

## CASE STUDY:

Brachial Plexus canine case study - Harvey is a 7 year old male black Labrador

### Reason for referral:

Road traffic accident (RTA) 19/12/06. Paralysis of right fore limb and cervical pain. Provisional diagnosis - brachial plexus injury

### Medical history:

19/12/06 Seen by own vets and hospitalised post RTA. Given intravenous fluids, pain relief and treatment for shock. Cranial nerve function ok. Painful right shoulder, elbows and dorsal rib area. No obvious signs of internal injury detected.

20/12/06 Non weight bearing 24 hours post incident. Radiographs performed and nothing abnormal detected. Diagnosis: probable muscle damage and soft tissue injury.

21/12/06 Neurological exam: Right fore (RF) paralysis and negative sensory and motor function at all levels. No deep or superficial pain RF. Suspect brachial plexus avulsion. Sent home and for re-evaluation in 2 weeks.

2/1/07 Referral for physiotherapy assessment. RF ongoing paralysis and yelped when moving at times.

### Physiotherapy Examination:

Non weight bearing (NWB) right fore limb. Loss of full carpal extension. Muscle atrophy RF scapular and shoulder area. Loss of deep pain and withdrawal reflex. Slight muscle twitch of biceps and triceps, so possible proximal nerve recovery. No distal nerve recovery at present.

### Physiotherapy Treatment:

Began muscle stimulation of triceps and biceps + dynamic forelimb stretches on physio ball with assistance. Advised owner re corrective limb placement/weight bearing position. Follow up: To continue with home exercise programme and refer for veterinary rehabilitation programme and acupuncture.

### Veterinary examination:

3/1/07 - Cervical pain C7-T1 and reluctance to move head and neck laterally, especially to right. Associated cervical paraspinal muscle spasm and pain referral pattern right shoulder and neck. Taut muscle band under cranial scapula. NWB right fore and pain especially right shoulder. Has deep pain and very weak withdrawal reflex and superficial pain response. Proprioception negative. Muscle atrophy infraspinatus, supraspinatus, biceps and triceps.



### Treatment:

Acupuncture of cervical points: BL11, CV14, and various trigger points neck and shoulder area. LI15, TH14, SI9, LI11, TH5, BL60. Needling of deep cervical and subscapular acupuncture points initially painful, but Harvey soon relaxed and analgesic effect obviously demonstrated after approximately 5 minutes. Electroacupuncture for 5 minutes from BL11 TH14/LI15.

Physiotherapist demonstrated muscle stimulator and physio ball exercises again and owners to continue at home to slow muscle atrophy.

4/1/07 Owners phoned to say dog much more comfortable after treatment and definite movement of shoulder after acupuncture treatment. Dog seemed to be dragging the limb less.

9/1/07 Much improved limb placement. Harvey able to hold his limb straight when sitting. Good superficial and deep pain response, and limb withdrawal stronger. Definite proximal limb response but distally still a poor response. Poor proprioception RF limb. Still NWB but holding limb higher when walking. Neck pain resolved, and he was much more comfortable with lateral movement of head and neck. Repeated electro-acupuncture.

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Began hydrotherapy treadmill exercise but due to C7-T1 focus of pain, care re overextension of RF shoulder and dorsiflexion of head/neck (free swimming not appropriate at this stage.) Did 3x2 minute sessions initially with support, to encourage proprioception. Harvey attempted to compensate with other 3 legs and tired easily.

16/1/07 Repeated treadmill session of proprioceptive work with assistance 3 x 2 minutes. Concern regarding the muscle atrophy and owners having trouble with exercises. Given large peanut ball as dog is reluctant to use physio ball.

Harvey developed lick granuloma on the dorsum of his right fore paw, so applied a light dressing and prescribed antibiotics.

18/1/07 Improved generally although still muscle atrophy + + Slow 2 minute warm up on treadmill, then proprioceptive work with assistance 2 x 3 minutes. Tried swimming in treadmill, however he showed some ability to advance the RF limb he tired easily after 2 minutes. Discussed splinting, although difficult at present, as inability to advance the limb, due to muscle weakness.

23/1/07 Aquatic treadmill and assisted proprioceptive work 3x3 mins after warm up. 3 minute free swimming with life jacket

support-dog, enjoyed this although tired quickly. Arranged to book free swimming session weekly along with weekly treadmill and acupuncture sessions.

25/01/07 Good proximal forelimb activity when free swimming and assisted proprioceptive and limb weight bearing / placement on treadmill. Tried floats to encourage weight bearing on RF limb, as Harvey had developed a compensatory gait pattern. Continued work on a peanut ball to improve distal limb function and muscle strength.

**Plan:**

Harvey is to continue an intensive 6-8 week rehabilitation programme with swimming, aquatic treadmill and regular acupuncture sessions. We aim to see an improvement in limb proprioception over the next 2-3 weeks and to maintain or improve muscle strength and bulk during this time. We may splint the limb using an Ortho-vet splint once the lick granuloma on Harvey's paw has resolved. The owners are to carry on with progressive exercise programme at home using peanut ball and muscle stimulator initially. Owner compliance is essential in these cases and we do find they really need our advice and guidance with these long term rehabilitation cases, especially when there is a plateau in the animal's progression.

**Although we hope Harvey will regain use of his right fore, a full recovery of total limb function may not be possible in this case. It is important that the owners are informed of this and have a realistic view of the likely outcome.**

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