

HOLISTIC HEALTH CARE FOR CAVALIERS



Part XII

The Liver

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Many of the problems we see, in practice, concern the heart, liver and kidneys. We have already touched on heart issues and we will address liver issues in this article and then move onto kidney issues.

The liver is one of the most complex organs in the body. It serves a multitude of functions which include:

1. Production and excretion of bile
2. Enzyme activation and regulation
3. Creation of albumin and other plasma proteins
4. Production of clotting factors
5. Processing (metabolism) of proteins, fats, and carbohydrates
6. Storage of many vitamins, minerals, and glycogen (involved in glucose levels)
7. Detoxification of normal body byproducts, hormones, toxins, and drugs
8. Blood purification

The liver is one of the largest organs in the body and has too many functions for us to go into detail or this chapter would be an 800 page book. Our main goal is to help you to better understand what the liver does, a little about how it does it, what can hurt it, and what we can do to maximize its health and function.

Liver Anatomy and Physiology

All the blood that returns to the heart passes through the liver unless there is a liver shunt. A liver shunt can occur at birth or develop later in life. Which allows the blood to bypass the normal liver filtration process.

There are so many different functions of the liver that there is no clear “starting point,” so let’s pick the production and excretion of bile as our initial function. Bile is created by cells in the liver, excreted into the bile ducts (in most species). It is then accumulated in the gallbladder (cats and horses do not have gallbladders), and from the

gallbladder is excreted down the common bile duct into the small intestine.

Besides being an accumulation of many different biological compounds that are, actually, waste products produced by other liver functions, the bile also has very important digestive properties. One of the most important functions of the bile, in digestion, is to help process fats and cholesterol as food passes through the small intestine. It is interesting to note that almost 95% of these digestive chemicals are reabsorbed and reused in the biliary system, often multiple times in one digestive cycle.

Liver problems related to the biliary system can include: overload, blockage, tumors, infection, inflammation, or other degenerative processes. This can involve the microscopic bile ducts, the cells lining these ducts, the gallbladder, or the main duct leading from the gallbladder to the small intestine.

Needless to say, this is only a part of the complexity of just one portion of the liver.

The liver is also critical for synthesis, modification, and metabolism of: amino acids, carbohydrates, glucose, lactate, glycogen, proteins, cholesterol, triglycerides, coagulation factors, hormones like certain growth factors, and hormones that help regulate blood pressure and platelets. It also manufactures the blood proteins albumin and gamma globulins.

Storage is another critical liver function. Some important examples are; glucose and glycogen, many vitamins including Vitamin A, D3, B12, and K, plus the minerals copper and iron.

As we mentioned earlier, the liver is also critical for the breakdown and elimination of many toxins (metabolic, ingested, and administered), insulin, hormones, urea, and most drugs. Each of these usually require a specific enzyme or enzyme pathway to aid in their detoxification and removal which is why animals missing specific enzymes cannot handle drugs that other species can.

Liver testing

A yearly blood profile can go a long way in detecting liver issues early in the dog and cat; the normal blood panel includes liver related blood tests like ALT, GGT, AST, Alkaline Phos, and Bilirubin. These help the veterinarian see a snapshot of the liver at that moment in time so often repeated tests can show trends and are very valuable in diagnosis, prognostics, and evaluation of therapy.

Most of the items measured are enzymes, except for the bilirubin, contained within the liver cells. Elevation usually indicates destruction of the cells leading to leakage into the blood stream, and thus, the elevated levels. Not all of these items are liver specific (some are present in other tissues), but taken as a group can be very helpful in building a fuller picture of liver condition.

Bile acids are another common liver test. They are measured before and after a fatty meal in a fasted dog and the change or elevation plus the base values are a good indicator of liver function. X-rays can show liver size and structure and ultrasound provides a better, non-invasive view of the liver and gallbladder. Further testing may involve biopsy – either percutaneous (through the skin) ultrasound guided needle biopsy or actual biopsy during an exploratory laparotomy are available. More recently this can be done laparoscopically. More vets are using CT scans and MRI, but these are still less common (and expensive).

Disease and Injury

A few of the most common liver damaging conditions seen in our practice include: tumors and progressive liver degeneration related to cirrhosis, hepatitis, parasites, Cushings and Ehrlichia (as well as the other Rickettsial infections). There has also been a resurgence of Leptospirosis in some areas of North America and needs to be considered in severe acute liver disease.

One of the wonderful things about the liver is its ability to regenerate. That is why it is possible for one donor liver to go to multiple recipients. This ability to regenerate can help a liver subjected to an injury or toxic event to recuperate with appropriate supportive care. For example, the normal ALT (one of those pesky liver enzymes) in most dogs runs from about 40 to 120 but I've seen cases where the ALT is over 3000 after poisoning and have even seen it go as high as 4500 during conventional heartworm treatment with arsenic. That's not to say that these patients are doing great. They are not but they can, frequently recover, often rapidly, with supportive care and proper therapy.

Jaundice is frequently seen in some forms of liver compromise or fail-



ure because the buildup of the bilirubin spreads to the other tissues and gives them a sickly yellow-green color. The actual medical term for this is icterus jaundice in the common term. Sometimes it is subtle, and really only visible in the whites of the eyes and maybe the linings of the ears and sometimes it is glaring.

Therapeutics

Now that we've just touched on some of the many ways the liver can be affected or damaged, we will explore some of the holistic methods to help the liver heal. Among these are: diet, herbs, antioxidants, vitamins and supplements, acupuncture, and, of course, homeopathic remedies. There are also conventional medications which can aid in dealing with liver (especially biliary) issues but that is not a discussion for this article.

In January 2014, I attended the North American Veterinary Conference (NAVC) in Orlando and attended a number of CE lectures on liver disease. I found it exciting that the latest therapies often included the use of milk thistle and the antioxidant Sam E (often given in combination as a veterinary product called Denamarin).

Dietary Therapy

Dr. Jean Dodds (Hemopet) has developed an excellent therapeutic diet of white fish and potato to help in liver toxic patients. There are also multiple variants of this in the literature. I, recently, reread a detailed discussion by Dr. Stanley Marks, Dr. Rogers and Dr. Strombeck from 1994 in the *Veterinary Compendium of Continuing Education* discussing each aspect of hepatic function in relation to diet. While not readily available to non-veterinarians, it is incorporated and referenced in an excellent discussion by Dr. Strombeck (one of the co-authors) on his website at http://dogcathomeprepareddiet.com/diet_and_hepatic_disease.html. The article itself is: *Nutritional Support in Hepatic Disease. Part 1. Metabolic Alterations and Nutritional Considerations in Dogs and Cats Compend Contin Educ Vet. August 1994;16(8):971-978. 40 Refs Stanley L. Marks; Quinton R. Rogers; Donald R. Strombeck*

Herbal Therapy

There are many Chinese herbs that address the liver and can be very effective. These should be given under the guidance of a trained herbalist since there are also ones that can cause problems. The western herbs silymarin (milk thistle) and dandelion root are the mainstays of my herbal hepatic support and in almost all of the common liver support formulas.

Nutraceuticals and Anti-oxidants

Standard Process Hepatic support, Hepatrophin, choline

HOLISTIC HEALTH CARE *continued*

and moderate doses of Vitamin E can provide excellent liver support. I am very careful with Vitamin A, as too much can have a negative impact on liver function. Anti-oxidants, especially Sam-E (S-adenosyl methionine) and CoQ10 are excellent for the liver with Sam-E being my favorite. As I mentioned previously, Denamarin by Nutramax is a veterinary combination of Sam-E and milk thistle that is routinely prescribed by many veterinarians for any liver issues in dog and cats.



mediately to mind and we often use a more liver specific remedy chelidonium in severe cases. Unlike other areas, it is difficult to give a breakdown of homeopathic remedies with hepatic affinity, since there are many listed, but the selection depends on other symptoms of the case and this is definitely the purview of a trained veterinary homeopath. (See example below.)

As you can see, the liver is a multi-dimensional organ that transforms, synthesizes, detoxifies, and regulates hundreds of essential processes in the body. A good diet, minimal toxic exposure (including flea meds, drugs, heartworm and environmental toxins), and regular testing can help to avoid or, at least, catch a problem early.

In the next Chapter we are planning to cover the kidney. 🐾

Acupuncture

Acupuncture is commonly used in the treatment of liver disease in Traditional Chinese Medicine (TCM) and can help increase the energy and function of the liver.

Homeopathy

Homeopathy has long been used to assist in arresting liver damage, aiding regeneration and is one of the leading tools in our practice for these cases. Many of the more common homeopathic remedies have significant action on the liver. Phosphorus, arsenicum, lachesis all come im-

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As an example, here are two of the homeopathic rubrics from the *Synthesis Repertory* by Dr. Schroyens to demonstrate the number of remedies that may address complaints of the liver (Figure 1, Complaints of the Liver and Jaundice) (Figure 2. Skin Discoloration - Yellow). These list remedies that fall into these areas and their relative strength for that symptom. By using these and other relevant symptoms of the patient, we can narrow the list and, hopefully, choose the best remedy for that stage of the case. This concept has been covered in earlier chapters and are all available online at our website www.naturalholistic.com in the client information library.

You can also look at the sample case I used in our online homeopathic tutorial for more on how we select remedies at http://naturalholistic.com/html/learning/tutorial_intro_page.html

ABDOMEN

👉 **LIVER and region of liver; complaints of:** (221) abies-c. abrot. **ACON.** aegle-m-f. **Aesc.** Agar. agar-ph. agn. all-c. **Aloe Alum.** am-c. **Am-m.** ambr. anac. anag. anders. ang. ant-t. **Apoc.** Arg-n. Am. Ars. ars-i. asaf. **Astac.** atis. **Aur.** aur-ar. aur-i. aur-m. **Aur-m-n.** **Bapt.** bar-c. barbit. **BELL.** benz-ac. **BERB.** berb-a. boerh-d. bov. brass. brass-n-o. **BRY.** **BUFO** cadm-s. calad. **CALC.** Calc-f. **CALC-P.** calc-sil. camph. cann-s. canth. **Caps.** Carb-an. Carb-v. **CARB-N-S.** carbn-tm. **CARD-M.** Carl. caust. cean. **Cham.** **CHEL.** chelo. chen-a. **Chin.** chion. chol. chrystl. cic. **Cimx.** cinnb. clem. cob. **Cocc.** coenz-a. **Colch.** coli. **Coll.** **Coloc.** combr-r. **Con.** **CORN.** **Croc.** **Crot-c.** **Crot-h.** **Cupr.** cyna. dig. dios. **Dol.** dros. dulc. euon. **Euon-a.** **Eup-per.** fab. ferr. ferr-ar. ferr-p. **Ferr-pic.** **Fl-ac.** gels. **Graph.** grin. haru-ma. hed. hell. **Hep.** hip-ac. **Hydr.** hyos. hypoes-t. **Ign.** **IOD.** iodof. ip. **Iris Kali-bi.** **KALI-C.** kali-i. kali-n. kali-s. kreos. lac-d. **LACH.** lachn. lact. **Laur.** **LEPT.** luf-b. **LYC.** m-arct. mag-c. **MAG-M.** mang. mang-s. marr. **MERC.** merc-c. mez. microg-p. morg. morg-g. **Morg-p.** mosch. mur-ac. **Myric.** nat-ar. nat-c. **Nat-m.** nat-p. **NAT-S.** nat-sal. **NIT-AC.** nit-m-ac. **NUX-M.** **NUX-V.** oci-su. ol-j. olib-sac. op. orot-ac. ost. par. petr. **Ph-ac.** **PHOS.** plat. **Pib.** pneu. **PODO.** **Prun.** **Psor.** **Ptel.** puls. querc. ran-b. ran-s. raph. rheum rhod. rhus-t. ruta sabad. sabin. **Sang.** sars. sec. sel. seneg. **SEP.** ser-ang. sil. spig. spong. stann. staph. stel. sul-ac. sul-i. **SULPH.** tab. tarax. teucr. ther. thlas. thuj. tinas. trios. uran-n. ust. valer. vanad. verat. verb. visc. yuc. **Zinc.**

SKIN - DISCOLORATION

👉 - **yellow (= jaundice, etc.):** (189) acal. acetan. **ACON.** aesc. agar. agar-ph. agn. **Aloe** alum. alum-p. alumn. **Am-m.** **Ambr.** anders. **Ant-c.** ant-i. **Ant-t.** arg-n. Am. Ars. ars-i. asaf. **astac.** **Aur.** aur-m-n. aur-s. barbit. **Bell.** **Berb.** blatta-a. both. bov. brass-n-o. brom. **Bry.** bufo cadm-s. **Calc.** calc-ar. **Calc-p.** calc-s. calc-sil. calen. cann-s. **Canth.** Carb-v. carbn-s. **CARD-M.** cas-s. **Causf.** cean. cedr. **Cham.** **CHEL.** chelo. chen-a. chim. **CHIN.** **Chinin-ar.** **CHION.** chol. cina coca cocc. **CON.** convo-s. **Com.** com-f. **Croc.** **CROT-H.** cupr. **Dig.** diph-t-tp. **Dol.** dulc. elaps elat. eup-per. euph. fab. fel **Ferr.** ferr-ar. **Ferr-i.** ferr-pic. fl-ac. gels. granit-m. **graph.** **Guat.** hed. hell. **Hep.** hier-p. hip-ac. **Hydr.** **Ign.** ilx-a. ins. **IOD.** iris **Jug-c.** kali-ar. kali-bi. kali-c. kali-i. kali-m. kali-p. **Kali-pic.** kali-s. kali-sil. lac-h. **LACH.** lact. lat-m. laur. **Lept.** leptos-ih. lina. lipp. loxo-lae. loxo-recl. **LYC.** mag-m. mag-s. malar. mang. mang-act. med. **MERC.** **Merc-c.** merc-d. morg-p. mur-ac. myric. nat-ar. nat-c. nat-ch. nat-f. **Nat-m.** nat-p. **NAT-S.** **NIT-AC.** **NUX-V.** olnd. **Op.** oscilloc. ost. petr. ph-ac. **PHOS.** pic-ac. **PLB.** plb-xyz. **Pod.** psor. **Ptel.** **Puls.** quas. ran-b. rheum rhus-t. ric. rumx. ruta sabad. **Sang.** saroth. **Sec.** **SEP.** **Sil.** **Spig.** still. sul-ac. sul-i. sulfa. **Sulph.** tab. tarax. tarent. ter. thuj. tinas. toxo-g. trinit. verat. vip. yers. **Yuc.**