

## Post-operative care for patients after porto-systemic shunt surgery

In normal animals, the “dirty” blood from the intestines is first routed to the liver through a vein called the hepatic portal vein. The liver cells then clean up the blood, before it is allowed to enter the general systemic circulation. Porto-systemic shunts are one or more abnormal blood vessels that allow the venous blood draining from the intestines to pass directly into the general circulation, bypassing the liver. Organs like the brain are adversely affected by this “dirty” blood, which contains toxins like ammonia. Often dogs present with hepatic encephalopathy (signs of brain dysfunction secondary to abnormal liver function). These signs can be lethargy, seizures, circling, aimless wandering, head pressing, drooling). Urate bladder stones can develop in conjunction with shunts, and these can lead to obstruction of urinary outflow or cystitis.

Shunts are sub-classified as congenital or acquired. 80% of cases are congenital shunts (animals are born with shunting though signs may not develop for a year or two). The shunting vessel is usually a single vessel though multiple ones can occur. In small breed dogs, congenital shunts are usually extra-hepatic (outside the substance of the liver). In large breed dogs congenital shunts are usually intra-hepatic (inside the substance of the liver). 20% of cases are acquired shunts where numerous abnormal vessels develop, usually because of liver disease. These acquired cases can't be treated surgically.

Acquired shunts need medical treatment and/or a medical referral. Intra-hepatic shunts require a specialist surgical service and this is a surgical procedure that we can't offer at the current time. The shunts that can be suitable for referral to us at West Midlands Referrals are the extra-hepatic congenital shunts, so when shunting is suspected, we generally limit the referrals we accept to young, small breed dogs. We locate the shunt and place a device around it which slowly closes it in the weeks following surgery. The aim of the delay is to allow time for the circulation in the intestines and in the liver to adapt.

### Investigations that will often have been carried out by the referring practice before referral include:

Haematology/biochemistry.

Bile acid stimulation test. High levels of bile acids after a meal are usually seen with shunting.

Ultrasonography.

Urinalysis. Urine is checked for evidence of urate crystals, cystitis etc

### Investigations that we will likely need to do or arrange include:

Ultrasonography with a very experienced ultrasonographer. This is done pre-operatively, with the patient conscious.

Contrast radiography. This is usually done as part of the surgical procedure.

Bile acid stimulation (BAS) test. This is repeated a few weeks after surgery to verify how successful the procedure has been.

<b>Medication:</b>	<b>Antibiotics:</b>	Antibiotics like claviseptin are usually given for a few days (usually tablets given twice daily) and are usually continued by your own vet until the follow up BAS test a few weeks post op.
	<b>Anti-inflammatories:</b>	We would usually advise avoiding non-steroidal anti-inflammatory drugs (eg carprofen, meloxicam, Onsior, Previcox) when liver function may be sub-optimal.
	<b>Analgesics:</b>	We may have dispensed tramadol, (tablets given twice daily) for 5-7 days.

Ongoing medication for shunts usually continues for at least a few weeks into the post-operative period and includes:

<b>Lactulose:</b>	Reduces ammonia production in the intestines
<b>Antibiotics:</b>	Suppresses intestinal bacteria and reduces formation of potentially toxic substances
<b>Diet:</b>	Low protein diet

**The wound** must not be interfered with or bathed. An Elizabethan collar can help prevent interference with wounds. Any ooze may be gently blotted with kitchen towel, but if ooze is seen, advice should be sought.

**Rechecks** in the few days after surgery can be required if there is poor food intake, poor level of alertness, neurological signs, vomiting, pain etc. This do be with your own vet to save un-necessary travelling. We would prefer to do this check-up if travelling is not an issue, and all post-op check-ups are free of charge with us under our “fixed price” schemes. Please contact us to book an appointment for us to see the case back 2-3 weeks post-operatively when we can remove sutures/staples and check that all is going to plan.

**Dressings** may be used post-operatively, typically a thin white Primapore, to give the wound some on-going protection. These should be kept dry at all times. If they do become significantly wet then they can be removed.

**Restriction and supervision of activity** is required for a couple of weeks post-op. Dogs should be on a lead anywhere outside of the house including the garden. Allow just 5 minutes of lead restricted exercise, three times a day, until you are advised to the contrary. Cages which will fold flat when not in use are readily available from pet superstores, Argos, many DIY stores or from on-line retailers. Running / jumping / climbing should be prevented.

**Our fixed prices include any follow up consults and x-rays done with us, but don't include further medication or revision surgery. In the event of extended hospitalisation being required, extra- hospitalisation costs will apply. For further details please see [www.wm-referrals.com](http://www.wm-referrals.com), “about us”, “FAQs”. For further advice please contact us by phone on 07944 105501 or at [enquiries@wm-referrals.com](mailto:enquiries@wm-referrals.com). Consider texting/emailing pictures.**