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Comparison of standard perineal herniorrhaphy and transposition of the internal obturator muscle for perineal hernia repair in the dog

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ABSTRACT

Forty male dogs underwent 46 perineal herniorrhaphy procedures. In 22 dogs, herniorrhaphy was performed by standard perineal herniorrhaphy and in 18 dogs by internal obturator muscle transposition (six bilateral herniorrhaphies). Castration was performed in 13 (59%) dogs operated by standard perineal herniorrhaphy and in 14 (77%) dogs operated by transposition of the internal obturator muscle. Rectal disease was preoperatively observed in 22 (46%) cases. Recurrence was recorded in six (27%) dogs operated by standard perineal herniorrhaphy and in two (11%) dogs operated by internal obturator muscle transposition. Postoperative complications developed in 30 (65%) cases. The most common complications were wound complications (swelling, seroma, dehiscence and hematoma), lameness and tenesmus. Study results indicated the method of internal obturator muscle transposition to create a stronger perineal diaphragm with a lower incidence of recurrence compared to standard perineal herniorrhaphy.

Key words: perineal hernia, techniques, dog

Introduction

Perineal hernia occurs when separation of the pelvic diaphragm muscles allows caudal displacement of pelvic or abdominal organs, or lateral deviation (diverticulum, dilatation or sacculation) of the rectum into the perineum (WELCHES et al., 1992). Perineal hernia is usually diagnosed in dogs and is uncommon in cats (VNUK et al., 2005; WELCHES et al., 1992).

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Since primary suture repair of the muscular pelvic diaphragm was first reported in the 1950s, several reports have described standard perineal herniorrhaphy (ANDERSON et al., 1998; BOJRAB, 1981; ORSHER, 1986; ROBERTSON, 1984). The first suture is placed from the internal obturator muscle laterally to the external anal sphincter muscle medially. Several more sutures are placed dorsally to the internal obturator sutures, incorporating bites from the external anal sphincter into the sacrotuberous ligament, the coccygeal muscle and when present, the levator ani muscle (ANDERSON et al., 1998). Perineal herniation recurred in 10% (PETIT, 1962), 15.4% (BELLENGER, 1980) and 46% (BURROWS and HARVEY, 1973) of cases. Recurrence of perineal hernia due to tension was observed in the ventral area of the perineal diaphragm.

Alternative techniques of perineal herniorrhaphy were described in the 1980s. The weaker ventral area of the perineal diaphragm seems to be better supported by transposition of the internal obturator muscle, with decrease in the recurrence rate below 10% (BELLENGER and CANFIELD, 2002). In one study, recurrence was recorded in only 2.4%, excellent results were achieved in 83.3%, and good results in 14.3% of treated dogs (HARDIE et al., 1983). The internal obturator muscle is subperiosteally elevated from the ischiatic table and is lifted dorsally. Microangiography of the transposed muscles revealed adequate perfusion, and microscopic examination showed various degrees of muscle fiber atrophy. Recurrence rate as a sole criterion was an unsatisfactory measure of the value of herniorrhaphy because dogs with severe clinical signs preoperatively or bilateral hernias benefited less from surgery (BELLENGER and CANFIELD, 2002). Factors that correlated with more severe postoperative side effects were perineal swelling, absence of the ventral portion of perineal diaphragm, and rectal sacculation (ORSHER, 1986).

Transposition of the superficial gluteal muscle had a recurrence rate of 36% (WEAVER and OMAMEGBE, 1981). Transposition of both the internal obturator muscle and the superficial gluteal muscle showed excellent results in 89.7%, good results in 7.7%, and poor results in 2.6% of the cases (RAFFAN, 1993).

Reconstruction of perineal diaphragm by polypropylene mesh has also been described. CLARKE (1989) observed recurrence in one dog (8.3%), whereas VNUK et al. (2006) recorded no recurrence.

The purpose of this study was to review signalment, duration of disease, side of perineal hernia, concurrent rectal diseases, clinical signs and perineal hernia content. Recurrence rate and postoperative complications were compared between standard perineal herniorrhaphy and internal obturator muscle transposition for perineal hernia repair in dogs.

Materials and methods

Forty dogs presented to the University Department of Surgery, Faculty of Veterinary Medicine for treatment of perineal hernia, were included in the study. The medical records of the dogs were reviewed retrospectively and the owners were surveyed by telephone. The follow up period (from the surgical procedure to control survey) was at least six months.

Signalment, duration of disease, side of perineal hernia, rectal diseases, clinical signs, concurrent diseases, perineal hernia content and postoperative complications were recorded. The diagnosis was made by rectal palpation of the perineal diaphragm and rectal wall. If the patient had clinical signs of urinary tract disturbances, caudal abdominal radiography was performed.

Standard perineal herniorrhaphy or transposition of the internal obturator muscle was used to close defects in the pelvic diaphragm in 40 dogs with perineal hernia. Group 1 consisted of 22 dogs treated by standard perineal herniorrhaphy in 22 procedures. Group 2 consisted of 18 dogs treated by transposition of the internal obturator muscle in 24 procedures (six bilateral procedures).

Premedication included acetylpromazine (Vetranquil® 1%, Ceva, Germany) in a dose of 0.05 mg/kg i.m. Brachycephalic dogs and dogs older than 7 years were premedicated with diazepam (Apaurin®, Krka, Slovenia) in a dose of 0.25 mg/kg i.v.. Ampicillin (Penbritin®, Pliva, Croatia) in a dose of 20 mg/kg i.v. was administered pre- and postoperatively. Induction of anesthesia was done with ketamine (Narketan®, Vetoquinol, Germany) in a dose of 10 mg/kg i.v., endotracheal intubation was performed, and anesthesia was maintained with a mixture of oxygen and isoflurane (Forane, Abbott, UK) in a concentration of 1.5% to 2.5%. Analgesia was provided with epidural administration of lidocaine (Lidokain® 2%, Belupo, Croatia) in a dose of 4 mg/kg.

A dorsoventral skin incision was performed over the hernia, extending from the spot just lateral to the tail base down to the medial angle of the ischial tuberosity. The hernial sac was opened by blunt dissection. The rectum was examined to detect rectal diseases and, if present, they were resolved by plication. Plication was performed by placement of one to three layers of Cushing suture (PDS 3-0) (PDS®II, Ethicon, UK) in a longitudinal direction. Hernial contents were returned to their original location.

During standard perineal herniorrhaphy, the first sutures were placed from the internal obturator muscle ventrolaterally to the external anal sphincter medially, and then from the sacrotuberous ligament, the coccygeal muscle and the levator ani muscle laterally to the external anal sphincter medially.

During transposition of the internal obturator muscle, an incision of the internal obturator muscle was made along the dorsocaudal border of the ischial tuberosity, and

a periosteal elevator was used to elevate the muscle subperiosteally as far cranially as the caudal limit of the obturator foramen. Then, suturing of the coccygeal muscle and sacrotuberous ligament, external anal sphincter and internal obturator muscle was carried out. Three to four sutures were placed between the coccygeal muscle and the sacrotuberous ligament as well as the external anal sphincter. Two sutures were placed from the internal obturator muscle to the external anal sphincter, and another two sutures from the internal obturator to the coccygeal muscle.

The suture material used for the reconstruction of perineal diaphragm was 2-0 monofilament nylon and polypropylene in small dogs (up to 15 kg), and 0 monofilament nylon and polypropylene for larger dogs (over 20 kg). Single interrupted sutures were first preplaced but not tightened. Additional sutures were placed after palpation of the perineal diaphragm, if necessary. Upon placement of the last suture, progressing from dorsal to ventral, the sutures were tightened.

The subcutaneous tissue and the skin were closed routinely. Castration was performed in 27 dogs in total, i.e. 13 (59%) dogs operated by standard perineal herniorrhaphy and 14 (77%) dogs operated by the internal obturator muscle transposition. Orchiectomy was done in the prescrotal area.

Methadone (Heptanon®, Pliva, Croatia) in a dose of 0.25 mg/kg i.m. was administered every 6 hours during the first day postoperatively. Carprofen (Rimadyl®, Pfizer, UK) in a dose of 2 mg/kg PO was administered BID during the next three days. Antibiotic tablets or syrup of ampicillin (Penbritin®, Pliva, Croatia) in a dose of 20 mg/kg PO were administered every six hours for five days. An Elizabethan collar was recommended for 10 days postoperatively.

Results

All study dogs were male. Median age at the time of diagnosis of perineal herniation was 8.17 ± 1.78 years. The breed distribution in the study sample is shown in Table 1. The tail was docked in 7 (17.5%) dogs (rottweiler, bobtail, poodle). The dogs weighed between 5.8 and 60 kg (25.9 ± 13.2 kg). The mean duration of the disease at initial presentation was 6.5 ± 6.7 months. Six (15%) dogs had bilateral and 34 (85%) dogs showed unilateral perineal hernia. Bilateral perineal hernias were diagnosed in six dogs operated by the internal obturator muscle transposition. Twenty-seven (79%) dogs had perineal hernia on the right side and seven (21%) dogs on the left side of the perineum. The dogs with bilateral perineal hernia underwent surgery on one side and after 4-6 weeks on the other side. Rectal disease was observed in 22 perineal herniorrhaphy procedures: rectal sacculation (dilation of the rectal wall into the hernia) in 17, rectal diverticulum (a tear in the seromuscular layers of the rectal wall through which the mucosa escapes into the hernia) in two, rectal dilation (bilateral dilation of the rectal wall) in two cases, and rectal flexure (S-shaped curvature of the rectum into the hernia) in one case. In seven

dogs, rectal sacculation and diverticulum were solved by plication. Twenty (30%) dogs suffered from prostatic hyperplasia.

Table 1. Breed distribution in study sample

	Dogs with perineal hernia	
Breed	n	%
Mixed	14	35.0
Rottweiler	5	12.5
Pekingese	4	10.0
German shepherd dog	4	10.0
Rough collie	3	7.5
Doberman pinscher	2	5.0
Great dane	1	2.5
Poodle	1	2.5
Labrador retriever	1	2.5
American stafford terrier	1	2.5
Borzoi	1	2.5
Irish setter	1	2.5
Bobtail	1	2.5
Maltese	1	2.5
Total	40	100

Clinical signs present in study dogs are listed in Table 2. Where present (n = 45)(in one case hernial content was not recorded), the contents of perineal hernias consisted of retroperitoneal fat and dilated rectum (n = 17), retroperitoneal fat only (n = 15), prostate (n = 6), urinary bladder (n = 3), dilated rectum (n = 2), small intestine (n = 1), and nothing (n = 1).

Table 2. Clinical signs in dogs with perineal hernia

Clinical signs	Nº of dogs	%
Perineal swelling	10	25
Constipation	13	32.5
Perineal swelling and constipation	11	27.5
Perineal swelling, constipation, bloody and soft to watery stool	2	5.0
Perineal swelling, bloody and soft to watery stool	2	5.0
Perineal swelling and increased diameter of feces	1	2.5
Constipation and anal licking	1	2.5
Total	40	100

Recurrence developed in six (27%) dogs operated by standard perineal herniorrhaphy. In the group operated by transposition of the internal obturator muscle, recurrence was recorded in two (11%) dogs, both with bilateral perineal hernia. The postoperative complications are described in Table 3.

Table 3. Postoperative complications in 40 dogs undergoing perineal herniorrhaphy

Complication	Group 1	Group 2	Total	%
Wound complication	4	4	8	26.7
- swelling	2	2	4	13.3
- seroma formation	1	1	2	6.7
- dehiscence	1		1	3.3
- hematoma		1	1	3.3
Temporary neurapraxia		3	3	10.0
- operated side		1	1	3.3
- contralateral side		2	2	6.7
Tenesmus	5	1	6	20
Urinary incontinence	1	1	2	6.7
Short term		1	1	3.3
Permanent	1		1	3.3
Anorexia	1	2	3	10.0
Painful defecation		1	1	3.3
Obstipation		2	2	6.7
Rectal prolapse		1	1	3.3
Fecal incontinence	1		1	3.3
Anuria	1		1	3.3
Automutilation	1		1	3.3
Cystitis	1		1	3.3

Discussion

A multitude of factors have been incriminated in the etiopathogenesis of perineal hernia. Suggested theories include congenital predisposition, structural weakness of the pelvic diaphragm, hormonal imbalance, prostatic disease, and chronic constipation. Yet, the etiology most likely involves a combination of contributing factors (BOJRAB, 1981).

The disease occurs predominantly in older male animals and rarely in females (BURROWS and HARVEY, 1973; HAYES, 1978). Hormonal imbalance has an impact on the development of perineal hernia, with possible involvement of benign prostatic

hyperplasia (BELLENGER and CANFIELD, 2002). However, it has not been definitely confirmed, except for castration appearing to be a major factor in reducing the incidence of the disease (HAYES, 1978).

Some breeds have consistently shown high predisposition to the development of perineal hernia. In other studies, perineal hernia was most frequently found in mixed breed dogs, because the dog population mostly consists of mixed breeds. Apart from mixed breeds, the most common breeds are toy poodle (HOSGOOD et al., 1995), Yorkshire Terrier (RAFFAN, 1993), Scottish Collie (HARVEY, 1977; BURROWS and HARVEY, 1973) and Welsh Corgi (WEAVER and OMAMEGBE, 1981). In our study, the incidence of perineal hernia was higher in mixed breed, Rottweiler, Pekingese, German Shepherd and Scottish Collie.

Due to the levator ani and coccygeal muscle function in tail movement, they may be underdeveloped in short tailed dogs (BELLENGER and CANFIELD, 2002). Perineal hernia has been more frequently observed in dogs with rudimentary or docked tails. The reason for this is atrophy of the perineal diaphragm muscles. This site is locus minoris resistentiae for the development of perineal hernia. However, BOJRAB (1981) is suspicious about this theory. As this structural weakness may be present at birth, in these animals hernias would be expected to develop at an earlier age than in longer tailed animals, which is not true. In our study, 17.5% of dogs had docked tails.

Benign prostatic hyperplasia occurs at the same age as perineal hernia, i.e. at age 5. BASINGER and LUTHER (1993) observed that 80% of dogs older than six years and 95% of dogs older than nine years had benign prostatic hyperplasia. The perineal diaphragm is weakened because of tenesmus. Benign prostatic hyperplasia can be alleviated and perineal hernia recurrence reduced by castration. In the present study, 30% of dogs suffered from prostatic hyperplasia.

In our study, dogs were aged 8.17 ± 1.78 (range 5-13) years. To our knowledge, there is only one report on perineal hernia in a 3-year-old dog (HOSGOOD et al., 1995).

The most common signs of the disease detectable by the owner are constipation and perineal swelling. These symptoms may be present individually or in combination. The owners may not consider swelling as a serious problem, whereas constipation and tenesmus makes them worry. In one dog that suffered from bilateral perineal hernia, the owner observed greater feces diameter and tenesmus.

Rectal diseases occur together with perineal hernia. It is not clearly understood whether perineal hernia causes rectal disease or *vice versa*. Our study, just like other reports (KRAHWINKEL, 1983), showed all dogs suffering from rectal diverticula, deviation and sacculation to have perineal hernia as well. However, not all dogs that suffered from perineal hernia had rectal disease. This fact helped KRAHWINKEL (1983) to conclude that

perineal hernia develops first, followed by consequential occurrence of rectal disease. In our study, rectal diseases were present in all dogs that had symptoms of perineal hernia for more than six months.

If perineal hernia is surgically treated and rectum is not submitted to surgery, tenesmus will continue and perineal hernia can recur. Unrepaired rectal sacculation or diverticulum will fill with feces and cause straining. This may partially account for the high recurrence rates reported in some articles (BURROWS and HARVEY, 1973; HARVEY, 1977). KRAHWINKEL (1983) suggests that the solution for this problem is sacculectomy or diverticulectomy. In dogs submitted to sacculectomy, a high incidence of postoperative infection due to the rectal lumen opening can be expected. Anal splitting has been described as an alternative to sacculectomy or diverticulectomy. Plication (inverting of the rectum by inverting suture) can also be used. If plication is used, rectal prolapse may occur.

In our study, the dogs submitted to plication had no problems in the early postoperative period.

Additional studies are needed to elucidate whether it is necessary to castrate patients suffering from perineal hernia. In noncastrated male animals, the rate of recurrence is 2.7-fold that in castrated animals after the standard method of perineal herniorrhaphy (HAYES, 1978), suggesting that castration should be considered an obligatory procedure in the management of perineal hernia.

The effect of castration on perineal hernia recurrence was not assessed for the procedure of internal obturator muscle transposition. Eighteen dogs were operated by this method, four of them were not castrated; the procedure proved successful in three cases, whereas tenesmus on defecation was recorded in one dog. According to this study, castration is favorable in dogs with enlarged prostate, as it may influence postoperative disease recurrence. Dogs with enlarged prostate usually have tenesmus during defecation and pressure upon perineal diaphragm is higher, therefore the sutures and perineal diaphragm tissue are exposed to high intra-abdominal pressure.

In this study, the rate of recurrence was 27% in dogs operated by standard perineal herniorrhaphy and 11% in those undergoing transposition of the internal obturator muscle. In the group of dogs operated by standard method, recurrence was mostly recorded in the ventral part because of the inability to obliterate the large ventral part of the perineal diaphragm defect. Suturing the external anal sphincter to fixed structures such as the sacrotuberous ligament causes a lateral and ventral deformity of the anus (BURROWS and HARVEY, 1973).

Transposition of the internal obturator muscle is more difficult in comparison to the standard method; the surgeon needs more time to do the procedure, especially for preparation of the ventral part of perineal diaphragm. The internal obturator muscle

incision can cause intensive bleeding. However, the internal obturator muscle closes the gap in the ventral part of perineal diaphragm. The advantages of this mode of repair are less tension on sutures, less deformity of the external anal sphincter, and formation of a ventrolateral muscular sling for closure of the ventral aspect of the hernia (ORSHER and JOHNSTON, 1985).

The most common postoperative complications were wound complications. It is not unusual due to the proximity of anus, for the feces to contaminate the wound, closing of dead space into the wound is impossible, and the use of drain is advisable for possible ascending infections.

Positional sciatic neurapraxia may occur from positioning the patient in an elevated perineal position with the pelvic limbs secured cranially. The injury can occur on the operated or the contralateral side. It is unknown whether it is caused by excessive tension upon the nerve or by ischemia of the nerve. Sciatic nerve entrapment should be considered on differential diagnosis, taking into account that sciatic pain is not present in positional sciatic neurapraxia (MATTHIESEN, 1989).

In this study, neurapraxia was observed in three dogs (one on the operated side and two on the non-operated side) in the first seven days after the procedure, and it disappeared spontaneously. Positional sciatic neurapraxia was probably the problem in two dogs in whom lameness was observed on the non-operated side. The same problem or injury of the sciatic nerve during incorporation of the sacrotuberous ligament may have caused lameness in one dog in which it was observed on the operated side.

Our results indicate that transposition of the internal obturator muscle creates a stronger perineal diaphragm with a lower incidence of recurrence.

References

ANDERSON, M. A., G. M. CONSTANTINESCU, F. A. MANN (1998): Perineal hernia repair in the dog. In: Current Techniques in Small Animal Surgery. 4th ed. Williams & Wilkins, Baltimore, pp. 555-564.

BASINGER, R. R., P. B. LUTHER (1993): Prostatic disease. In: Disease Mechanism in Small Animal Surgery. 2nd ed. (Bojrab, M. J., Ed.). Lea & Febiger, Philadelphia, pp. 538-544.

BELLENGER, C. R. (1980): Perineal hernia in dogs. Aust. Vet. J. 56, 434-438.

BELLENGER, C. R., R. B. CANFIELD (2002): Perineal hernia. In: Textbook of Small Animal Surgery. 3rd ed. (Slatter, D., Ed.). Saunders, Philadelphia, pp. 487-498.

BOJRAB, M. J. (1981): Perineal herniorrhaphy. Comp. Cont. Educ. Pract. Vet., 3, 8-15.

BURROWS, C. F., C. E. HARVEY (1973): Perineal hernia in the dog. J. Small Anim. Pract. 14, 315-332.

CLARKE, R. E. (1989): Perineal Herniorrhaphy in the dog using Polypropylene Mesh. Australian Veterinary Practitioner, 19, 8-14.

HARDIE, E. M., R. J. KOLATA, T. D. EARLEY (1983): Evaluation of internal obturator muscle transposition in treatment of perineal hernia in dogs. Vet. Surg. 12, 69-72.

HARVEY, C. E. (1977): Treatment of perineal hernia in the dog - reassessment. J. Small Anim. Pract. 18, 505-511.

HAYES, H. M. (1978): The epidemiologic features of perineal hernia in 771 dogs. J. Am. Anim. Hosp. Assoc. 14, 703-712.

HOSGOOD, G., C. S. HEDLUND, R. D. PECHMAN, P. W. DEAN (1995): Perineal herniorrhaphy: perioperative data from 100 Dogs. J. Am. Anim. Hosp. Assoc. 31, 331-342.

KRAHWINKEL, D. J. (1983): Rectal diseases and their role in perineal hernia. Vet. Surg. 12, 160-165.

MATTHIESEN, D. T. (1989): Diagnosis and management of complications occuring after perineal herniorrhaphy in dogs. Compend. Contin. Educ. Pract. Vet. 11, 797-822.

ORSHER, R. J. (1986): Clinical and surgical parameters in dogs with perineal hernia: analysis of results of internal obturator transposition. Vet. Surg. 15, 253-258.

ORSHER, R. J., D. E. JOHNSTON (1985): The surgical treatment of perineal hernia in dogs by transposition of the obturator muscle. Comp. Cont. Educ. Pract. Vet. 7, 233-239.

PETIT, G. D. (1962): Perineal hernia in the dog. Cornell Vet. 52, 261-265.

RAFFAN, P. J. (1993): A new surgical technique for repair of perineal hernias in the dog. J. small Anim. Pract. 34, 13-19.

ROBERTSON, J. J. (1984): Perineal hernia repair in dogs. Mod. Vet. Pract. 65, 365-368.

VNUK, D., T. BABIĆ, M. STEJSKAL, D. CAPAK, I. HARAPIN, B. PIRKIĆ (2005): Application of a semitendinosus muscle flap in the treatment of perineal hernia in a cat. Vet. Rec. 156, 182-184.

VNUK, D., D. MATIČIĆ, M. KRESZINGER, B. RADIŠIĆ, J. KOS, M. LIPAR, T. BABIĆ (2006): A modified salvage technique in surgical repair of perineal hernia in dogs using polypropylene mesh. Veterinarni medicina 51, 111-117.

WEAVER, A. D., J. O. OMAMEGBE (1981): Surgical treatment of perineal hernia in the dog. J. small Anim. Pract. 22, 749-758.

WELCHES, C. D., T. D. SCAVELLI, M. G. ARONSOHN, D. T. MATTHIESEN (1992): Perineal Hernia in the cat: a retrospective study of 40 cases. J. Am. Anim. Hosp. Assoc. 28, 431-438.

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VNUK, D., M. LIPAR, D. MATIČIĆ, O. SMOLEC, M. PEĆIN, A. BRKIĆ: Usporedba standardne perinealne herniorafije i transpozicije unutarnjega opturatornog mišića u liječenju perinealne hernije pasa. Vet. arhiv 78, 197-207, 2008.

SAŽETAK

Operirano je 40 muških pasa u 46 operacijskih zahvata. Standardna perinealna herniorafija učinjena je u 22 psa, a transpozicija unutarnjega opturatornog mišića u 18 pasa (šest obostranih perinealnih hernija). Kastrirano je 13 (59%) pasa operiranih standardnom perinealnom herniorafijom te 14 (77%) pasa operiranih transpozicijom unutarnjega opturatornog mišića. Promjene na rektumu uočene su u 22 (48%) psa prije operacije. Šest (27%) pasa operiranih standardnom metodom imalo je recidiv, dok je isti uočen tek u dva (11%) psa operirana transpozicijom unutarnjega opturatornog mišića. Za vrijeme poslijeoperacijskog praćenja komplikacije su uočene u 30 (65%) pasa. Najčešće uočene komplikacije bile su komplikacije rane (oteklina, serom, dehiscencija i hematom), hromost i napinjanje. Rezultati ovog istraživanja pokazuju da je metoda transpozicije unutarnjega opturatornog mišića bolja, jer dovodi do nastanka čvršće perinealne dijafragme s manjim postotkom recidiviranja.

Ključne riječi: perinealna hernija, tehnike, pas