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PERINEAL HERNIOPLASTY BY MUSCULAR TRANSPOSITION IN DOGS

BY

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With 3 figures

SUMMARY

The internal obturator and sperficial gluteal muscles transposition were sucessfully used for reconstrution of the pelvic diaphragm in 12 experimental models and 3 clinical cases.

INTRODUCTION

Perineal hernia is the protrusion of the pelvic or abdominal contents through a weakened area in the pelvic diaphragm (Burrow and Harvey, 1973). The pelvic diaphragm consists of the levator ani and coccygeus muscles and the sacrotuberous ligament laterally, the internal obturator and superficial gluteal muscles ventrally and the external anal sphincter medially (Burrow and Harvey, 1973; Dorn, Cartee and Richardson, 1982; Robertson, 1983; Canfield and Bellenger 1985; Bone, 1992).

Perineal hernia occurs almost exclusively in old male intact dogs (Burrow and Harvey, 1973; Hayes, Wilson and Tarone, 1978; Robertson 1984). The proposed etiology of perineal hernia has revolved around hormonal imbalance with possible involvement of benign prostatic disease, chronic constipation and persistent weakness of the pelvic diaphragm (Moltzen-Neilsen, 1953; DeVita, 1957; Pettit, 1962; Hayes et al, 1978; Spreull and Frankland, 1980; Canfield and Bellenger, 1985). The common prevalent complaints of perineal hernia are tenesmus, constipation and presence of a swelling lateral to the anus and it may be reducible or irreducible if the bladder is herniated (Pettit, 1962 Burrow and Harvey, 1973; Harvey, 1977).

The purpose of this work is to study the feasibility of muscular transposition in perineal hernioplasty in experimental models and clinical cases.

MATERIALS AND METHODS

Experimental model

The subjects of the experiment were 12 adult

apparently healthy male dogs. These dogs were subjected to surgical induction of perineal hernia. The surgery was done under the effect of Ketamine HCl[1] (5.0 mg/kg) Thiopental[2] (10 mg/kg) i.v. anaesthesia after permedication with Promazine HCl[3] (1.0 mg/kg) i.m.

Reoperatively the anal sacs were squeezed and the fecal matters were manually evacuated from the rectum. A purse-string suture was placed around the anal opening to prevent escaping of faeces. Each animal was restrained in sternal recumbency with its hind legs over the padded end of the surgery table. The tail was tied over the back and the table was tilted slightly to elevate the hind quarters. The area from the base of the tail to the scrotum and lateral to the ischial tuberosities was prepared for aseptic surgery. A prophylactic dose of Ampicilline (25 mg/kg) i.v. was administered and continued for 5 days P.O.

A slightly curved but vertically oriented skin incision was made starting from the tail and extending to end distally ventral to the anus. The structures constituting the pelvic diaphragm were identified. The perineal hernia was induced after total resection of the levator ani muscle either unilaterally (6 cases) or bilaterally (6 case) (Fig. 1).

Internal obturator muscle transposition hernioplasty:

The technique was conducted on 6 dogs with unilaterally (3 cases) and bilaterally (3 cases) artificially induced perineal hernias.

Following identification of structures constituting the pelvic diaphragm, the caudal border of the internal obturator muscle origin was incised and elevated from the ischiatic table by using periosteal elevator. Elevation of the muscle was not proceeded beyond the caudal edge of the obturator foramen to avoid injuring the obturator nerve and artery suplying the muscle. The tendon of the elevated muscle was severed at its insertion to the trochantric fossa. As soon as the caudal portion of the internal obturator muscle was elevated and its tendon was severed, it was brought dorsally to occupy the induced perineal defect. The caudolateral border of the elevated muscle was sutured to the caudomedial edge of the sacrotuberous ligament using catgut-0. The caudomedial border of the muscle was sutured to the external anal sphincter muscle. Closure was then continued by apposing the subcutaneous tissues to obliterate the dead space and reinforce the previous sutures (Fig. 2).

Superficial gluteal muscle transposition hernioplasty :

This technique was conducted on 6 dogs with unilaterally (3 cases) and bilaterally (3 cases) artificially induced perineal hernias.

A -Y- shaped skin incisin was made extending from the proximal posteriolateral aspect of the thigh to anal sphincter. After removal of perineal fat, all muscles constituting the pelvic diaphragm were identified craniodorsal to biceps femoris muscle. The broad aponeurotic tendon of the muscle was isolated and traced below the biceps femoris muscle where it was resected at its insertion to the trochanter tertius. The belly of the muscle was then reflected to cover the ischio-rectal fossa. The broad aponeurotic tendon

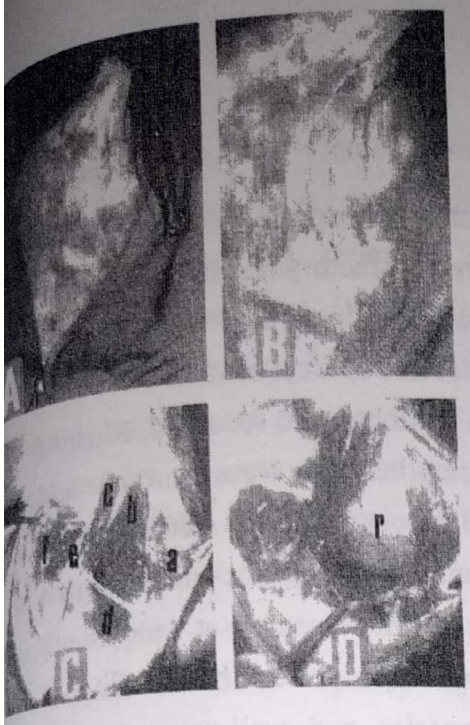

Fig.1: Stages of surgical induction of perineal hernia in a dog. The components of the pelvic diaphragm (a-external anal sphincter m., b- levator ani m., c- coccygeus m., d- internal obturator m., e- sacrotuberous ligament, f- superficial gluteal m.

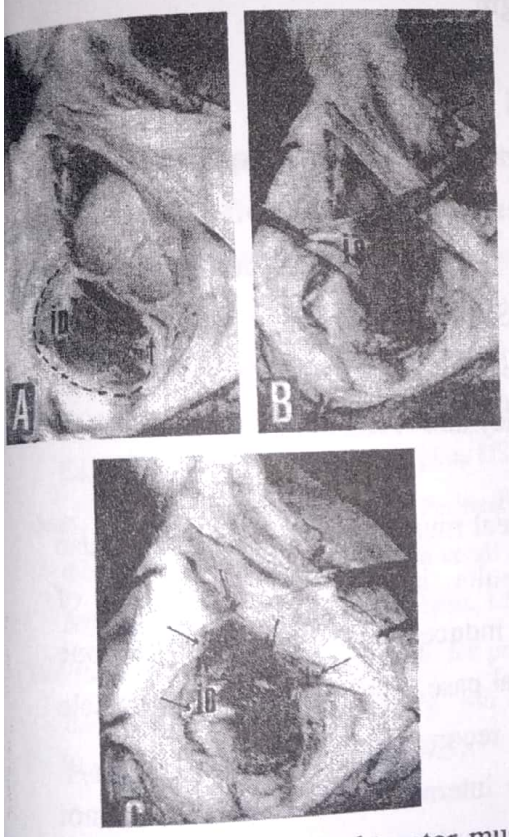

Fig. 2: Stages of internal obturator muscle transposition technique:
A- Internal obturator muscle i.o in situ (Arrows).
B- Releasing of i.o. muscle from the ischiatic table.
C- Fixation of the transposed i.o. muscle to the surrounding structures (Arrows).

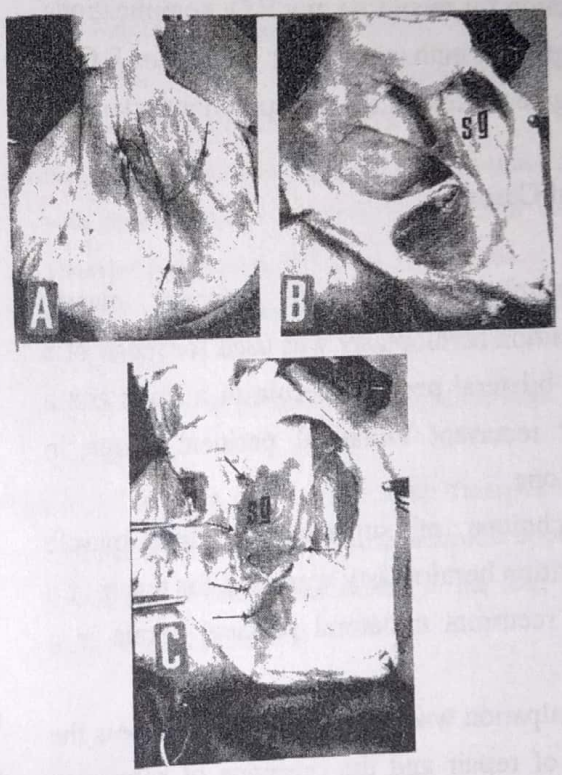

Fig. 3: Stages of superficial gluteal muscle transposition technique:
A- Y-shaped skin incision (Arrows)
B- Superficial gluteal muscle (s.) in situ.
C- Fixation of the transposed (s.) muscle to the surrounding structures.

of the muscle was extended over the external anal sphincter muscle and stitched to the adjacent tissue below and above the fossa using catgut-0 (Fig.3).

In the previous techniques, the subcutaneous tissue was sutured either in one or two layers with catgut-0 using continuous pattern to obliterate the dead space. The skin was closed as usual.
The dogs were fed soft food for the first week P.O. and gradually returned to normal food within extra two weeks. The skin sutures were removed 10 days P.O. The operated dogs were kept under observation for recording any P.O. complications. All dogs were euthanized after 6 monthes P.O. to investigate the fate of the transposed muscles.

Clinical Cases

The technique of internal obturator muscle transposition hernioplasty was used for repair of a case of bilateral perineal hernia in a Spitz and a case of recurrent unilateral perineal hernia in another one.
The technique of superficial gluteal muscle transposition hernioplasty was used for repair of a case of recurrent unilateral perineal hernia in a Boxer.
Rectal palpation was performed P.O. to assess the security of repair and the presence of sutures in the rectum.

Castration was performed in all the cases of the experimental models and clinical cases as an adjunct treatment.

RESULTS

Internal obturator or superficial gluteal muscles transposition gave satisfactory results for repair of unilateral or bilateral perineal defects in all cases of the experimental and clinical models.
No serious complications were recorded. Most of the observed complications were seroma and tenesmus which disappeared by the sixth day P.O.
Post mortem examination of the perineal region of the experimental model cases at one month intervals for 6 months, revealed the viability of the transposed muscles and well reconstructed pelvic diaphragm.

DISCUSSION

Internal obturator muscle transposition gave satisfactory results in repair of 6 cases of experimentally induced perineal hernia and in 2 clinical cases. Similar results have been reported by Hardie (1983), Robertson (1984), Orsner (1986) and Earley and Kolata (1990).

Superficial gluteal muscle transposition gave also satisfactory results in repair of 6 cases of experimentally induced perineal hernia and one recurrent clinical case. Such technique of muscle transposition is recommended in large breeds of dogs where the internal obturator muscle is not long enough to provide adequate coverage. This agrees with those reported by Spreull and Frankland (1980).

Although many P.O. complications are usually

encountered with conventional perineal herniorrhaphy such as recurrenc, dehiscence and fecal incontinence as reported by Robertson (1984) and Dean and Bojrab (1990), yet in muscular transposition hernioplasty seroma was the only encountered complication.

Post-mortem inspection of the perineal region of all experimental cases revealed that the viability of the transposed muscle was maintained without any atrophic changes. These findings are consistent to those reported by Spreull and Frankland (1980).

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