Midline Cysts of Colliculus Seminalis Causing Ejaculatory Problems in Stallions

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1. Introduction

Ejaculatory dysfunctions in stallions occur rarely but are frustrating for horse breeders [1]. Various musculo-skeletal and neurologic diseases are responsible for the majority of these disorders, whereas only a small percentage of them is associated with the ejaculatory apparatus itself [1,2]. Diagnosis of specific causes of these dysfunctions is difficult and often unrewarding. Dilatation of the terminal portion of the ampullae of deferent ducts, visualized during transrectal ultrasound evaluation (TRUS), is often reported in cases of ejaculatory dysfunctions that are associated with partial or complete occlusion of the ampullae [3].

Uterus masculinus, which is a cystic remnant of the Müllerian ducts, has been occasionally associated with ejaculatory problems in stallions [4]. However, this structure is also identified in stallions with normal ejaculatory patterns [5,6]. It is most often located between the terminal parts of the ampullae of deferent ducts, within the urogenital fold, on the dorsal side of the bladder; or on the level of the neck of the urinary bladder, underneath the prostatic isthmus (Fig. 1A). A small lumen is often present in the midportion of this structure, which can be identified in many stallions during a routine ultrasound evaluation. Secretions of the glandular epithelium may become trapped within this lumen and may form cysts of various sizes and shapes (Fig. 1B). Anterior part of the uterus masculinus often gives
off two cornua with blind ends. The posterior end, called utriculus masculinus, continues its course beyond the prostate, and opens into the urethra on the summit of the colliculus seminalis (Fig. 1C). Lack of this opening may lead to the formation of a cyst at the colliculus seminalis, called prostatic utricle, cystic enlargement of utriculus masculinus, or urethral cyst (Fig. 2A) [4,7]. Large cysts at this location may interfere with emission and the ejaculatory process in some stallions (Fig. 2B) [6]. Significant compression of the ejaculatory ducts (EDs) leads to a build-up of fluids in the ampullae of deferent ducts and in the excretory ducts of the vesicular glands. Small cellular concrements or large solid plugs form in the very terminal parts of deferent ducts as a consequence of a long-term spermiostasis (Fig. 2C). Gel secreted by the vesicular glands becomes very thick, difficult to expel, and may completely plug the EDs.

We have recently examined 10 stallions with cysts at the colliculus seminalis, which contributed to the long-term problems with the ejaculatory process (Table 1). These cysts were located between the caudal edge of the prostate and the cranial pole of the bulbourethral glands, at the level of the colliculus seminalis. The affected stallions showed a similar pattern of copulatory behavior, and similar physical features in their internal reproductive tract. Therefore, in this article, we describe this disorder as a separate clinical entity, which deserves recognition by practicing veterinarians.

2. Presentation

Typically, stallions with ejaculatory problems, associated with the midline cysts of the colliculus seminalis, present to the clinic with a complaint of inconsistent reproductive performance. They have periods with normal sexual behavior and good semen quality, alternating with days or weeks of ejaculatory problems and/or poor semen quality. Treatment with oxytocin and transrectal massage of the accessory sex glands only occasionally helps in obtaining an ejaculate, but these procedures are not effective on many occasions. Frequent semen collections do not prevent an occurrence of this disorder. There are also cases, which present with a consistent history of long-term ejaculatory problems or infertility.

3. Evaluation

Evaluation of stallions with ejaculatory disorders follows the outline of the breeding soundness evaluation recommended by the Society of Theriogenologists [8]. However, some modifications are usually made.
3.1. Sexual Behavior

After conducting a complete physical examination of the affected stallion, evaluation of sexual behavior is always performed. This can be done either in presence of an ovariektomized mare showing strong estrous behavior, or in a mare in natural heat. Strong teasing is recommended in cases of timid or novice stallions. Young, especially novice stallions, as well as some stallions with acquired ejaculatory problems require a longer precopulatory phase than older and experienced stallions [9]. If the stallion has a history of sexual behavior problems, washing the penis and taking penile swabs are deferred to future sessions so as to avoid any distractions.

Copulatory behavior is evaluated during semen collection or natural breeding. Each session is video-recorded to allow for detailed analysis of all aspects of stallion’s behavior, as well as a technique of semen collection. A camera should be mounted on a tripod and set for recording the entire scene. We find information derived from the recorded material very helpful in the majority of cases. In addition, the specialists from other fields of veterinary profession, such as medicine or surgery, can view recorded sessions and give their opinion regarding the need to conduct neurological or lameness examinations.

Ejaculatory dysfunctions in stallions are often associated with musculoskeletal problems or with an occlusion of the ampullae of deferent ducts. However, stallions with these conditions display different behavioral symptoms than stallions with the midline cysts of the colliculus seminalis (Table 2). Stallions experiencing acute discomfort because of various musculoskeletal diseases show signs of pain, such as ear pining, head throws, high pitch vocalization, and sudden dismounting. These behaviors occur early during the copulatory phase, whereas the specific ejaculatory problems are expressed later, during emission or ejaculation itself. Prolonged painful stimuli associated with the reproductive tract (stallion ring, etc.) affect libido [10], whereas stallions experiencing ejaculatory dysfunctions associated with the midline cyst of the colliculus seminalis retain strong sexual drive despite their symptoms. Stallions with occluded ampullae thrust multiple times, and often show behaviors accompanying ejaculation, such as tail movements (flagging), or urethral contractions, but only seminal plasma is expelled under low pressure. They dismount slowly, and in the majority of cases do not show any signs of distress. Stallions with large midline cysts of the colliculus seminalis have a significantly higher number of pelvic thrusts during copulation than normal stallions. Because fluids from the ampullae and the vesicular glands are not voided during emission because of the physical obstruction, ejaculatory process is not triggered, and the affected stallion may start thrusting again after a short pause. They often stay mounted on a mare or a dummy without signs of relaxation, and finally slowly dismount. After prolonged thrusting, a stallion often moves his hindquarters sidewise, toward the artificial vagina handles. Occasionally, affected stallions try to reposition themselves vigorously, tossing their head, moving their front end up with front feet on the neck of a mare. Special caution has to be taken while collecting semen from these stallions to avoid injury.

Multiple attempts to collect semen are often necessary to obtain a semen sample for evaluation. Strong teasing, application of hot compresses on a base of stallion’s penis, and oxytocin treatment may enhance ejaculatory response.

3.2. Semen Evaluation

Parameters of semen collected from affected stallions are very variable. The most frustrating feature is inconsistency of semen quality. All semen parameters may be normal, but, more often, numbers of spermatozoa are low (oligospermia—azoospermia); motility of spermatozoa is severely affected, or spermatozoa are not motile (asthenozoospermia or necro spermia) (Table 1). The percentage of morphologically normal spermatozoa is often low. However, there are only a few spermatozoa with primary...
Table 2
Behavior symptoms associated with various conditions causing ejaculatory dysfunctions

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Conditions</th>
<th>Musculoskeletal Pain</th>
<th>Occluded ampullae of deferent ducts</th>
<th>Midline cyst of colliculus seminalis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Libido</td>
<td>Normal initially; often worsens if pain symptoms experienced for a prolonged period</td>
<td>Usually unaffected</td>
<td>Unaffected</td>
<td>Unaffected</td>
</tr>
<tr>
<td>Ability to mount</td>
<td>May be severely affected</td>
<td>Unaffected</td>
<td>Unaffected</td>
<td>Unaffected</td>
</tr>
<tr>
<td>Copulatory phase</td>
<td>Shorter than normal</td>
<td>Longer than normal</td>
<td>Longer than normal (approximately 10 to 16); often another sequence of thrusts occurs after a short pause</td>
<td></td>
</tr>
<tr>
<td>Pelvic thrusts</td>
<td>Lower number than normal</td>
<td>Greater number than normal (approximately 8 to 10)</td>
<td>Greater number than normal (approximately 10 to 16); often another sequence of thrusts occurs after a short pause</td>
<td></td>
</tr>
<tr>
<td>Dismount</td>
<td>Sudden, immediately after last pelvic thrust</td>
<td>Slow, after a short pause following a last pelvic thrust</td>
<td>Very slow, after a long pause following a last pelvic thrust</td>
<td></td>
</tr>
<tr>
<td>Coupling posture</td>
<td>Poor coupling posture; straight back; shifting weight to one side</td>
<td>Normal; properly curved back</td>
<td>Normal; properly curved back</td>
<td></td>
</tr>
<tr>
<td>Other behaviors</td>
<td>Ear pining; head throws; high pitch vocalizations; looking to one side</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>expressed during</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a copulatory phase</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Ejaculation</td>
<td>Normal when pain symptoms are under control</td>
<td>Low number of urethral pulsations, but only seminal plasma present; poor pressure of ejaculatory jets</td>
<td>No urethral pulsations, and no fluid expelled; normal, once ejaculatory threshold reached</td>
<td></td>
</tr>
<tr>
<td>Long-term effects</td>
<td>Normal sexual behavior if pain symptoms are under control; low libido, if pain symptoms are present</td>
<td>Normal sexual behavior once a blockage is resolved</td>
<td>Continuous or frequently re-occurring ejaculatory difficulties</td>
<td></td>
</tr>
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</table>

Morphological defects or immature germ cells in ejaculates. Usually, there is a high number of spermatozoa with secondary morphological defects, such as bent tails, distal cytoplasmic droplets, and tailless heads. Occasionally, all semen parameters are consistently good. Just one subtle change occurs unexpectedly; for example, longevity of sperm motility in extended and cooled semen decreases dramatically.

The typical picture of semen collected from stallions with temporarily plugged ampullae is rarely seen in cases discussed in this article. After ampullar occlusion is relieved, normal, forceful ejaculation occurs and large numbers of spermatozoa, stored in dilated ampullae, are expelled. Concentration of semen is very high and there is a very high percentage of tailless heads of spermatozoa in such an ejaculate [11]. Ejaculatory dysfunction associated with the midline cyst of the colliculus seminalis is a chronic condition, and there is no major improvement after obtaining a complete ejaculate. Occasionally, stallions with this condition experience transient hemospermia, chronic oligospermia, asthenozoospermia, or necrospermia. Interestingly, some stallions expel semen containing a collection of small aggregations of sperm and bacteria. Other stallions with chronic ejaculatory difficulties and midline cyst of the colliculus seminalis have hyperechoic plugs in the very terminal portions of deferent ducts (distal to ampullae). These plugs may be expelled during ejaculation and contain very high numbers of spermatozoa and bacteria as well. Corynebacterium species was identified in the semen of three stallions with these features. We have not seen any inflammatory cells in the expelled plugs or semen produced by these stallions.

3.3. Evaluation of Internal Genitalia

Rectal palpation and TRUS of internal reproductive structures in stallions with ejaculatory dysfunction are essential, and should be conducted carefully. All accessory glands, urethra, and the caudal aorta are examined. Location, size, texture, and sensitivity of both ampullae are assessed first, during rectal palpation. The lumen of the ampullae of deferent ducts may be normal, but it may be significantly dilated, especially after unsuccessful attempts to collect semen (Fig. 3). Hyperechoic concrements are frequently found in the ampullar lumen, especially in the narrow part of deferent ducts, distal to the prostatic lobes. These concrements are single or numerous, and have a tendency to move distal and group together after multiple attempts of a stallion to ejaculate (Fig. 4). Vesicular glands may become distended as well, if the ejaculatory process is affected (Fig. 5). If the excretory ducts of the vesicular glands are compressed for a prolonged period, their contents may become very thick and form echogenic plugs (Fig. 6).

Cystic structures are found in various locations. Small cysts of the uterus masculinus are found in up to 50% of normal stallions, most often at the level of the neck of the urinary bladder, between ampullae, which are narrowing down in this area toward the colliculus seminalis [12]. The presence of these structures usually has no consequences in the stallion’s ejaculatory function. However, we reported an increased frequency of this feature in the population of stallions with ejaculatory problems [4]. Our recent clinical material suggests that larger cystic structures, exceeding 1 cm in diameter, and localized more caudally, at the level of the seminal colliculus, contribute to the stallion’s ejaculatory difficulties more often. The presence of these cysts is often overlooked because they are localized very distally, in the pelvic urethra, just cranial to the bulbourethral glands, but distal to the prostatic isthmus. They usually have an oval shape, but may be also tear-shaped, rectangular, or spindle-shaped (Fig. 7). An average diameter of these cysts, found in our clinical cases, varied from 1 to 3 cm (Table 1). They may be well-defined with hyperechoic walls, or may be quite difficult to delineate. They may also have
echogenic contents (Fig. 7F). A small collection of non-echoic fluid is often seen in the urethral lumen posterior to the cyst after an unsuccessful attempt to collect semen (Fig. 7B). Other findings of the ultrasound evaluation of the internal reproductive tract of the affected stallion are usually unremarkable.

Urethroscopic evaluation of stallions with ejaculatory dysfunction is rarely conducted and the findings of this evaluation rarely add to the diagnosis. Slight enlargement of the colliculus seminalis is occasionally seen in affected cases.

3.4. Evaluation of the Scrotum

All structures of the scrotum are carefully examined by using manual palpation and ultrasonography. Testes are normal in size and texture, but could be smaller than expected for the adult stallions, and/or have a tendency to have soft consistency. Ultrasound evaluation of testicular parenchyma is unremarkable. However, some subtle changes may be seen within/or in the vicinity of the epididymides in these stallions. Thin-walled cysts, irrespective of whether they are small or large, are often visualized in the area of the epididymal heads. They may be single or multiple, and have anechoic contents. In some cases, however, there are hyperechoic areas or concrements in the epididymal heads or tails. The distal part of the epididymal duct may be prominent with a slightly distended lumen. A mild hydrocele is often seen.

4. Treatment and Management

Currently, there is no effective treatment for this condition. However, the affected stallions can be managed successfully, if their problem is recognized early enough to properly adjust their mare book, and come up with a set of specific procedures, which will enhance a probability of a success. Because there is no guarantee that semen will be successfully collected on any given day, the owners of mares, booked to the affected stallions, should be informed ahead of time of the problem. To enhance the chances for success, a team working with the stallion should be prepared for the necessity of numerous attempts to collect semen. There should be a plan about how to proceed in the case of an initial failure. There is no certain protocol equally effective in all cases; a specific protocol should be established for each affected individual stallion.

Transrectal massage of the ampullae of the deferent ducts is rarely effective in stallions with midline cysts of colliculus seminalis. Although inspissated sperm, which occludes the ampullae, can be manually advanced during transrectal massage, the cysts are continuously impinging on the ejaculatory apparatus and cannot change their location. Strong teasing and the administration of oxytocin...
shortly before semen collection can be helpful in some individuals. A combination of pretreatment with imipramine (1,200 mg, per os, 2 hours before semen collection), heavy teasing, and treatment with oxytocin (10-30 IU, iv; immediately before semen collection) seems to be most effective. In addition, stallions with chronic ejaculatory dysfunction often develop painful sores on the medial side of their carpi, as well as chronic back or hind legs problems, because of the multiple mounts on a dummy or a mare. These complications may further contribute to problems with ejaculation. Wrapping front limbs (carpi) prevents development of sores, and therefore, it is recommended in all stallions with ejaculatory dysfunctions. The number of attempts to collect semen should be limited so as to prevent secondary musculoskeletal problems. Long-term treatment with phenylbutazone can help in managing potential discomfort during pelvic thrusting.

5. Clinical Examples

5.1. Case 1

A 7-year-old Thoroughbred stallion was evaluated as a potential candidate for teaching veterinary students (Table 1; case 1). The horse was in an excellent body condition and showed no abnormalities during a general physical examination. The stallion showed a good libido in the presence of the ovariectomized teaser mare, readily achieved an erection in the breeding shed and mounted a dummy. Despite good coupling with a dummy, numerous pelvic thrusting after insertion of the penis into the Missouri AV (8 to 9 thrusts) did not yield an ejaculate. The attempts to collect semen from this stallion were repeated multiple times without a success. All sessions were video-recorded. This material was carefully reviewed and showed no evidence of discomfort or problems with the AV. The stallion showed some strong attempts to ejaculate expressed by one or two urethral contractions accompanied by tail flagging after a series of thrusting, with no ejaculation achieved. There were no early dismounts or signs of relaxation. Additional stimulation, such as hot compresses on the base of the penis, or the Colorado model AV (Animal Reproduction Systems, Chino, CA) was used to enhance the ejaculatory process. Regardless of the technique used, the stallion ejaculated only occasionally, always after multiple attempts. Semen quality, when collected, was fair to good. TRUS of this stallion’s internal genitalia revealed the oval cystic structure (1.13 cm in diameter) in the pelvic urethra in the close proximity to the bulbourethral glands, behind the prostate (Fig. 8A). In addition, small hyperechoic concrements were detected in the most terminal part of each deferent duct. Transurethral endoscopic examination was performed and the colliculus seminalis was visualized. Simultaneously, TRUS was

![Fig. 6. Ultrasound images of the hyperechoic contents in the vesicular glands in a stallion with the midline cyst of colliculus seminalis: (A) Position of a transducer. (B) Ultrasound image of the hyperechoic contents in the mid portion of the vesicular glands. (C) Ultrasound image of the hyperechoic contents in the excretory duct of the vesicular gland.](image-url)
performed. These two techniques performed together revealed that the cyst was localized exactly within the colliculus seminalis. There was also a polyp-like structure associated with the opening to the left ED. The stallion had to be euthanized because of the acute onset of equine protozoal myeloencephalitis. Postmortem evaluation of the genital tissues revealed the presence of the multiple cysts between the most terminal portions of deferent ducts, within the colliculus seminalis, which were significantly occluding their lumen (Fig. 8B). The cysts were filled with noncellular fluid and had stratified, squamous epithelium (Fig. 8 C, D). The location, lack of communication with the urethra, lack of spermatozoa in the cystic fluid, and the character of the epithelium suggested that this cyst was consistent with what is described in men as a midline cyst of prostate type I [13].

5.2. Case 2

An 8-year-old Quarterhorse stallion was presented to our clinic with a history of ejaculatory difficulties (Table 1; case 2). There were always problems with collecting semen from this stallion, but in the past few weeks all attempts to obtain semen failed. General physical examination of the stallion did not reveal any abnormalities, except some fresh abrasions on the medial aspects of his carpi, most likely because of the multiple mounts on the dummy. Ultrasound evaluation of his external and internal genitalia revealed prominent epididymal ducts and mildly dilated ampullae of deferent ducts. Terminal parts of both deferent ducts (distal to ampullae) contained multiple hyperechoic concrements (Fig. 9A). In addition, there was a large (4 x 0.6 cm), spindle-shaped uterus masculinus lying just underneath the isthmus of the prostate, between the very distal parts of the ampullae (Fig. 9B). Furthermore, there was an oval-shaped midline cyst on the level of the colliculus seminalis (1 x 0.8 cm). Before the first attempt to collect semen, distal ampullae were massaged per rectum and 30 IU of oxytocin were administered intravenously. The stallion showed excellent libido, readily mounted a dummy, had multiple thrusts (9 thrusts), but did not ejaculate. During the second attempt, hot towels were applied to the base of the stallion’s penis and a very small amount (5 mL) of semen with a “grid-like” appearance and poor motility of spermatozoa (<10%) was obtained. Cytological evaluation revealed that the solid particles, which gave the semen a “grid-like” appearance, consisted of spermatozoa and large numbers of bacteria (Fig. 9C). No inflammatory cells were found. Subsequent attempts to collect semen yielded inconsistent results, despite various combinations of treatment with imipramine, oxytocin, rectal massage of the ampullae, and the application of hot compresses. The quality of semen was also inconsistent, but the motility was generally improving. Further distention of distal ampullae, as well as vesicular glands, was observed after unsuccessful attempts to collect semen. Some improvement in the ability to collect semen was observed after the stallion was given 2 weeks of rest for healing the carpal wounds, and treatment with phenylbutazone so as to decrease possible musculoskeletal discomfort associated with multiple mounts and pelvic thrusts (9 to 16 thrusts). Currently, the stallion continues to experience ejaculatory dysfunction. However, strong teasing, treatment with imipramine and oxytocin, as well
as additional stimulation of the base of the penis are helpful in obtaining semen samples.

6. Discussion

EDs in men are long and narrow, which make them prone to obstruction [14]. One to five percent of infertility cases in men are associated with ED occlusion (EDO) [15]. One of the early symptoms of this condition is painful ejaculation and azoospermia [16]. However, the symptoms may be much more subtle in cases of a partial obstruction and show only as mild oligospermia, oligoasthenospermia, or poor survival of spermatozoa in vitro and inability to fertilize oocytes [16,17]. In contrast to men, EDs in stallions are short (approx. 2 to 3 mm) and relatively wide (6 to 7 mm) [7]. Therefore, true EDO rarely occurs in stallions. Cystic structures, which are often seen between ampullae of the deferent ducts in stallions, usually do not have any clinical significance. Small midline cysts of the colliculus seminalis in stallions may be also asymptomatic. We have found such cysts in six animals during the screening ultrasound evaluation of the population of 100 fertile stallions [4]. One of these stallions required strong stimulation during semen collection, one stallion had hemospermia, and other three had poor quality of semen. Large cysts in the area of the colliculus seminalis can affect the passage of semen through the very terminal part of the deferent ducts to cause ejaculatory problems [6]. The cystic

Fig. 8. Case 1. (A) Ultrasound image of the midline cyst of the colliculus seminalis. (B) Cross-section of the urethra at the level of the colliculus seminalis with the cyst. (C) Microscopic slide with a wall of the midline cyst—low power. (D) Microscopic slide with a wall of the midline cyst—high power.

Fig. 9. Case 2. (A) Midline cyst of colliculus seminalis and hyperechoic particles in the terminal seminal tract. (B) Cystic uterus masculinus—longitudinal section. (C) Microscopic image of the expelled “grid-like” particles.
structure found in the stallion with ejaculatory dysfunction in case 1 was obviously compressing the terminal portions of both deferent ducts, excretory ducts of vesicular glands, as well as EDs. Extensive anatomical and histological studies showed that this structure in stallions is of mixed embryological origin. The proximal portion is a remnant of the Müllerian ducts, whereas the most distal part comes from the urogenital sinus [18]. Because the cyst in case 1 had stratified, squamous epithelium, its origin was most likely associated with the latter. Because there was no sperm in the lumen of this cyst, there was no communication between the cyst and the urethra, deferent ducts, or EDs. These types of cysts have been described in men as the midline cysts of the prostate, type 1 [13]. Other cysts of this area in men can communicate with the urethra (type 2a), or the seminal tract (type 2b). Third, there may be cystic dilatations of the ED (type 3). Similar variations of this structure in stallions have been described. However, an appropriate terminology has not been established yet [12]. We propose to use the existing medical terminology for different types of cysts (type 1, 2a, 2b, and 3), but we also propose to replace the term “midline cysts of the prostate” or “prostatic utricle” with another term,— “midline cysts of the colliculus seminalis,” because colliculus seminalis in stallions is located behind the caudal edge of the prostate.

Various protocols for the diagnosis and treatment of ejaculatory dysfunctions in men, associated with the ejaculatory apparatus, are currently available. Vasography, TRUS, magnetic resonance imaging, and other imaging modalities are used [19-21]. Most often, the presence of the so-called midline prostatic cyst is identified as a major source of these problems. However, seminal vesicle calculi, postsurgical or postinflammatory scar tissue, or calcification near the colliculus seminalis can also be a source of obstruction. If no physical abnormality is found, dynamic tests are recommended to diagnose a possible functional disorder of ejaculation in men [21-23]. For seminal vesiculography, nonionic contrast (50% renografin) is injected transrectally into the seminal vesicle using TRUS guidance [15]. The bladder neck is occluded using a balloon of a small Foley catheter introduced through the pelvic urethra. Fluoroscopy is performed soon after injection to obtain the image of retrograde vasogram. Lack of flow of contrast medium in the pelvic urethra confirms EDO. The newest TRUS-guided diagnostic method, chromotubation, has been introduced to allow for the very accurate assessment of the potency of the EDs. Diluted indigo carmine or methylene blue (1:5 dilution in saline) is injected to the seminal vesicles, and the emission of this dye from the ejaculatory orifices is observed directly using cystoscopy [15]. Recently, chromotubation technique has been modified such that injection pressure can be directly measured during the procedure. It has been established that fertile patients have remarkably consistent ED opening pressure (< 45 cm H2O), whereas the patients with EDO have significantly higher ED opening pressure than normal patients [22]. Transurethral resection of the ED is a treatment of choice for EDO in men [24,25]. This is an outpatient procedure, which in most cases requires only regional anesthesia. The colliculus seminalis is resected under direct visualization, using a cystoscope and an electrocautery loop to clear the obstructed ejaculatory path. If the correction is successful, cloudy or milky fluid should appear refluxing from the opened ducts. Even though this procedure is quite successful in selected patients, there are some potential complications associated with it, such as watery ejaculation, hematuria, epididymitis, seminal vesiculitis, and very rarely incontinence or rectal perforation [15]. Recently, limited success was also reported using less invasive techniques, such as TRUS-guided ethanol sclerotherapy of the cysts, or endoscopic dilation of the EDs [26,27].

Currently, there is no effective and permanent treatment for similar disorders in stallions. However, cannulation of the EDs in stallions can be performed using a long, flexible endoscope. Trained theriogenologists use this technique to aspirate contents of the vesicular glands as well as to administer antibiotics in cases of seminal vesiculitis. Therefore, aspirating the midline cyst of the colliculus seminalis, administering ethanol to its lumen (sclerotherapy), or even opening the cyst using an electrocautery loop should be possible in the affected cases. The effectiveness of transurethral surgical procedures correcting physical obstructions of the EDs in stallions should be explored. There is also a need to introduce dynamic imaging techniques, which would allow more detailed evaluation of the ejaculatory apparatus in stallions.

References


