. M. Colpi, T. B. Hargreave, G. K. Papp,
J. M. Pomerol, W. Weidner.

TABLE OF CONTENTS	Page
1. DEFINITION	3
2. CLASSIFICATION AND AETIOLOGY	3
2.1 Anejaculation	3
2.2 Anorgasmia	3
2.3 Delayed ejaculation	3
2.4 Retrograde ejaculation	4
2.5 Asthenic ejaculation	5
2.6 Premature ejaculation	5
2.7 Painful ejaculation	5
3. DIAGNOSIS	6
3.1 Clinical history	6
3.2 Physical examination	6
3.3. Further diagnostic work-up	7
4. TREATMENT	7
4.1 Aetiological treatment	7
4.2 Symptomatic treatments	7
4.3 Conclusions	8
4.4. References	9

1. DEFINITION

1.1 Definition

Ejaculation disorders are uncommon but important causes of infertility. Several heterogeneous dysfunctions belong to this group and may be of either psychogenic or organic origin.

2. CLASSIFICATION AND AETIOLOGY

2.1 Anejaculation

Anejaculation is the complete absence of antegrade or retrograde ejaculation.

It is caused by failure of emission of semen from the prostate and seminal ducts into the urethra [1]. True anejaculation is usually associated with a normal orgasmic sensation. Occasionally, for example in incomplete spinal cord injuries, this sensation may be altered or decreased. True anejaculation is always connected with central or peripheral nervous system dysfunctions or influence of drugs [2] (Table 1).

Table 1. Aetiology of anejaculation

Neural	Drug-related
Spinal cord injury	Antihypertensives
Cauda equina lesions	Antipsychotics
Retroperitoneal lymphadenectomy	Antidepressants
Aortoiliac surgery	Alcohol
Colorectal surgery	
Multiple sclerosis	
Parkinson's disease	
Autonomic neuropathy (juvenile diabetes)	

2.2 Anorgasmia

Anorgasmia is the inability to reach orgasm.

This may give rise to anejaculation. Some patients report sporadic events of nocturnal emission or of ejaculation occurring during great emotional excitement unrelated to sexual activity [3].

The causes of anorgasmia are usually psychological.

2.3 Delayed ejaculation

Delayed ejaculation is the condition wherein abnormal stimulation of the erect penis is necessary to achieve orgasm with ejaculation [1].

Delayed ejaculation may be considered a moderate form of anorgasmia; both can be alternatively found in the same patient. The causes of delayed ejaculation may be psychological or organic, such as:

- Incomplete spinal cord lesion [3];
- Iatrogenic penile nerve damage [4]
- Pharmacological use of antidepressants, antihypertensives, antipsychotics [3].

2.4 Retrograde ejaculation

Retrograde ejaculation is the total absence of antegrade ejaculation because semen passes backwards through the bladder neck into the bladder.

Patients experience a normal or decreased orgasmic sensation, except in paraplegia. It is usually complete and rarely partial. Partial antegrade ejaculation must not be confused with the secretion of bulbo-urethral glands. The causes of retrograde ejaculation are given in Table 2.

Table 2. Aetiology of retrograde ejaculation

Neurogenic	Pharmacological
Spinal cord injury	Antihypertensives
Cauda equina lesions	Alpha1-adrenoceptor antagonist
Multiple sclerosis	Antipsychotics
Autonomic neuropathy (juvenile diabetes)	Antidepressants
Retroperitoneal lymphadenectomy	
Sympathectomy	
Colorectal and anal surgery	Bladder neck incompetence
	Congenital defects of hemitrigone
Urethral obstruction	Congenital defects of hemitrigone
Ectopic ureterocele	Bladder extrophy
Urethral stricture	Bladder neck resection
Urethral valves	Prostatectomy

2.5 Asthenic ejaculation

Asthenic ejaculation, also defined partial ejaculatory incompetence or 'éjaculation baveuse' [5], is characterized by an altered propulsive phase with a normal emission phase.

Orgasmic sensation is reduced and the typical rhythmic contractions associated with ejaculation are missing, while these are present in asthenic ejaculation due to urethral obstruction. The most frequent causes of asthenic ejaculation are shown in Table 3.

Table 3. Aetiology of asthenic ejaculation

Neurogenic	Urethral obstruction
Spinal cord injury (L1)	Ectopic ureterocele
Cauda equina lesions	Urethral stricture
Multiple sclerosis	Urethral valves
Autonomic neuropathy (juvenile diabetes)	
Retroperitoneal lymphadenectomy	
Sympathectomy	
Colorectal and anal surgery	

Asthenic ejaculation has no major consequences on male fertility.

2.6 Premature ejaculation

Premature ejaculation is the inability to control ejaculation for a 'sufficient' length of time before vaginal penetration.

Although a universally accepted meaning of 'sufficient' length of time does not exist, some patients are not able to delay ejaculation over a few coital thrusts, or even before vaginal penetration. Premature ejaculation may be organic or psychogenic, congenital or acquired, partner-related or unselective, whether or not associated with erectile dysfunction.

Premature ejaculation does not involve any impairment of fertility, when intravaginal ejaculation occurs.

2.7 Painful ejaculation

Painful ejaculation is usually an acquired condition, which may cause moderate sexual dysfunction.

The painful sensation, felt in the perineum or urethra and urethral meatus [6], can be caused by ejaculatory duct obstruction, prostatitis or urethritis, autonomic nerve dysfunction and psychological problems.

3. DIAGNOSIS

Suggested diagnostic management includes the following procedures.

3.1 Clinical history

Diabetes, neuropathies, traumas, urogenital infections, previous surgery and drug assumption have to be checked carefully. Particular attention must be paid to micturition characteristics and ejaculation (nocturnal emission, ejaculatory ability in given circumstances, congenital or acquired disorder, evolution), as well as to the psychosexual sphere (education, features of affective relationship, pre-existent psychological traumas, previous psychological therapies).

3.2 Physical examination

Genital and rectal examination with evaluation of the prostate, bulbocavernous reflex and anal sphincter tone are conducted. Minimal neurological tests include

- sensitivity of the scrotum, testes and perineum
- cremasteric and abdominal cutaneous reflex
- leg osteotendinous and plantar reflexes

Post-ejaculatory urinalysis

This will assess partial retrograde ejaculation.

Cultural examinations for *urethritis* and *prostatitis* (see above Urogenital infections and disturbed male fertility).

3.3 Further diagnostic work-up.

This includes:

- Neurophysiological tests (bulbocavernosus evoked response and dorsal nerve somatosensory evoked-potentials)
- Tests for autonomic neuropathies (e.g. appreciation of temperature regulation in the feet)
- Psychosexual evaluation
- Videocystometry
- Cystoscopy
- Transrectal ultrasonography
- Uroflowmetry
- Penile vibratory stimulation

4. TREATMENT

Treatment of infertility due to ejaculation disorders is rarely aetiological, and generally consists of retrieving spermatozoa to be used in assisted reproduction techniques.

Decision-making depends on the following aspects:

- Age of patient and his partner
- Couple's willingness and acceptance of the different fertility procedures
- Psychological problems in the patient and his partner
- Associated pathologies

When the ejaculatory disorder is psychogenic and the couple's request is aimed at achieving pregnancy, the most important thing is that they should undergo a preliminary psychological evaluation to avoid any severe subsequent psychological reaction.

4.1 Aetiological treatment

Aetiological treatment can be summarized as follows:

- Interruption of pharmacological therapy interfering with ejaculation (if possible)
- Treatment of infectious forms (e.g. in case of painful ejaculation)
- Psychotherapy
- Surgical correction of a urethral pathology
- Correction of metabolic disorders (diabetes)

4.2 Symptomatic treatments

Retrograde ejaculation:

In the absence of spinal cord injury, anatomic urethral anomalies or pharmacological therapy, an attempt must be made to induce antegrade ejaculation by drug treatment (Table 4).

Table 4. Drug therapy for retrograde ejaculation

- Ephedrine sulphate, 10-15 mg four times daily [7]
- Midodrin, 5 mg three times daily [8]
- Brompheniramine maleate, 8 mg twice daily [9]
- Imipramine, 25-75 mg three times daily [10]
- Desipramine, 50 mg every second day [11]

Alternatively, the patient can be encouraged to ejaculate when his bladder is full, to increase bladder neck closure [12].

Sperm collection from post-ejaculatory urine for use in assisted reproductive techniques is suggested if:

- Drug treatment is ineffective or not tolerable due to side-effects
- The patient has a spinal cord injury
- Drug therapy inducing retrograde ejaculation cannot be interrupted

Sperm retrieval is timed with the partner's ovulation. Urine must be alkalinized by ingesting 1-3 g of sodium bicarbonate three to four times daily; pH must be in the range 7.2-7.8 immediately before ejaculation and must be checked at every micturition. Because osmolarity of urine deteriorates sperm motility, the patient is asked to drink about 500 mL of water 1 hour before ejaculation. The patient should then void his bladder. This procedure will help to control urine osmolarity. If the urine osmolarity is low, it will be rechecked after 15-20 minutes; if the urine osmolarity is high, the patient is again requested to drink about 200 mL of water. Once an optimal osmolarity has been reached (200-300 mOsm/kg), the patient is asked to have intercourse or to masturbate. Within 10 minutes after ejaculation, urine must be voided and centrifuged. The resulting pellet should be resuspended in 0.5 mL Tyrode's or Ham's F-10 medium and immediately inseminated [13]. Alternatively, a catheter may be applied to the bladder and 10-50 ml Tyrode's or Ham's F-10 medium instilled. The patient must ejaculate, and a second catheterism is performed immediately to retrieve spermatozoa. The latter treatment minimizes the contact of spermatozoa with urine [14]. In order to perform intrauterine insemination, sperm quality must be good. Otherwise, the couple undergo *in vitro* reproductive procedures (e.g. ICSI) with

fresh or cryopreserved spermatozoa.

Anejaculation

Drug treatment for anejaculation due to lymphadenectomy and neuropathy is not very effective. The same applies to psychosexual therapy for anorgasmia. In all these cases and in spinal cord injured men, vibrostimulation is the first-line therapy.

In anejaculation, penile vibratory stimulation evokes the ejaculation reflex [15].

Vibrostimulation requires an intact lumbosacral spinal cord segment. The more complete the injury above Th10, the better the chance of response. Lack of pinprick or temperature sensation in the saddle area and glans penis, inability to feel testicular squeeze, and intact lower limb and bulbocavernosus reflexes suggest a promising outcome. Negative prognostic factors are injuries below Th10 and flaccid paraplegia. Men with a history of autonomic dysreflexia are premedicated with 10-20 mg nifedipine sublingually. The bladder must be emptied before vibrostimulation. The vibrator is applied around the glans penis and frenulum, with a 1-3 mm peak-to-peak amplitude and a 80-100 Hz frequency. Ejaculation should be expected within 10 minutes and is followed by flushing, abdominal and leg spasm. Once the safety and efficacy of this procedure are assessed, patients can manage themselves at home. Intravaginal insemination via a 10-mL syringe during ovulation can be performed. If semen quality is poor, or ejaculation is retrograde, the couple may enter an *in vitro* fertilization programme.

If vibrostimulation fails, electroejaculation is the therapy of choice [16].

Electroejaculation is an electric stimulation of the periprostatic nerves via a probe inserted into the rectum, which seems not to be affected by reflex arc integrity. Electroejaculation requires good training because of the associated risks of autonomic hyperreflexia and rectal mucosa burning. Anaesthesia is required except in cases of complete high spinal cord injury. An automatic blood pressure cuff is applied to the patient for continuous readings; his bladder is emptied by a catheter and instilled with Ham's F10 (or similar medium). Anoscopy is previously performed to check the integrity of the bowel wall. The probe is then placed directly onto the prostate, assuring continuous mucosal contact with the temperature sensor and metal plates. Most stimulations are performed for 5-7 minutes. In 90% of the patients electrostimulation induces ejaculation, which is retrograde in one third of them. Semen quality is often poor, although improving throughout repeated ejaculations, and most couples must resort to *in vitro* fertilization.

If electroejaculation fails or cannot be performed, sperm retrieval from the seminal ducts may be achieved by

- Sperm aspiration from vas deferens [17] (see above Obstructive azoospermia)
- Seminal tract washout [18] (see above Obstructive azoospermia)

Epididymal obstruction or testicular failure must be suspected in case of failed sperm retrieval. TESE is then performed [19] (see above Obstructive azoospermia).

4.3 Conclusions

Ejaculation disorders can be treated with a wide range of drugs and physical stimulation trials with a high percentage of efficacy.

4.4 References

1. **Buvat J.**
Glossaire. Les perturbations de l'éjaculation; in Buvat J, Jouannet P (eds): L'éjaculation et ses perturbations. Lyon-Villeurbanne, SIMEP, 1983, p 9.
2. **Wang R, Monga M, Hellstrom WJ.**
Ejaculatory dysfunction; in Comhaire FH (ed): Male Infertility: Clinical Investigation. Cause Evaluation and Treatment. London, Chapman Hall, 1996, pp 205-221.
3. **Pryor JP.**
Erectile and ejaculatory problems in infertility; in Hargreave TB (ed): Male Infertility. London, Springer, 1997, pp 319-336.
4. **Yachia D.**
Our experience with penile deformations: incidence, operative techniques, and results. J Androl 1994; 15 (Suppl): 63S-68S.
5. **Chapelle PA.**
Séquelles génito-sexuelles du paraplégique. 2-Neuro-physiologie. Tempo Medical 1982; 103: 67-70.
6. **Hermabessière J, Bouquet de la Jolinière J, Buvat J.**
L'éjaculation douloureuse. Recherche de causes organiques; in Buvat J, Jouannet P (eds): L'éjaculation et ses perturbations. Lyon-Villeurbanne, SIMEP, 1984, pp 129-134.
7. **Gilja I, Parazajder J, Radej M, Cvitkovic P, Kovacic M.**
Retrograde ejaculation and loss of emission: possibilities of conservative treatment. Eur Urol 1994; 25: 226-228.
8. **Jonas D, Linzbach P, Weber W.**
The use of midodrin in the treatment of ejaculation disorders following retroperitoneal lymphadenectomy. Eur Urol 1979; 5: 184-187.
9. **Schill WB.**
Pregnancy after brompheniramine treatment of a diabetic with incomplete emission failure. Arch Androl 1990; 25: 101-104.
10. **Brooks ME, Berezin M, Braf Z.**
Treatment of retrograde ejaculation with imipramine. Urology 1980; 15: 353-355.
11. **Hendry WF.**
Disorders of ejaculation: congenital, acquired and functional. Br J Urol 1998; 82: 331-341.
12. **Crich JP, Jequier AM.**
Infertility in men with retrograde ejaculation: the action of urine on sperm motility, and a simple method for achieving antegrade ejaculation. Fertil Steril 1978; 30: 572-576.
13. **Schill WB.**
Diagnosis and treatment of ejaculatory sterility; in Paulson JD, Nigro-Vilar A, Lucena E, Martini L (eds): Andrology: Male Fertility and Sterility. Orlando (USA), Academic Press, 1986, pp 599-617.
14. **Hotchkiss RS, Pinto AB, Kleegman S.**
Artificial insemination with semen recovered from the bladder. Fertil Steril 1955; 6: 37-42.
15. **Brindley GS.**
Reflex ejaculation under vibratory stimulation in paraplegic men. Paraplegia 1981; 19: 299-302.
16. **Elliott S, Rainsbury PA.**
Treatment of anejaculation; in Colpi GM, Balerna M (eds): Treating Male Infertility: New Possibilities. Basel, Karger, 1994, pp 240-254.
17. **Hirsh AV, Mills C, Tan SL, Bekir J, Rainsbury P.**
Pregnancy using spermatozoa aspirated from the vas deferens in a patient with ejaculatory failure due to spinal injury. Hum Reprod 1993; 8: 89-90.
18. **Colpi GM, Negri L, Stamm J, Balerna M.**
Full-term pregnancy obtained with sperm recovered by seminal tract washout from an ejaculating, spinal cord injury man. J Urol 1992; 148: 1266-1267.
19. **Silber SJ, Van Steirteghem AC, Liu J, Nagy Z, Tournaye H, Devroey P.**
High fertilization and pregnancy rate after intracytoplasmic sperm injection with spermatozoa obtained from testicle biopsy. Hum Reprod 1995; 10: 148-152.

