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Veterinary Botanical Medicine Association

Case Report : Chronic abdominal pain in a dog

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Abstract

A yorkshire terrier with chronic abdominal pain, diagnosed as pancreatitis, was successfully treated with a Western herbal combination of carminative herbs.

Signalment

Bogie was an 8 year old male neutered yorkshire terrier who weighed 8.7 lbs on presentation.

History

Bogie presented in April 1999. His history included chronic recurrent pancreatitis (usually after system stresses such as vaccination or anesthesia) with occasional vomiting during those episodes. He had recently developed a cough (worst post-excitement) and had lots of gas. His diet at that time was Hills Science Diet Small Bites and Pet Tabs. He was on daily flavored heartworm prevention.

Exam Findings

At Bogie's initial exam, he was found to have moderate dental calculus and periodontal disease. No pulse and tongue data are available. His physical exam was otherwise normal at this visit.

Treatment

The initial approach to address Bogie's episodes of abdominal pain, occasional vomiting and gas was to change his diet. Food intolerance and food allergy often present as abdominal distress in dogs, as well as the more well-recognized skin manifestations. Since he had always eaten chicken and corn based kibble, we attempted to find a lamb and rice diet for him to try in a 'small bites' form, because his owner was reluctant to cook for him.

An antioxidant combination was also prescribed, as it has been shown that vitamin C and vitamin E can help prevent recurrent pancreatitis in some human populations, and selenium has been shown to shorten the duration of pancreatitis in dogs. Certain forms of selenium and ascorbate have proven most promising (Schulz, 1999) (McCloy, 1998). Selenious acid 0.3mg/kg IV may be effective in dogs (Kraft, 1995)

Bogie had an episode of pancreatitis with vomiting on 8-31-99. His bloodwork was essentially normal at that time, and with fluid treatment, the signs resolved. He continued to have regurgitation problems, however, and was seen again on 9-14-99. On questioning, it turned out that he was eating Innova, which is a chicken based diet. I recommended that the owner switch to a fish based hypoallergenic diet at this time. He did well for almost a year.

Bogie again had an episode of vomiting on 8-22-00. He was eating nothing but the fish and potato canned diet and was still being given the antioxidant combination. On exam, his mucous membranes were slightly injected and he was mildly dehydrated. Bloodwork at that time indicated that he was slightly dehydrated (BUN 26, high normal is 25; creatinine 1.8, high normal is 1.6) His white blood cell count was low at 3800, indicating either peracute viral or bacterial infection or sequestration of the white cells, as one might see with pancreatitis. I recommended an abdominal ultrasound at that time. He was examined on 9-6-00 and the ultrasound indicated an enlarged pancreas. A low fat diet, which helps prevent canine pancreatitis, was recommended at that time.

He was seen again on 10-20-00 by another doctor, with yet another vomiting episode. Metoclopramide was prescribed for the vomiting and sulfamethoxazole for presumed protozoal infection. He was placed on a low fat, high fiber diet at that time.

The next time I saw Bogie was on 1-11-01. His tongue was lavender and slightly dry, and his pulses slippery and soft. He was presented for his yearly exam but the owner reported that, on the high fiber low fat diet, he again was experiencing nausea and gas. Because we didn't want to change the diet and risk pancreatitis again, I recommended an herbal tincture containing Fennel seed, Wild Yam root, Peppermint leaf, Chamomile flowers, and Ginger root (Carminative Compound, by Herbalist and Alchemist). In addition, I recommended a probiotic supplement.

Herb selection and rationale

Fennel (*Foeniculum vulgare*)

Family

Umbelliferae

Parts Used

seeds (leaves, stalks and roots are used in food)

Energetics

pungent, warm; relieves pain (Qi mover)

Actions

relieves intestinal gas accumulations and relieves GI spasm

expectorant

traditionally used to promote milk production

expectorant. It is most commonly used as a remedy for intestinal gas and colic, and sometimes for productive coughs.

Contraindications

Essential oil and concentrated extracts should be used with caution in pregnant animals, but infusions appear to be safe. Very high doses should be avoided in those with liver disease.

Toxicology and Adverse effects

Photodermatitis and contact dermatitis have been reported. A cross reactivity known in humans as celery-carrot-mugwort-condiment syndrome suggests that an allergic individual may react to other members of the Umbelliferae. Seizures resulted with sustained high doses in one report.

Dosage

Ground seeds: 20-30mg/lb TID

Tincture: 1 drop/lb TID

Peppermint (*Mentha piperita*) (NOTE: expanded monograph available on request)
(Bisset, 1994) (Pittler, 1998) (Tate, 1997)

Family

Lamiaceae

Parts Used

Above-ground parts

Energetics

Cool, pungent, aromatic; enters Lung, Liver meridians

Action

antispasmodic?

Traditional - disperses wind heat, vents rashes, releases constrained Liver Qi, benefits the throat, clears the eyes and nose

Indications

Irritable bowel syndromes- use enteric coated capsules

Nausea

Traditional - wind heat with fever, headache, cough, sore throat, red eyes; early stages of rashes; For constrained liver qi - irritability, female reproductive problems. Traditional Greek and European indications included GI upset.

Contraindications

Bile duct obstruction, gallbladder inflammation, severe liver damage, gastrointestinal reflux.

Traditional herbalists warn nursing mothers not to take peppermint as it may decrease lactation.

In TCM, contraindications include exterior deficiency, yin deficiency with heat signs.

The European Agency for the Evaluation of Medicinal Products, Veterinary Medicines Evaluation Unit assessed *Mentha piperita* for potential problems in food animal medicine. No special precautions were advised.

Adverse effects

Allergic reaction is possible, as is irritation if oil placed on mucous membranes.

Peppermint is Generally Recognized as Safe (GRAS) by the Food and Drug Administration

Potential interactions

none described

Dose

Dried herb: 25 mg/lb BID

Enteric coated capsules containing peppermint oil: 0.005ml/lb

Wild Yam (*Dioscorea villosa*, *D. floribunda*, *D. composita*)

(Weiss, 1994)

Parts Used

Root/tuber

Energetics

Neutral, sweet; relaxes

Notes

industrial source for synthetic steroid synthesis

Action

steroidal saponins (ex. diosgenin) are probably not converted to steroid in vivo, and the extent of their native steroid like activity has yet to be determined.

Indications (traditional)

Intestinal cramps
inflammatory bowel disease?
arthritis?

Contraindications

none described

Adverse effects

occasional nausea

Potential interactions

none described

Traditional Combinations

Black Cohosh for arthritic pain
Chamomile and ginger for colic

Dose

Dried root: 20-45 mg/lb daily
Tincture: 1 drop/lb TID

Chamomile (*Matricaria recutita*)

(Salgueiro, 1997) (Akihisa, 1996) (Viola, 1995) (Safayhi, 1994) (Merfort, 1994) (Aertgeerts, 1985) (Bisset, 1994)

Family

Asteraceae

Parts Used

Flowers

Energetics

Bitter, pungent; resolves Liver Qi Stagnation (Marsden, 2002)

Action

anxiolytic
antioxidant
anti-inflammatory

Indications

skin irritation, hot spots
gingivitis, stomatitis
gastritis, gastric ulcers, enteritis, irritable bowel disease
conjunctivitis (see caution below regarding allergy)
insomnia, anxiety

Contraindications

none described

Adverse effects

1. allergic reactions are reported in humans; caution may be advised in animals potentially sensitive to other members of the family Asteraceae, including ragweed.
2. epistaxis has been reported in cats administered chamomile

Potential interactions

none described

Traditional combinations

Has been used with Ginger for colic, and would work as well with other carminatives such as Peppermint and Fennel. It is likely to have synergistic effects with other mild tranquilizer herbs such as Passionflower and Valerian.

Dose

Dried flowers: 30-50 mg/lb TID

Tincture: 2 drops/lb TID

Ginger (*Zingiber officinale*)

(Schmid, 1994) (Aikins, 1998) (Sharma, 1997) (Sharma, 1994)

Parts Used

Root

Energetic

Hot, acrid; enters Heart, Lung, Spleen and Stomach meridians; reduces accumulated Dampness

Action

antiemetic
antioxidant
lipooxygenase inhibitor

Traditional use: warms the middle and expels cold; reduces devastated yang and expels interior cold; warms Lungs and transforms phlegm; warms channels and stops bleeding, for warming Spleen and Stomach due to externally-contracted cold or deficiency cold due to yang Qi insufficiency; for Lung cold

Indications

Motion sickness
Nausea
gastric ulceration
morning sickness in women
arthritis

Contraindications

none described
Traditionally, yin deficiency with heat signs

adverse effects

may increase bleeding times

Potential interactions

none described

Dose

Fresh grated root: 25 mg/lb of fresh root once as an antiemetic; 25-35mg/lb BID for chronic use

Tincture: 1 drop/lb BID-TID

Discussion

The owner reported resolution of the reflux and gas on this combination, despite the fact that Bogie continued to eat a diet that was almost certainly allergenic for him. While I usually advise pet owners that allergies are not easily 'cured' and that avoidance is the most effective treatment, Bogie had a complicated set of problems that made avoidance difficult in his case. An herbal formula, if effective, was ideal for him.

This formula is energetically balanced and contains just the right number of well chosen herbs, many of which have proven efficacy in controlled trials. It addressed Bogie's apparent dampness and Qi stagnation problems effectively.

References

Beesley A, Hardcastle J, Hardcastle PT, Taylor CJ. Influence of peppermint oil on absorptive and secretory processes in rat small intestine. *Gut* 1996 Aug;39(2):214-9

Ernst E, Pittler MH. Efficacy of ginger for nausea and vomiting: a systematic review of randomized clinical trials. *Br J Anaesth* 2000 Mar;84(3):367-71

Kraft W, Kaimaz A, Kirsch M, Hoerauf A: Behandlung akuter Pankreatiden des Hundes mit Selen. *Kleintierpraxis* 40:35-43, 1995

Madisch A, Heydenreich CJ, Wieland V, Hufnagel R, Hotz J. Treatment of functional dyspepsia with a fixed peppermint oil and caraway oil combination preparation as compared to cisapride. A multicenter, reference-controlled double-blind equivalence study. *Arzneimittelforschung* 1999 Nov;49(11):925-32

McCloy R, 1998. Chronic pancreatitis at Manchester, UK. Focus on antioxidant therapy. *Digestion* 1998;59 Suppl 4(4):36-48.

Schulz HU; Niederau C; Klonowski-Stumpe H; Halangk W; Luthen R; Lippert H, 1999. Oxidative stress in acute pancreatitis. *Hepatogastroenterology* 1999 Sep-Oct;46(29):2736-50.

Monograph 1

Fennel

Foeniculum vulgare

Distribution: indigenous to the Mediterranean, now growing wild or cultivated worldwide.

Similar species: 2 species which are difficult to separate because they hybridize, commonly known as sweet fennel and bitter fennel, are cultivated under the name *Foeniculum vulgare*. *Foeniculum dulce* is Finnochio, which is cultivated as a vegetable.

Common names: Fennel, Sweet Fennel, Fenchel, Fenkel, Bitterfenchel (German), Fenouil (French), Finnochio (Italian), Xiao Hui Xiang

Family: *Umbelliferae*

Parts Used: *seeds, leaves and stalks, root*

Collection: seeds (which are actually the dried fruits) should be collected when ripe, in the fall, Fennel can be confused with poison hemlock, so if found in the wild, care should be taken in proper plant identification.

Selected Constituents:

Fruit (seed): 1,8-Cineole, 3-Carene Fruit, 5-Methoxy-Psoralen, 8-Methoxy-Psoralen, Alpha-Phellandrene, Alpha-Pinene, Alpha-Terpinene, Alpha-Terpineol, Alpha-Thujene, Anisaldehyde, Anisic-Acid, Anisic-Ketone, Apiole, Benzoic-Acid, Bergapten, Beta-Phellandrene, Beta-Pinene, Caffeic-Acid, Camphene, Camphor, Ceryl-Alcohol, Cinnamic-Acid, Cis-Anethole, Cis-Ocimene, Columbianetin, D-Limonene, Dianethole, Estragole, Fenchone, Fenchyl-Alcohol, Ferulic-Acid, Fumaric-Acid, Gamma-Terpinene, Gamma-Tocotrienol, Gentisic-Acid, Imperatorin, Isopimpinellin, Isoquercitrin, L-Limonene, Limonene, Linalol, Malic-Acid, Marmesin, Methyl-Chavicol, Myrcene, Myristicin, O-Coumaric-Acid, Ostheno, P-Coumaric-Acid, P-Cymene, P-Hydroxy-Benzoic-Acid, P-Hydroxycinnamic-Acid, Petroselinic-Acid, Photoantheole, Protocatechuic-Acid, Psoralen, Quercetin, Sugar, Terpinen-4-Ol, Terpinolene, Trans-1,8-Terpin, Trans-Anethole, Trans-Ocimene, Trigonellin, Umbelliferon, Vanillic-Acid, Vanillin, Xanthotoxin

Plant: Alpha-Phellandrene, Alpha-Pinene, Alpha-Terpinene, Avicularin, Cis-Anethole, Dipentene, Cynarin, Fenchone, Glycollic-Acid, Kaempferol, Kaempferol-3-Arabinoside, Kaempferol-3-Glucuronide, Limonene, Linalol, Methyl-Chavicol, Myrcene, Myristicin, N-Docosyl-Arachidate, N-Eicosyl-Arachidate, N-Hexacosyl-Arachidate, N-Octacosyl-Arachidate, N-Tetracosyl-Arachidate, N-Triacontyl-Arachidate, Quercetin-3-Arabinoside, Quercetin-3-Glucuronide, Quercetin-3-L-Arabinoside, Quinic-Acid, Rutin, Sabinene, Scoparone, Scopoletin, Seselin., Sinapic-Acid, Terpinolene, Urease, Trans-Anethole

Root: Dillapiol (Essent. Oil), Umbelliferone, Stigmasterol-Palmitate, Urease

Energetics: pungent, warm

Actions, clinical: relieves intestinal gas accumulations, relieves GI spasm, expectorant, promotes milk production

Actions, biochemical: Some fennel constituents (ex: anethole) are structurally similar to catecholamines, and possess similar activities, such as bronchodilation and weight loss.

Actions, energetic: Regulates Qi, alleviates sharp, localized pain such as hernia, intestinal or testicular pain. Warms the middle jiao and stomach; alleviates pain from indigestion, reduces appetite, suppresses vomiting.

Indications:

Traditional and energetic: Ancient herbalists as early as Pliny through early English history believed that fennel was good for the eyesight. English herbalists praised fennel for its ability to help people lose weight, and the ancient Greek name for the herb, Marathron (from maraino (*to grow thin*)) reflects this old belief. Modern herbalists class the herb as carminative, aromatic, anti-spasmodic, stimulant, galactagogue, rubefacient, and expectorant. It is most commonly used as a remedy for intestinal gas and colic, and sometimes for productive coughs.

Evidence based:

Gastrointestinal effects: The German Commission E approved fennel seed for use in mild spastic gastrointestinal disorders, fullness, and flatulence. In animals given a fennel infusion, peristalsis tone and amplitude decreased from 2-30 minutes after administration. In vitro studies and animal models have indicated that fennel extracts modulate calcium availability and metabolism. Mills and Bone suggest that fennel leads to local smooth muscle relaxation, but that smooth muscle contraction is stimulated via sympathetic mechanisms.

Expectorant effects: The German Commission E approved fennel for use in upper respiratory catarrh. Aerosolized fennel oil suppressed coughs initiated mechanically in guinea pigs. In rabbits given anethole and fenchone, respiratory tract fluid was increased in volume and decreased in thickness.

Estrogenic effects: Because fennel was reputed to increase milk production, increase libido, and promote menstruation, it has been investigated for estrogenic effects. The following summary is from Mills and Bone's book, where full references (many non-English) can be found. The fennel constituents dianethole and photoanethole resemble stilbene and diethylstilbestrol, and anethole is structurally similar to catecholamines, which may influence secretion of prolactin. In a study on goats, fennel oil benefited milk production and fat content. Fennel extracts appear to induce estrus in rats.

Notes of interest:

Contraindications: Essential oil and concentrated extracts should be used with caution in pregnant animals, but infusions appear to be safe. Very high doses should be avoided in those with liver disease.

Toxicology and Adverse effects: Photodermatitis and contact dermatitis have been reported. A cross reactivity known in humans as celery-carrot-mugwort-condiment syndrome suggests that an allergic individual may react to other members of the Umbelliferae. Seizures resulted with sustained high doses in one report.

Drug Interactions: none reported

Preparation notes:

Dosage:

Ground seeds: 20-30mg/lb TID

Tincture: 1 drop/lb TID

Combinations:

Herbalist and Alchemist's Carminative Compound: Fennel, Peppermint, Ginger, Chamomile

Si Ni San: to smoothe Qi flow and warm the middle.

Fu Ling Xiao Hui Xiang Fang

Shao Fu Zhu Yu Tang

Selected References

Ms. Grievies' A Modern Herbal:

<http://www.botanical.com/botanical/mgmh/f/fennel01.html>

Mills and Bone, Principles and Practice of Phytotherapy (p. 378)

Herbal Medicine: Expanded Comission E Monographs

Monograph 2

Peppermint

(*Mentha piperita*)

Distribution: Use of peppermint is mentioned by Pliny and perhaps even earlier, in Egypt. First officially described in England in the 17th century, peppermint is a natural hybrid that now grows all over Europe, Asia and North America.

Similar species: *Mentha aquatica* (watermint), *Mentha arvensis* (Corn mint), *Mentha viridis* (Spearmint), *Mentha spicata* (spearmint), *Mentha sylvestris*, *Mentha sativa* (Wild mint)

Common names: Mint, Peppermint, TCM - Bo He, Ayurveda - Phudina

Family: Lamiaceae



Selected Constituents:

From: <http://www.ars-grin.gov/duke/>

(+)-Alpha-Pinene, (+)-Isomenthane, (+)-Limonene, (+)-Pulegone, 1,3-Dimethyl-Cyclohexanone, 1,4-Dimethoxy-Benzene, 1,8-Cineole, 1-Menthyl-Beta-D-Glucoside, 2,6-Dimethyl-Pyridine, 2-Butyl-Isovaleric-Acid-Methyl-Ester, 2-Ethyl-Hex-An-1-Ol, 2-Hydroxy-Benzaldehyde, 2-Methyl-But-2-En-1-Al, 2-Methyl-Butyric-Acid-Methyl-Ester, 2-Methyl-Cinnamaldehyde, 2-Phenylethanol, 2-Phenylethanol-Acetate, 2-Phenylethanol-Butyrate, 2-Phenylethanol-Isobutyrate, 2-Phenylethanol-N-Valerate, 2-Propyl-5-Phenyl-Pyridine, 3(5',5'-Dimethyl-Tetrahydrofuran-2'-Yl)-But-Cis-2-En-1-Ol, 3,4-Dimethoxy-Benzaldehyde, 3,4-Dimethoxy-Sudachitin, 3,4-Dimethyl-Pseudachitin, 3,4-Dimethyl-Sudachitin, 3,6-Dimethyl-6-Oxo-Octanoic-Acid, 3,6-Dimethyl-7-Oxo-Octanoic-Acid, 3,6-Dimethyl-7-Oxo-Octanoic-Acid-Ethyl-Ester, 3-Methyl-Cyclohexanone, 3-Phenyl-4-Propyl-Pyridine, 3-Phenyl-Pyridine, 4-Hydroxy-4-Methyl-Cyclohex-2-En-1-One, 4-Methyl-2-Phenyl-Pent-2-En-1-Al, 5,6-Dihydroxy-3',4',7,8-Tetramethoxy-Flavone, 5-Ethyl-2-Methyl-Pyridine, 5-Hydroxy-3',4',6,7-Tetramethoxy-Flavone, 5-Methyl-2-(2'-Oxo-3'-Butyl)-Phenol, 5-Methyl-2-(3'-Oxo-3'-Pentyl)-Phenol, 5-Methyl-2-Phenyl-Hex-2-En-1-Al, 5-Methyl-Heptan-3-One, 5-O-Demethyl-Nobiletin, 6-Methyl-Hept-5-En-2-One, 6-Methyl-Jasmonate, Acetaldehyde, Acetic-Acid, Alpha-Amorphene, Alpha-Cadinene, Alpha-Carotene Plant: Alpha-Copaene, Alpha-Gurjunene, Alpha-Pinene, Alpha-Terpinene, Alpha-Terpineol, Alpha-Thujone, Alpha-Tocopherol, Aluminum, Amyl-Alcohol, Amyl-

Valerate, Anethole, Ash, Azulene, Benzoic-Acid, Benzyl-Alcohol, Benzyl-Cyanide, Beta-Betulenol, Beta-Carotene, Beta-Caryophyllene, Beta-Copaene, Beta-Ionone, Beta-Pinene, Beta-Thujone, Beta-Ylangene, Betaine, Bicycloelemene, Bisabolene, Bovolide, Butan-2-One, Cadinene, Caffeic-Acid, Calcium, Camphene, Carbohydrates, Carvacrol, Carveol, Carveol-Acetate, Carvone, Caryophyllene-Oxide, Cedrene, Cedrol, Chlorogenic-Acid, Choline, Chromium, Cineole, Cinerol, Cinnamic-Acid-Methyl-Ester, Cis-Piperitol, Cis-Rose-Oxide, Cis-Sabinol, Citronellic-Acid, Citronellol, Cobalt, Cosmoiin, Coumarin, Cryptone, Cumin-Alcohol, Cyclopentanol, Delta-Dodecalactone, Delta-Jasminlactone, Dihydro-Limonene-10-Ol, Dihydro-Terpineol-Acetate, Dihydrocarvone, Dimethyl-Sulfoxide, Diosphenol, Dipentene, Eriodictyol-7-O-Rutinoside, Eugenol, Eupatorin, Fat, Fenchene, Fiber, Gamma-Decalactone, Gamma-Jasminlactone, Gamma-Terpinene, Gamma-Tocopherol, Gardenin-B, Gardenin-D, Geranial, Geranic-Acid, Geraniol-Acetate, Germacrene-D, Guaiacol, Heptan-2-One, Heptan-3-Ol, Hesperetin, Hex-Trans-2-Enoic-Acid, Hydroxy-Bovolide, Hymenoxin, Iron, Isoamyl-Phenylacetate, Isobutyric-Acid, Isochlorogenic-Acid, Isomenthol, Isomenthol-Acetate, Isomenthone, Isomenthyl-Acetate, Isopulegol-Acetate, Isorhoifolin, Isovaleraldehyde, Isovaleric-Acid, Isovaleric-Acid-N-Octyl-Ester, Jasmone, Lavandulol, Ledol, Limonene, Limonene-10-Ol-Acetate, Linalol, Lithospermic-Acid, Luteolin, Luteolin-7-O-Rutinoside, Magnesium, Manganese, Menthacubanone, Menthocubanone, Menthofuran, Menthokubanone, Menthol, Menthone, Menthoside, Menthyl-Acetate, Menthyl-Isovalerate, Menthyl-Valerate, Mintlactone, Myrcene, Myrtenal, Myrtenol, Neo-Isopulegol, Neoisomenthol-Acetate, Neomenthol, Neomenthone, Neomenthyl-Acetate, Neral, Nerol, Nerolidol, Nevadensin, Niacin, Nonan-1-Ol, O-Cresol, Ocimene, Oct-Trans-2-En-Ol, Octan-3-Ol, P-Coumaric-Acid, P-Cresol, P-Cymene, P-Cymol, P-Menth-Trans-2-En-1-Ol, P-Menthane, P-Methoxy-Acetophenone, Pectin, Pent-Cis-2-En-1-Ol, Pental-1-Ol, Perillyl-Alcohol, Phellandrene, Phenylacetic-Acid, Phosphorus, Pinene, Piperitenone, Piperitone, Piperitone-Oxide, Potassium, Protein, Pulegone, Pyridine, Riboflavin, Rosmarinic-Acid, Rutin, Sabinene, Sabinene-Acetate, Sabinene-Hydrate, Salicylates, Salvigenin, Selenium, Sideritoflavone, Silicon, Sodium, Tannin, Terpinen-4-Ol, Terpinolene, Thiamin, Thymol, Tin, Trans-Beta-Farnesene, Trans-Piperitol, Trans-Rose-Oxide, Vanillin, Viridiflorol, Xanthomicrol, Zinc

Energetics: bitter, pungent, cool

Actions, clinical: traditional - carminative, anti-spasmodic, aromatic, diaphoretic, anti-emetic, nervine, antiseptic, analgesic. . Peppermint appears to reduce intestinal spasm and in one study, enhanced gastric emptying. Five of 8 studies on peppermint's effect on humans with inflammatory bowel syndrome showed positive effects. A combination of peppermint and caraway was as effective as cisapride in a controlled trial of human patients with dyspepsia. Peppermint has been shown effective in treating headache in humans.

Actions, biochemical: In humans, 34.5% of a single oral dose (0.4ml) is excreted in urine (as glucuronide) and in bile (as sulphate) within 4 hours. When menthol is administered as a lozenge or inhaled, it is thought to have an anesthetic action on the throat, suppressing cough, and lowers surfactant surface tension. Menthol has been shown to reduce esophageal sphincter tone and stimulate bile flow. It also has antibacterial properties. Peppermint and menthol may have calcium channel blocking activity in smooth muscle. In dogs and guinea pigs, but not cats, menthol stimulated reflex inhibition of respiration (Sant'Ambrogio , 1992), (Davies, 1987). In dogs and cats, vaporized menthol stimulates respiratory tract cold receptors (Sant'Ambrogio, 1991), (Schafer, 1986). Menthol and peppermint are virucidal

against influenza, herpes, Newcastle disease virus and vaccinia virus in vitro. Menthol also has antibacterial activity against a variety of organisms including *Staphylococcus aureus*, *Streptococcus pyogenes*, and *Escherichia coli*.

Actions, energetic: disperses wind heat, benefits throat and clears the eyes, enters Stomach, Liver and Lung meridians, moves stagnant Liver Qi, vents rashes

Indications:

Traditional and energetic:

The Eclectics viewed peppermint as having stimulant, antispasmodic, carminative, stomachic, antiseptic and weak anodyne properties. Indications for use included flatulence, painful GI spasms (colic), nausea, vomiting and a variety of digestive disorders. It was also recommended for headaches, and when nebulized, for bronchitis and pneumonia. Other traditional herbalists claim that peppermint inhibits mucous secretion and is used as well for ulcerative colitis, Crohn's disease, fevers, colds, influenza, and as an inhalant for nasal catarrh. Peppermint is also claimed to have anti-anxiety and tension-relieving properties, and in women, may relieve menstrual pain. May relieve itching when used topically.

In Traditional Chinese medicine, peppermint disperses wind-heat mostly from the head and eyes; promotes eruption (and resolution) of rashes. It is used for headache, inflammation of eyes, URI, sore throat, and mouth ulcers. Also helps suppress rebellious Qi that causes vomiting.

In small animal medicine, peppermint is used primarily for gastroenteritis, flatulence, and upper respiratory diseases. In large animal medicine, peppermint is used primarily for bronchitis, pneumonia, laryngitis and catarrh of the upper respiratory tract.

Evidence based: Multiple studies in humans indicate that peppermint oil relieves colon spasm, and symptoms of inflammatory bowel disease. Enteric coated peppermint oil is indicated in the treatment of signs of simple gastroenteritis and inflammatory bowel disease. In addition, there is some evidence that menthol suppresses cough and may ease respiratory effort where nasal congestion is a problem, so peppermint may be used for relieving signs of acute upper respiratory infection.

Notes of interest:

Contraindications: Bile duct obstruction, gallbladder inflammation, severe liver damage, gastrointestinal reflux. Traditional herbalists warn nursing mothers not to take peppermint as it may decrease lactation. In TCM, contraindications include exterior deficiency, yin deficiency with heat signs.

The European Agency for the Evaluation of Medicinal Products, Veterinary Medicines Evaluation Unit assessed *Mentha piperita* for potential problems in food animal medicine. No special precautions were advised.

Toxicology and Adverse effects: Peppermint is Generally Recognized as Safe (GRAS) by the Food and Drug Administration. Allergic reaction is possible, as is irritation if oil placed on mucous membranes. Inhalation of the oil can cause apnea and laryngoconstriction, and young children/animals are thought particularly susceptible. In mice and rats, the oral LD50 is 4g/kg. In these species, 4 weeks of daily oral dosing at 40 and 100mg/kg resulted in histologic changes in the brain; after 3 months in rats, cyst-like lesions were noted in the cerebellum, and nephropathy was observed in males at the 100mg/kg dose. Hepatocellular changes have also been noted. In another study (not referenced by the European

Committee for Veterinary Medicinal Products), dogs given 25-125mg/kg for 5 weeks experienced no ill effects.

Drug Interactions: None reported. Non-enteric coated preparations may cause mild nausea and gastritis, and should be considered for patients on H2-blockers.

Preparation notes: Peppermint's essential oil and tannins are extracted by hot infusions (tea) and the essential oil is better extracted in alcohol.

Dosage:

Tea: 1 heaping tsp dried herb in 1 cup water

Dried herb: 25 mg/lb BID

Enteric coated capsules containing essential oil: 0.005ml/lb

Alcohol tincture: 1-2 drops/lb BID-TID

Essential oil: : 1 drop BID-TID

Food animals and horses: one European product is 0.018% peppermint oil, and is administered at 50ml BID

Combinations:

Flu, cold: - Boneset, elder flowers, ginger, euphrasia and yarrow

Nausea, flatulence: ginger, fennel

Topical:

Tiger Balm (a liniment balm for sore muscles and headaches), from

<http://www.ibiblio.org/herbmed/faqs/medi-4-4-balm.html>

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