

CASE REPORT

An Unusual Case of Swimmer Puppy Syndrome in Labrador Puppy

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Swimmers puppy syndrome is an uncommon developmental deformity seen in neonatal puppies and kittens, in which animal's limbs, most commonly hind limbs, are splayed laterally, and because of that animals are unable to walk or stand. This condition may also affect the thoracic limb. It is also called flat pup syndrome, twisted legs, turtle pup, and splay leg. This condition is commonly seen in brachycephalic breeds having short legs and a broad thoracic cavity. When trying to walk, affected animals invariably stay in sternal recumbency and show swimmers-like movements and this movement is more commonly seen on the smooth surface. The exact cause of this condition is unknown but many predisposing factors are responsible, viz., slippery floor, delayed neuromuscular development, abnormal myelination, genetic factor, weight gain exceeding skeletal muscle development, etc. This condition is commonly seen at the 1st to 7th week of age. Currently, there is no specific and set protocol for the treatment of Swimmer Puppy Syndrome. To our knowledge, the few case studies described therapies based on the implementation of temporary immobilizations utilizing eight-girdle or cuff bandages and intensive physical therapy. (Karcher *et al.*, 2018).

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CASE HISTORY AND CLINICAL OBSERVATIONS

A 45-days old female Labrador retriever puppy weighing 3.5 kg was presented at Integrated Tribble Development Project Office, Khedbrahma, with a history of inability to adduct both fore- and hind-limbs for the past 20 days. The owner had consulted several veterinarians, whom all had advised euthanasia and the puppy was surrendered by the owner. The owner also explained she was raised on the smooth surface and was smaller than its littermates. There was family history of swimmer puppy syndrome or pectus excavatum. On clinical examination, it was noted that neither of the hind legs could be placed in a normal standing position even with manual support. There was also a significant lack of adduction of the limb. There was a significant decrease in the range of motion of the hip joint and stifle joint. Hyperextension of the hip joint was also present. There was a swimmer-like movement when the puppy was trying to ambulate. All four legs were parallel to the floor, beside the abdomen. At rest, the dog remained in sternal recumbency. If the animal was positioned in dorsal recumbency, it could not right herself. Because of longer sternal recumbency, posture pressure on the chest developed, leading to difficulty in breathing.

Moreover, contact dermatitis and local alopecia developed due to scalding with urination and defecation. A neurological evaluation was unremarkable. There was no swelling present on the joints. The history and clinical signs/observations confirmed Swimmer Puppy Syndrome.

TREATMENT AND DISCUSSION

Physical examination alone is the most common means of diagnosing swimmer puppy syndrome. Before starting the

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treatment, puppy was placed on a thick and soft mat and it was continuously changed and the lower portion of the body was wiped at regular intervals to prevent scalding because of urination and defecation. Owner was also advised to clean the area with water immediately after the dog urinates. Treatment recommendations included bandaging, physiotherapy, nutritional support, and environmental modification. The puppy was given Syrup Ostopet and syrup Vitabest derm @ 5 mL each daily by the oral route as a calcium and Vit D3 supplement for the treatment of alopecia and dermatitis, respectively. Oral antibiotic Syrup Moxikind-CV (contains Amoxycillin 200 mg and clavulanic acid 28.5 per 5 mL) was given @ 1 mL per day to cure contact dermatitis. Physiotherapy was initiated for 15 min and 3 times a day. The massage was done on the affected muscle of the hind limb by thumb and index finger. Slowly flexion and extension of the hip joints were done manually to improve passive



Fig. 1: Puppy with splayed laterally hind limbs

range of motion. The owner was advised to provide manual support to the puppy for walking. Thermotherapy was begun 3 times a day by applying warm water compresses on the limbs to stimulate arterial hyperaemia, which enhances oxygen delivery to tissues and augments metabolic activity of muscles (Kathmann *et al.*, 2006). Hobble bandaging was placed between both forelimb and hind limbs to prevent further abduction. Care was taken to prevent ischaemia of the bandaged structures, and the owner was advised to remove the bandages every other day for inspection of the skin and to prevent dermatitis from scalding with urine or faeces. Smooth surfaces were avoided and thick towels were used to improve the animal's grip. After 4 weeks of treatment and proper care, the animal could walk normally and all skin lesions were also resolved.

Traditionally, the syndrome has been considered untreatable, so animals with symptoms tend to be euthanized. However, there have been several notable cases where clinicians have successfully treated animals with this syndrome. Due to repeated regurgitation and aspiration pneumonia, dyspnoea and septicemia, the animal should have succumbed, however, timely management and therapy protected her from further aggravations and cured it. Patellar luxation is one of the most common congenital anomalies seen in a puppy with swimmer puppy syndrome



Fig. 2: Puppy with Hobble bandage applied for 15 day

(Nelson and Couto, 2015). However, no clinical signs of patellar luxation were observed in this case. The increased thoracic and abdominal pressure can result in regurgitation, aspiration pneumonia, and dyspnea in swimmer dogs. When this occurs, the affected animals can sometimes die before eight weeks age. Several possible predisposing factors affect swimmer puppy syndrome, including genetic factors, environmental factors, nutrition, neurological, and orthopedic causes (Verhoeven *et al.*, 2006). Tomihari *et al.* (2022) concluded that litter size and weight gain may have contributed to the development of swimmer puppy syndrome in Labrador puppies. Lorenz (1977) asserted that weak ligaments or muscles might also be contributing factors. Several factors affect the effectiveness of physical therapy, such as the number of affected limbs, the timing of physical therapy activities, and the owner's commitment to follow the recommended treatment plan (Yardimci *et al.*, 2009). Physiotherapy and bandages are the most helpful when started during the first three to four weeks of life since bones and joints are pliable and easier to adjust at that time (Hosgood and Hoskins, 1998). Strengthening the muscles of extremities by means of physiotherapy contributed to early ambulation. In older patients, the therapy appeared to be less effective than it is in younger patients.

In most cases, excellent recovery was seen among those who were diagnosed and began treatment at three to five weeks of age; only two patients who were diagnosed and began treatment at six weeks of age showed excellent recovery (Hosgood and Hoskins, 1998). Owners should be thoroughly informed about the long-term therapy because it's time-consuming. Proper bandage care is essential in this treatment approach to avoid pathologic outcomes, such as oedema and ischemia (Lorenz, 1977). Physiotherapy exercises should be performed on the patient while the bandage is being removed consistently, so that muscle tone and motor coordination of the limbs can be improved with stimulation of the edema (Marsolais *et al.*, 2002; Yardimci *et al.*, 2009). Bandaging will help improve joint and muscular hygiene and enable the physician to assess the patient's condition (Verhoeven *et al.*, 2006). It is also recommended to monitor nutritional intake to ensure proper nutrition and maintain healthy development (McDonald *et al.*, 2011).

In brief, A 45-days old female Labrador retriever puppy presented with a history of panting and an inability to adduct both fore and hind limbs for the past 20 days. Swimmer Puppy Syndrome was diagnosed based on the patient's history and clinical findings. Her recovery was complete after receiving home-care treatment, which included bandaging, physiotherapy, antibiotics, vitamin supplements, and environmental modifications. The animal was able to walk normally without any skin lesions.

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