IRANIAN JOURNAL OF VETERINARY SURGERY (IJVS)
WWW.IVSA.IR

Clinical Report

Internal Obturator Transposition Herniorraphy of Three Perineal Hernia Cases in Dogs

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Abstract

Case Description.: In this present study three cases of perineal hernia in dogs have been presented and new concepts in perineal herniorrhaphy have been introduced. A 5-year-old intact male Spitz dog, a 6-year-old intact male dachshund dog and a 4.5-year-old sexually intact male Welsh corgi dog were referred with swelling around the anus and dyschesia.
Clinical Findings: The owner complained about a sudden enlargement of the right perineal region. Physical examination revealed soft bulged area surround and in the right side of anus. Plain radiograph showed normal position of urinary bladder and prostate**.**
Treatment and outcome: All the dogs were treated surgically by the internal obturator muscle flap technique which were transposed dorso-medially into the defect and sutured into defect borders. No complication was observed after surgery in any of the dogs**.** The dogs were monitored weekly for one month. The final evaluation revealed that all dogs were clinically normal and the owners were fully satisfied with the outcome.
Clinical Relevance: This study proved that the internal obturator transposition technique was superior technique for perineal hernia cases among all suggested techniques **.**
Key words: Abturator transposition technique, Perineal hernia, Dog.

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Introduction

Perineal hernia has been described as a failure of the supporting structures of the pelvic outlet that results in an inability of the pelvic diaphragm to hold the pelvic organs[1,2,3]. The defect in the pelvic diaphragm is thought to develop because of weakening of the muscles of the pelvic diaphragm, with the levator ani muscle most commonly affected[3,4]. The cause of perineal hernia has yet to be defined. However, several theories have been proposed including tenesmus secondary to prostatomegaly or chronic constipation or any condition that causes straining such as urinary tract obstruction, colorectal obstruction, rectal deviation anal sacculitis, cystitis and perianal inflammation[2,5,6,7]. Also imbalances of gonadal hormone concentrations, and neurogenic atrophy of the levator ani muscle have been mentioned as well[2,7,8,9]. The pelvic diaphragm is stronger in female dogs than males[8]. Herniation may be unilateral or bilateral and occur between the levator ani, external anal sphincter and internal obturator muscle; however some are between sacrotuberous ligament and coccygeus muscle (sciatic hernia), lavator ani and coccygeus muscle (dorsal hernia), or ischiourethralis, bulbocavernosus, and ischiocavernosus muscle (ventral hernia)[8]. Thin layer of perineal fascia, subcutaneous tissue, and skin[7,8] surrounds hernial contents. In this present study three cases of perineal hernia in dogs have presented and new concepts in perineal herniorrhaphy have been introduced.

Case Description

Case No. 1

A 5-year-old intact male Spitz dog weighing 6 kg with a history of swelling in right side of the anus and difficulty in defecating was referred to clinic. The owner complained about a sudden enlargement of the right perineal region. Physical examination revealed soft bulged area in the right side of anus. Plain radiograph showed normal position of urinary bladder and prostate**.** Surgical intervention was planned to determine the extent of hernial sac content and to perform herniorrhaphy.

Case No. 2

A 6-year-old intact male dachshund dog weighing 8 kg was referred. The animal was presented because of difficulty defecating, constipation and a swelling lateral to the anus. Swelling was more obvious in left side and the rectum found full of feces in rectal examination. There was no laboratory findings and plain radiograph showed normal position of urinary bladder and prostate.

Case No. 3

A 4.5-year-old sexually intact male Welsh Corgi weighing 7 kg dog was presented. There was a swelling surrounding the anus that caused bulging of the anus. The perineal mass was not fluctuating and not painful. The affected side was determined to be the left side by placing the animal in dorsal recumbency. Based on signalment, history and clinical findings perineal hernia was suspected and surgical intervention was planned to improve the pelvic outlet to perform herniorrhaphy there was no significant abnormality in simple radiograph.

Treatment and Outcome

All three animals were received Lactulose (1ml/4.5kg PO, TID) as stool softeners 2 days prior to surgery. Diazepam were administered (0.1 mg/kg intravenously) and general anesthesia was induced with propofol (4–6 mg/kg) intravenously. They were intubated, and maintained by halothane in oxygen. Temperature, pulse rate, and blood pressure were monitored during anesthesia. The surgical area was clipped from the scrotal region to the perineum including the medial side of the thigh and the clipped area was aseptically prepared. Dogs were positioned in dorsal recumbency and castration was preformed using total scrotal ablation technique. For perineal surgery dogs were positioned in dorsal recumbency over the surgical table, a rectal examination was performed to assess the rectal wall support, and to empty the caudal rectum then a purse string suture was placed around the anus. The clipped area was aseptically prepared again. A curvilinear skin incision was made 1 to 2 cm lateral to the anus on the affected side, beginning at the base of the tail and extending 1 to 2 cm ventral to the ischium. Subcutaneous tissue and hernial sac were incised. Hernial sac contained pelvic and retroperitoneal fat in all three cases and some serous fluid in first and 2nd cases. Sample was collected from the serous-like fluid for further laboratory evaluation**.** Hernial contents were reduced and maintained by packing the defect with a moistened sponge. The defects in pelvic diaphragm occurred between levator ani, external anal sphincter and internal obturator muscles in all three dogs (caudal hernia). Fascia and periosteum along the caudal border of the ischium and origin of the internal obturator muscle were incised and then the periosteum and internal obturator muscle were elevated from ischium using periosteal elevator. The internal obturator muscle were transposed dorsomedially into defect and sutured into defect borders, by apposing the combined levator ani and coccygeus muscle with the external anal sphincter dorsally, the internalobturator and external anal sphincter medially and levator ani and coccygeus muscle laterally with simple interrupted suture pattern. The sponge was removed before tying the last few sutures and the area was lavaged. Subcutaneous tissue was closed with an interrupted pattern using 3-0 Vicryl suture material and skin sutured in an appositional interrupted pattern using 3-0 Pronova. All dogs received Acetaminophen orally (10 mg/kg) to minimize straining and rectal prolapse. Antibiotic was continued 72 hours because the animals were debilitated a bit and stool softener was continued until 4 weeks. There was no evidence of swelling and discharge after surgery. All dogs had good appetite three days after surgery and the suture materials were removed 3 weeks after surgery. According to owner's claim, outcome was considered good in all three dogs.

Fig. 1: Positioning in dorsal recumbency

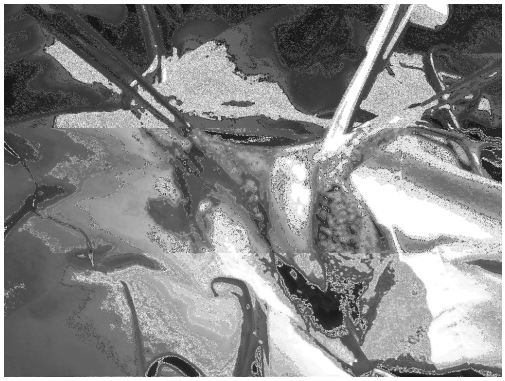

Fig. 2: Total scrotal ablation in dorsal recumbency

Fig. 3: **Skin incision was made on the affected side.**

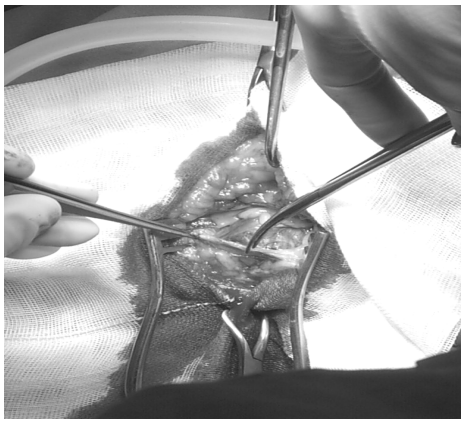

Fig. 4: **Subcutaneous tissue and hernial sac were incised.**

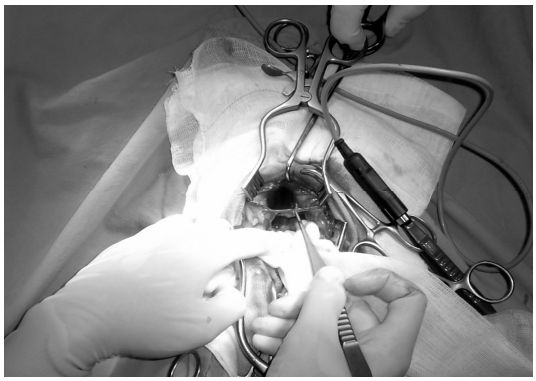

Fig. 5: **internal obturator muscle were transposed dorsomedially.**

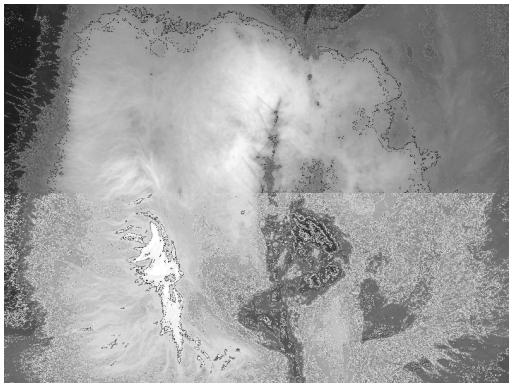

Fig. 6: **skin sutured with an appositional interrupted pattern.**

Discussion

Perineal hernia is a common problem that most commonly affects middle-aged to older intact male dogs[7]. It is common in dogs and rare in cats[8]. Perineal hernia in female dogs are often related to trauma[8]. In the cases reported in present study the history, signalment and clinical sings helped in a definitely diagnoses of perineal hernia. Normal laboratory findings and radiographic study also helped us to roll out the other possibilities such as perianal neoplasia, normal urinary bladder and prostate. The purpose was to relieve the constipation, dysuria, and to prevent organ strangulation. Medical treatment also has been suggested for instance, normal defecation can sometimes be maintained using laxative agent, stool softeners, dietary changes, periodic enemas, and manual rectal evacuation**.** Urinary bladder can be decompressed by centesis or catheterization, however long-term use of these treatments are contraindicated because of life-threatening visceral entrapment and strangulation. In all cases there were no sign of bladder retrofelxtion or rectal deviation, and hernial sac contained pelvic or retroperitoneal fat, but for the prevention of the further organ strangulation or visceral entrapment herniorrhaphy was planned. Castration also preformed during herniorrhaphy because it has been reported to reduce recurrence[5,7,8,10]. Several techniques for the surgical treatment of perineal hernia have been described, including direct apposition of surrounding tissue with non-absorbable sutures, internal obturator transposition, superficial gluteal muscle

transposition, and semitendinosus muscle flap[4,8,11,12]. The two most commonly used techniques are the traditional or anatomic reapossition and the internal obturator roll-up or transposition technique[8]. It is more difficult to close the ventral aspect of the hernia using the first technique and postoperative tenesmus and rectal prolapse may be more frequent in these cases[8]**.** The internal obturator transposition causes less tension on sutures, less deformity of the anus, and creates a ventral patch or sliding for the defect. Other perineal herniorrhaphy techniques include placement of synthetic mesh[13] or biomaterial grafts. An ideal material for hernia repair has been described as one that is inexpensive, is technically easy to use, promotes host tissue ingrowth, results in a healed repair with strength equal to normal tissue, provides resistance to infection, elicits no enhanced inflammatory response, and inhibits adhesion and fistula formation[12]. Recently, different studies have proved that porcine small intestinal submucosa is a suitable biomaterial for perineal herniorrhaphy in the dog[12]. Porcine small intestinal submucosa (PSIS) has been reported to be biocompatible and resistant to infection, to possess predictable mechanical properties before implantation, and to induce a response that results in regeneration of site specific tissues. The mentioned study suggests that PSIS can be used as a primary means of repair, as augmentation when the internal obturator muscle is thin and friable, or as a salvage procedure in cases of recurrence in dogs with perineal hernia[12]. Another method that recently has been developed is the use of an autogenous implant material such as autogenous fascia lata graft and it revealed that fascia lata graft can be used without major complications for primary repair of perineal hernia, as an augmentation procedure when the internal obturator muscle is thin or friable, or when herniation has recurred after another repair technique[5]. In the cases that were reported in this study the internal obturator muscle was intact and thick enough to use it for the internal obturator transposition technique**.** On the other hand**,** the defects were not so extensive, therefore the internal obturator transposition technique was the most preferred technique for cases studied. Potential complication of herniorrhaphy includes hemorrhage, anorexia, tenesmus, dyschesia, rectal prolapse, fecal incontinence, urinary incontinence, dysuria, stranguria, and hernia recurrence[1,6,7,8,14]. Dogs were discharged when all of these variables were considered normal. None of this complication was observed after surgery and it seemed that it was due to good animals handling, suitable postoperative care, appropriate technique selection and absence of complicated cases. The dogs were examined for complications weekly for one month. The final evaluation revealed that all dogs were clinically normal, owners were fully satisfied with the outcome. This study proved that the internal obturator transposition technique was superior technique for perineal hernia cases.

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چکیده:

فتق پرینه در سگ: افقی جدید در درمان و گزارش سه مورد

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توصیف بیمار: در این مقاله ۳ مورد فتق پرینه در سگ گزارش شده است و تکنیک های جدید جراحی فتق پرینه مورد بررسی قرار گرفته است. ۳ قلاده سگ نر ۵ ، ۶ و ۴/۵ ساله که تا زمان مراجعه جفت گیری نکرده بودند به ترتیب از نژاد های اشپیتز، داشهوند و ولش کروکی در زمانهای متفاوت به دلیل وجود تورم در اطراف مقعد و مشکل در دفع به کلینیک دانشکده ارجاع داده شدند.

درمان و نتیجه آن: تمامی سگها به روش جراحی درمان شدند . جهت درمان از تکنیک جراحیinternal obturator muscle flap استفاده گردید که طی آن عضله سدادی داخلی از محل اصلی خود جا به جا شد و به سمت بالا و داخل بر روی محل ضایعه قرار گرفت و به لبه های محل ضایعه بخیه گردید.

نتیجه گیری: پس از جراحی در هیچ یک از سگها ی عمل شده مشکل خاصی مشاهده نگردید . سگها به مدت یک ماه به صورت هفتگی معاینه شدند. در معاینه نهایی تمامی سگها از نظر بالینی سالم و صاحبان سگها از نتیجه درمان کاملاً راضی بودند.

کاربرد بالینی: این گزارش نشان می‌دهد تکنیک جا به جا نمودن عضله سدادی داخلی ،internal obturator muscle flap ، روش درمان انتخابی جهت درمان اینگونه موارد می باشد.

کلید واژگان: سگ ، فتق پرینه، obturator transposition technique