


ISBN 978-602-70438-0-0

# PROCEEDING

International Seminar

THE ROLE OF VETERINARY SCIENCE  
TO SUPPORT MILLENNIUM DEVELOPMENT GOALS  
*and*

THE 12<sup>th</sup> ASIAN ASSOCIATION OF VETERINARY SCHOOLS CONGRESS

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FACULTY OF VETERINARY MEDICINE  
UNIVERSITAS AIRLANGGA

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VETERINARY SCHOOLS CONGRESS  
JW MARRIOTT HOTEL, SURABAYA-INDONESIA  
4<sup>th</sup> - 6<sup>th</sup> SEPTEMBER 2013**

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**ISBN : 978-602-70438-0-0**

**@ FACULTY OF VETERINARY MEDICINE UNIVERSITAS AIRLANGGA 2013**

Hak cipta dilindungi oleh Undang-Undang

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## REMARKS OF ORGANIZING COMMITTEE THE ROLE OF VETERINARY SCIENCE TO SUPPORT MILENIUM DEVELOPMENT GOALS

**Dr. Dadik Raharjo, M.Kes, DVM.**  
Chairman

Ladies and Gentleman,  
I have the honour of welcome delegates and speakers in International Seminar with the title "role of veterinary science to support milenium development goals" and highest ours appreciation for Your participation on this seminar.

The seminar will exchange information that we can carefully increasing the role of veterinary science to support development goals. Hopefully through this event will take advantage of the many opportunities to colloborative work between indonesia instituion and also with overseas institution.

On behalf of Organizing committe, I would like to express our sincere gratitude and thanks to all participant at this seminar international.

I hope that this program will be useful and enjoy during stay in Surabaya.

Best Regards





## REMARK OF DEAN FACULTY OF VETERINARY MEDICINE UNIVERSITAS AIRLANGGA AAVS PRESIDENT

**Prof. Romziah Sidik, Ph.D., DVM.**

Bismillahi rochmanir rochim,  
Assalamu'alaikum warochmatullahi wabarokatu.

Good morning Ladies and Gentlemen,  
Welcome to Surabaya, East Java – Indonesia.

On behalf Faculty of Veterinary Medicine, Universitas Airlangga and Asian Association of Veterinary Schools, I would like to say thank you for the Excellencies: Rector Universitas Airlangga, The Director General of Livestock and Animal Health-Ministry of Agriculture-Republic of Indonesia: Ir. Syukur Iwantoro, MS), The Coordinating Minister for people's Welfare Republic of Indonesia: Dr. Agung Laksono; The OIE Sub Regional Representation for South-East-Asia delegates (Dr. Dirk Van Aken, Dr. Mary Joy Gordoncillo, Dr. Ronello Abila and Ms.Melada Ruengjumroonnath), the Presidents of SEAVSA (Dr. Srihadi agung Priyono) President of IVSA (Indonesian Veterinary School Association): Prof. Made Dhamriyasa, and all Deans of SEAVSA (South-East Asia Veterinary School Association) members, AAVS (Asian Association of Veterinary Schools: Japan, Korea, Taiwan, Indonesia, Malaysia, Thailand, Philippines, Mongolia, Vietnam, Myanmar, Lao and Cambodia) and IVSA (Indonesian Veterinary School Association), The President of Indonesia Veterinary Medicine Association: DVM.Wiwiek Bagja), Quarantine and Inspection Agency Commissioner of Korea: Prof Yong Ho Park), Secretary General and Asian Society of Zoo and Wild Life Medicine: Dr. Kimmura Junpei; All the invite speakers comes from: Faculty of Medicine, Faculty of Veterinary Medicine and Tropical Disease Center of Universitas Airlangga, Feed Technology and Nutrition, Research Institute for Animal Production,-Indonesia, College of Veterinary Medicine Murdoch University, Division of Molecular Medicine and medical Genetic, Department of Pathology, Kobe University, Universiti Putra Malaysia, Graduate School of Agricultural and life Sciences University of Tokyo Japan;

The honorable of all presenter and participants, also the sponsorships who are joint in the International Seminar with the themes:“The Role of Veterinary Science to Support Millennium Development Goals and the 12<sup>th</sup> Asian Association of Veterinary Schools Congress” during 2 days (5<sup>th</sup>-6<sup>th</sup> September 2013), which is Faculty of Veterinary Medicine of Universitas Airlangga as the hosted of the event.

Ladies and Gentlemen,

About 193 United Nation member states and at least 23 international organizations declared Millennium Development Goals (MDGs), and they have agreed to achieve the nine MDGs such as: eradicating extreme poverty and hunger, universal primary education, promoting gender quality, and empowering women, reducing child mortality rates, improving maternal health, combating HIV /AIDS, malaria and other diseases, ensuring environmental sustainability, and developing a global partnership for development.

Animal diseases which form an epizootic (Apthae epizootic, mad cows diseases) and or zoonotic like Avian Flu, SARS (Severe Acute Respiratory Syndrome), Salmonellosis, Brucellosis, tuberculosis, rabies are threat to global security warned by Director General of the Word Organization as well as World Animal Health Organization (OIE). These diseases have potentially disastrous consequences if it's not eliminates at their primary source. As we know that about systemic review of 1,415 pathogens are known about 61% infects humans.

To combat and fighting zoonosis diseases, Indonesia has launching the National Commission of Zoonosis Control under Coordinator Minister for people's Welfare Republic of Indonesia.

So, the Veterinary Medicine Schools in Asian country has responsibility to provide some courses in the curricula to achieve Day one competencies. Four pillars could be strengthening by Veterinary School such as: education system, research, public extension and or services, and collaborations. The quality assurance should be guaranteed by each Veterinary Schools. In the event of AAVS congress programs to produce and launch the Logo of AAVS, and the consequence to be added the logo profile and philosophy in AAVS by Law. The other program is to perform Veterinary school curricula and gap analysis. Therefore, Veterinary school curricula in Asian country could be standardized.

On behalf Organizing Committee, I would like to say thank you to Director Research and Public Community Services Board of Directorate General of Higher Education, Ministry Education and Culture Republic of Indonesia, The OIE SRR SEA, Faculty of Veterinary Medicine Universitas Airlangga, IVSA, and the sponsorships from veterinary industries for supporting finance that the event become perform by successfully.

Ladies and Gentlemen,

Again, I would like to say thank you for your participative to the event, and please follow and enjoy the programs as well as your visit in Surabaya by happiness.

Billahi taufik wal hidayah, Wassalamu'alaikum warohmatullahi wa barokatu.





## REMARKS OF RECTOR OF UNIVERSITAS AIRLANGGA

Prof. Dr. H. Fasich, Apt.

Assalamu'alaikum Warahmatullahi Wabarakatuh

First of all, let us pray to Allah SWT that because of His blessings we are able to be here in this very important event.

Secondly, I would like to say to all participants: Welcome to Surabaya, East Java, Indonesia! It is indeed a great honour for me to have the opportunity to be among the participants of this very special occasion, where all of us are going to have in-depth discussion about a very important and interesting topic closely related to veterinary science and the millennium development goals as a way to increase the quality of human health.

Indonesia's Millennium Development Goals (MDGs) are based on the eight international development goals that were officially established following the Millennium Summit of the United Nations in 2000, one of touches on the effort to combat wide-spread diseases such as HIV/AIDS and diseases transmitted by animals such as malaria, avian flu, swine flu, and so forth, which could be a serious threat to global security and human development.

Therefore, concerns over these MDGs from the point of view of veterinary science, especially among the researchers, have to be raised these day. There are numerous recent for conducting scientific research and other scientific activities to bring the MDGs to a success.

In this very special event, I would like to express my deepest appreciation to all members Asian Association of Veterinary Schools for their success in conducting better and better collaborations. Such collaborations are a pre-requisite for all efforts in improving performances, including the standardization of veterinary curricula in the ASEAN region and among Asian countries, in controlling the spread of zoonosis, and in developing and improving bio safety, bio security, surveillance, animal health and animal production.

I strongly believe and hope that this seminar and congress will be able to strengthen the existing networks that occurred among all the members of the association, as the main step in the eradication and prevention of infectious diseases, especially once that are related to animals, to support the Millennium Development Goals.

To all participants, I would like to thank you very much for coming to this forum. And to the organizing committee, I would like to give my sincerest appreciation for their wonderful job and hardwork in organizing this event.

I hope the seminar and the congress will be fruitful to all of use and lastly, please enjoy your stay in Surabaya.

Thank you very much,

Wassalammu'alaikum warahmatullahi Wabarakatuh.

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# Neutrophilia As a Specific Clinical Sign to Differentiate Acute Cholangiohepatitis With Others Liver Inflammatory Diseases in Cats

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## Abstract

Cholangiohepatitis is a interesting disease in cats. All breeds of cats can be affected. Male cats seem to have acute cholangiohepatitis more often than do females. A case of acute cholangiohepatitis in a 3-year-old, male, domestic cat is described. The cat was admitted to the Veterinary Teaching Hospital of Veterinary Faculty, Airlangga University Surabaya with a several days history of weakness, poor appetites, vomiting, and weight loss. Remarkable physical signs were lethargy, moderat dehydration, icteric sclera, pale and icteric *mucous membranes* and conjunctiva, fever but heart rate and respiratory rate were normal. When the abdominal region was gently palpated, hepatomegaly have been found (confirmed by abdominal radiographic examination) and the cat exhibit an abdominal pain. On hematological examination, the complete blood count reveal slightly increasing of leucocyte especially stab neutrophil (neutrophilia). The liver enzymes (SGOT, SGPT), and bilirubin levels were all above the normal range. The prognosis was unpredictable, but the animal has been survive after the first 3 months, than the long-term survival can be supposed.

Keywords : acute cholangiohepatitis, cat, neutrophilia, hepatomegaly.

## INTRODUCTION

A three-year old male domestic cat was brought to the Veterinary Teaching Hospital of Veterinary Faculty, Airlangga University Surabaya, with the complaint of anorexia for one week, recent weight loss and weakness, poor appetites, vomiting, and fever. On physical examination, mucosa were icteric. There was a slight mucus discharge from both eyes. The animal was emaciated and approximately 8% dehydrated. Heart rate and respiratory rate were within normal values. The abdominal palpation revealed hepatomegaly and abdominal pain. Clinical laboratory tests has been done by hematological and serum biochemical tests (Table 1.).

Tabel 1. Haematological result determined in cat diagnosed for acute cholangiohepitis. (Value indicated in bold were outside usual range).

Parameter	Patient Value	Normal Value (Candyce et al., 2008).
Hb	12.2	8,9-15 g/dl
Leucocytes	<b>19.000</b>	5.000-19.000 mm <sup>3</sup>
Eritrocytes	5.3	5.000.000-10.000.000 mm <sup>3</sup>
Eosinophyl	190	0-1.500
Basophyl	0	0- 300
<b>Neutrophyls</b>	<b>14.200</b>	2.500-12.500
Lymphocytes	2.660	1.500-7.000
Monocytes	<b>950</b>	0-850
Thrombocytes	200.000	300.000-800.000/ul
PCV	45	24-45%
Reticulocytes	0,4	0-1,5%
AST / SGOT	50	10-43 U/L
<b>ALT/ SGPT</b>	<b>195</b>	60-70 U/L
ALP	<b>80</b>	8-76 U/L
<b>Direct bilirubin</b>	<b>0,5</b>	0-0,1 mg/dl
<b>Indirect bilirubin</b>	<b>0,7</b>	0-0,5 mg/dl
<b>Total bilirubin</b>	<b>1,2</b>	0-0,6 mg/dl

The complete blood count showed the slightly increase of number of leucocyte and revealed especially neutrophilia with a significant left shift neutrophils. Throughout biochemical results, high bilirubin level (direct and indirect) were evidenced and were associated with serum bilirubin elevation. Radiography examination showed hepatomegaly with homogen increase in radio-opacity (Figure 1.).

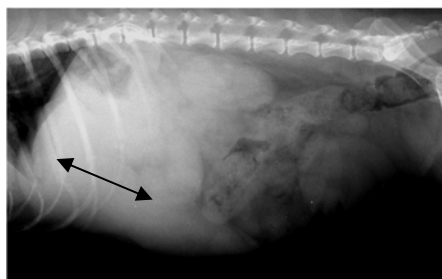


Figure 1. Enlargement of the liver (hepatomegaly). The liver is seen extend well beyond the costal arc to caudo-ventral abdomen.

The diagnosis of acute cholangiohepatitis of this cat has been made. Amoxicillin-Clavulanic (10 mg/bw/bid) has been administrated for 4 weeks, the animal showed relative improvement and had an favorable clinical progress so the long-term antibiotic treatment has been decided. To restore the cat appetites and maintain normal fluid balance, the IV fluid therapy, nutritional supplements, and dietary changes has been done. Differential diagnosis of acute cholangiohepatitis are chronic cholangiohepatitis and lymphocytic cholangitis. The prognosis was



dubius and unpredictable, but the animal has been survive for the first 3 months after being diagnosed and treated, than the long-term survival can be supposed.

## DISCUSSION

Hepatitis is a rare disease that attacks the cat. However, cholangiohepatitis, an inflammatory disease in the hepatobiliary system, is a common disease found in cats. In a retrospective study of inflammatory liver disease in 78 cats, more than 80% of cats with cholangiohepatitis and also suffer from inflammatory bowel diseases (IBD), about half of them showed mild pancreatitis. This implies that there is a relationship between inflammatory disease of the abdominal organs (Tams, 2003).

Acute cholangiohepatitis is often also referred to acute neutrophilic cholangitis. Ascendant neutrophilic cholangitis due to biliary tract infection originating from the intestinal tract. Histologically, neutrophilic cholangitis is characterized by the presence of neutrophils in the lumen of the bile duct and bile duct epithelial wall. Usually also accompanied by a neutrophilic inflammatory reaction around the bile ducts in the portal area. Neutrophilic cholangitis is usually an acute illness, but during a chronic, inflammatory infiltration will be characterized by a mixture of neutrophils, lymphocytes, and plasma cells. A holistic inflammation of the bile ducts often lead to cholestasis. Most of the cats showing clinical symptoms icterus. In this condition, there is no obstacle opening of the bile duct into the duodenum and therefore occurs distention of the bile ducts.

Acute cholangiohepatitis is characterized by neutrophil infiltration in the portal area of the liver lobule and bile duct caused by the damage and necrosis of periportal hepatocytes adjacent to the area. Acute cholangiohepatitis can occur due to ascendent bacterial infection in the bile ducts, although in the number of cases we can isolate the bacteria from the liver or the gall bladder. Frequently isolated organism was *Bacteroides*, *Escherichia coli*, *Clostridium* and  $\alpha$  hemolytic *Streptococcus*. Congenital or acquired abnormalities in the biliary system, such as anatomical abnormalities cholelith gallbladder and predisposes cats suffer cholangiohepatitis. Cholelith rarely causes inflammation of the liver. In contrast, the thickening of bile due to evaporation can cause partial or total obstruction, both the intrahepatic and extrahepatic bile ducts and gallbladder, which can often lead to cholangiohepatitis in cats.

The different between acute and chronic cholangiohepatitis are the present of inflammatory cell infiltration mixture of neutrophils, lymphocytes and plasma cells in the portal area. Unlike acute cholangiohepatitis, in chronic conditions will be apparent hypertrophy and fibrosis of the bile ducts portal area. On worm infestation, cholangitis usually accompanied by an increase in eosinophils in the portal area, while in chronic cholangiohepatitis rarely or even not accompanied by eosinophil infiltration in the portal area.

Cholangiohepatitis is also different when compared with lymphocytic. Lymphocytic cholangitis is characterized by Infiltration of lymphocytes and plasma cells (not neutrophils) in the portal area (not the bile duct) and can be accompanied by hypertrophy and fibrosis of the bile ducts with varying degrees. Many suspect that the lymphocytic cholangitis is an immune-mediated disease.

Clinical symptoms in patients with inflammatory liver disease vary widely, not specific, and often resemble other liver diseases (Table 2). Partial or total anorexia is a common clinical symptom and sometimes the only clinical symptom. Other clinical signs that can be found is weight loss, depression, vomit, diarrhea and fever. But acute cholangiohepatitis often found in younger cat (mean age 3.3 years) than cats with chronic cholangiohepatitis (average age 9 years) or lymphocytic cholangitis (median age 8.2 years) (Weiss et al., 2001). Male cats more often suffer from acute cholangiohepatitis when compared with female cats. Cats with acute cholangiohepatitis usually show clinical symptoms more acutely and severely when compared to other diseases. Prominent clinical

symptoms of acute cholangiohepatitis include fever, depression and dehydration. Ichterus very easily checked on the sclera, but it also can be easily observed in the area of soft palate or under the tongue. When liver size is evaluated radiographically, its showed hepatomegaly.

Table 2. Signalement and Clinical Symptoms Related to Cholangiohepatitis

<b>Parameter</b>	<b>Acute Cholangiohepatitis</b>	<b>Chronic cholangiohepatitis</b>	<b>Lymphocyte Cholangitis</b>
Age	<b>Young</b>	Older	Older
Sex	Male	Male	-
Onset of clinical symptom	Days	Weeks	Weeks
Severity of disease	<b>Severe</b>	Mild-Moderate	Moderate
Anorexia	Frequently	Frequently	Frequently
Wieght loss	Frequently	Frequently	Frequently
Fever	<b>Frequently</b>	Rarely	Rarely
Icterus	Frequently	Frequently	Frequently
Hepatomegaly	Frequently	Frequently	Frequently
Ascites	Rarely	Rarely	Rarely

(Weiss et al., 2001)

Haematologic and biochemical testing are an important step to determine the diagnosis (Tabel 3.). Fasting bile acids is an examination that most consistently increase. The complete blood count showed the slightly increase of number of leucocyte and revealed especially neutrophilia with a significant left shift neutrophils. Serum bilirubin levels and alkaline phosphatase (ALP) was slightly increased, while the levels of alanine aminotransferase (ALT) increased significantly. This profile can be used to distinguish between acute and chronic cholangiohepatitis, lymphocytic cholangitis. Cat with lymphocytic cholangitis is often characterized by normal or slightly increased of bilirubin, ALP and ALT serum. On the other liver diseases in cats, increased GGT always accompanied by increased ALP. When the clinical chemistry lead to liver disease, hyperthyroidism should be rule out. Hyperthyroid cats frequently have changes in ALP and ALT levels that maybe indistinguishable from cats with inflammation of the liver disease. Therapy for hyperthyroidism will cause decrease in levels of these enzymes.

Table 3. Laboratory change of Inflammatory Disease in Liver

<b>Parameter</b>	<b>Acute Cholangiohepatitis</b>	<b>Chronic cholangiohepatitis</b>	<b>Lymphocyte Cholangitis</b>
Neutrophilia	<b>Frequently</b>	Rarely	Rarely
Left Shift	<b>Frequently</b>	Rarely	Rarely
Bilirubin Serum	Increase (mild)	Increase (moderat)	Increase (mild)
ALT	<b>Increase (mild)</b>	Increase (moderat)	Increase (mild-moderat)
ALP	<b>Normal</b>	Increase (mild-moderat)	Normal – increase (mild)
Fasting Bile Acids	<b>Increase</b>	Increase	Increase

(Weiss et al., 2001)

The treatment for acute cholangiohepatitis is the administration of antibiotics that are excreted well into the bile (the author prefers a treatment period of 4 weeks with amoxicillin and clavulanic acid). It is advisable to evaluate the therapy by re-examination of the bile after completion of the antibiotic treatment course. The prognosis of cat with neutrophilic cholangitis is usually very good if a diagnosis is made early in the disease process.

Long-term treatment must be conducted with the same dose. It is important to evaluate the response to therapy. Medication should be continued until total resolution can be seen (confirmed by a liver biopsy after 8 weeks of treatment). It is advisable to simultaneously treat a cat with amoxycilin and clavulanic acid during the several months. Nutrition is an important component of medical therapy for cats with cholangiohepatitis. Most cats that survived the initial period of 1 to 2 months of treatment has a good chance for cure and long-term survival.

## CONCLUSION

Acute cholangiohepatitis is one of liver disease frequently in cats and has the clinical signs as others inflamatory liver disease, but acute cholangiohepatitis diagnosis can be performed by founded pathognomonis signs as acute severity of diseases, fever and neutrophylia with a significant left shift neutrophils. The diseases maybe associated with ascending bacterial infection. Favorable prognosis can be maintained if response towards therapy in first weeks is positive, but its requires a long-term antibiotic therapy.

## REFERENCES

- Burrows DF, Taboada J, 2010. In : Schaer M (ed), *Clinical Medicine of the Dog and Cat*. Manson Publishing, London UK. 400-402.
- Candyce MJ, MW Patricia and SD Mark, 2008. *Veterinary Technician's daily reference guide. Canine and feline*. 2nd Ed. Blackwell Pub., USA.
- Cullen JM, van den Ingh T, Bunch SE et al., 2006. Morphological classification of circulatory disorders of the canine and feline liver. In: *WSAVA Standards for Clinical and Histological Diagnosis of Canine and Feline Liver Diseases*. Edinburgh, Churchill Livingstone. 41–59.
- Gagne JM, Weiss DJ, Armstrong PJ. 1996. Histopathologic evaluation of feline inflammatory liver disease. *Vet Pathol* 33: 521–526.
- Hess PR, and Bunch SE. 200. Diagnostic approach to hepatobiliary disease. In: Bonagura JD (ed.) *Kirk's current veterinary therapy XIII*. Philadelphia, WB Saunders. 659–664.
- Hughes D, and King LG, 1995. The diagnosis and management of acute liver failure in dogs and cats. *Vet Clin North Am Small Anim Pract* 25: 437–460.
- Rothuizen J, and Meyer HP, 2000. History, physical examination, and signs of liver disease. In: Ettinger SJ, Feldman EC (eds.) *Textbook of Veterinary Internal Medicine*, 5th ed. Philadelphia, WB Saunders.1272–1277.
- Scherck M, 2010. Cholangitis/cholangiohepatitis complex, 2010. Presented at the Western Veterinary Conference, Las Vegas Nevada.
- Sutherland RJ, 1989. Biochemical evaluation of the hepatobiliary system in dogs and cats. *Vet Clin North Am Small Anim Pract* 19: 899–927.
- Tams TR, 2003. *Small animal gastroenterology*. 9<sup>th</sup> Ed. Saunders, USA.275-278.
- Twedt DC, 2011. Update on feline liver diseases. Presented at the British Small Animal Veterinary Congress, Birmingham, United Kingdom.



- Van den Ingh T, Cullen JM, Twedt DC et al., 2006. Morphological classification of biliary disorders of the canine and feline liver. In: *WSAVA Standards for Clinical and Histological Diagnosis of Canine and Feline Liver Diseases*. Edinburgh, Churchill Livingstone.61– 76.
- Weiss DJ, Gagne J, Amstrong PJ, 2001. Inflammatory Liver Diseases in Cats. *VetLearn, Small animal/Exotic*, 23:4, 364 - 373.