

**中華民國比較病理學會第十九次比較病理學研討會**  
**(潛在威脅國內之人畜共通傳染病專題)**

**議程表**

時間：中華民國八十九年九月三日（星期日）上午 08:30~中午 12:30

地點：台北市立動物園教育中心演講廳 地址：台北市文山區新光路二段 30 號

主辦單位： 中華民國比較病理學會 電話：(02)29382300 轉 701 或 702

台北市立動物園

協辦單位： 國立台灣大學獸醫學系

時 間	議 程
08:30-09:20	報到
09:20-09:30	開幕致詞
09:30-10:30	Section 【1】 專題演講： 中央研究院 何美鄉 醫師 Viral Hemorrhagic Fever
10:30-11:10	休息（茶點）
11:00-11:15	Section 【2】 Case 153 彰化基督教醫院
11:15-11:30	Case 154 行政院國家科學委員會實驗動物中心
11:30-11:45	Case 155 國立台灣大學獸醫學系
11:45-12:00	Case 156 國立中興大學獸醫學院
12:00-12:15	Case 157 行政院農業委員會農業藥物毒物試驗所
12:15-12:30	綜合討論
12:30-13:30	Luncheon (中華民國比較病理學會理監事聯席會議)

## Comparative Pathology Case 153

**Contributors:** Mei-Ling Chen (陳美玲), MD; Kun-Tu Yeh (葉坤土), MD; Huei-Mei Chang (張惠媚), MD; Shiao-Fang Yang (楊曉芳), MD; Tuan-Yin Kir (柯端英), MD.

Department of Pathology, Changhua Christian Hospital, Taiwan (彰化基督教醫院病理科).

**Clinical history:** The one year and nine months old boy suffered from oral ulcer, fever and poor intake of meals for three days. Myoclonic jerk was noted while sleeping. Diagnosis of Hand-foot-mouth disease was rendered by local hospital. However, poor appetite and frequent jerky movement deteriorated despite oral medication. He was taken to the hospital again two days later. Due to progression of symptoms (shallow breath, tachycardia, intermittent lip cyanosis and unstable blood pressure), he was transferred to our hospital under the impression of possible EV71 infection.

On arrival, the oxygen saturation was 60% and he was intubated immediately. Flossy blood babbled secretion was gushed out from the tube. His consciousness was confused, blood pressure was 84/74 mm Hg, pulse was 205 beats/min, temperature was 38.5°C and respiratory rate was 32 breaths/min. Both pupils were dilated and no light reflex was found. The liver edge can be palpated 3-4 cm below the right mid-costal margin. Many vesicles were seen on both knees and buttocks. Intravenous immunoglobulin was administrated. Bradycardia and unstable blood pressure were refractory to dopamine and dobutamine administration. Cardiopulmonary resuscitation performed 2 hours after admission was failed. An unrestricted autopsy was performed.

**Diagnosis:** Enterovirus 71 infection with hand, foot and mouth disease, meningitis and encephalomyelitis.

**Gross findings:** Mild ascites, pericardial effusion and left bloody pleural effusion were noted. The cut surfaces of bilateral lungs were congested. The liver was mild enlarged with blunt edge. The heart and brain were grossly normal.

**Histopathological findings:** Scattered severe inflammatory changes with neutrophilic aggregates, peri-vascular lymphocytic cuffing, neuronophagia and neuron degeneration in white matter of parietal lobe, thalamus, caudate nucleus, putamen, globus pallidus, midbrain, pons and medulla oblongata; cervical, thoracic and lumbar spine and meninges were present. The lung showed diffuse alveolar hemorrhage, edema and patchy bronchiolitis. Lymphoid depletion of spleen was noted. Reactive hyperplasia of mesenteric lymph nodes was present. The liver revealed microvesicular fatty change.

**Discussion:** Enterovirus 71 (EV71), a positive single stranded RNA virus belonging to the family of Picornaviridae is known to cause hand, foot and mouth disease (HFMD) in young children. The virus has also been implicated to cause severe neurological manifestations including encephalitis, meningitis and polio-like paresis. Since it was first recognized in California in 1969, enterovirus 71 infection has been reported in at least 12 small and large outbreaks throughout the world. There have been two EV71 outbreaks resulting in rapid clinical deterioration and death among young children; one outbreak occurred in Bulgaria during May-September 1975, and another in Malaysia during April-June 1997. The third known EV71 outbreak occurred throughout Taiwan during April-November 1998. In contrast to the earlier epidemics of enterovirus 71 infection, the Malaysian and Taiwanese epidemics were characterized by rhombencephalitis (brain-stem encephalitis). This change may indicate the reemergence of virulent strains of enterovirus 71 with serious neurologic effects or the emergence of a new strain. Nucleotide sequence comparisons demonstrated three distinct EV71 genotypes, designated A (prototype strain: Br Cr-CA-70), B (isolates from Malaysia in 1997) and C (isolates from Taiwan in 1998). The annual rate of evolution within both the B and C genotypes was estimated to be approximately  $1.35 \times 10^{-2}$  substitutions per nucleotide. The results indicate that EV71 is a genetically diverse, rapidly evolving virus. Its worldwide circulation and potential to cause severe disease underscore the need for additional surveillance and improved methods to identify EV71 in human disease. Since the present comparison study cannot identify the genetic determinant of neurovirulence and disease manifestations, more studies on tissue tropism and host factors are needed.

The highest incidence of CNS disorder was in 1- to 2-year-old children. In most of them, the onset was noticed between day 2 and day 4 after the onset of skin eruption. Myoclonus with sleep disturbance (grade I rhombencephalitis) was the most important early sign of EV71 infection with CNS involvement. The lesion causing myoclonus is thought to be in thalamic or subthalamic reticular structures. In patients with rhombencephalitis who underwent MRI, T2-weighted scans showed high-intensity lesions in the brain stem, most commonly in the dorsal pontine tegmentum. In patient with myoclonus and cranial-nerve involvement (grade II rhombencephalitis) had brain-stem lesions extending to the basis pontis). MRI in patient with chronic grade III rhombencephalitis (rapid cardiopulmonary failure) revealed brain-stem atrophy and cavitation that extend from the tegmentum of the lower brain stem to the anterior horn region of the upper cervical cord. It is possible that EV71 may initially involve the pontine tegmentum, with subsequent rostral and caudal progression.

In general, enterovirus 71 rhombencephalitis seems to be a benign neurologic syndrome, but it can be severe, even deadly. The fatality rate is 14 percent and is highest among children who are 7 to 12 months old. All of them had brain stem encephalitis with neurogenic shock and pulmonary edema. Although the pathogenesis of pulmonary edema and hemorrhage in enteroviral infections is not well understood, Chang et al. suggested that lesions of the spinal cord and medulla disturb the autonomic nerve system and lead to neurogenic pulmonary edema. No evidence of viral infection was found in the lung. This theory is consistent with the basic

neurotrophism of enterovirus. An alternative theory is that systemic viral sepsis leads to capillary leak syndrome. This possibility could account for the hyperglycemia, metabolic acidosis, elevated levels of cytokines, and shock seen in affected patients. A third possibility is hypersensitivity or immunopathologic related to superinfection by EV 71 in-patient sensitized by a concurrently active enterovirus, such as the related coxsackievirus A16. The dengue shock and hemorrhagic syndrome is endemic in Asia and is thought to be due to superinfection with one dengue virus in a patient already infected with another type of dengue virus.

Is the EV71 a particularly neurovirulent strain with tropism for the rhombencephalon, or do host factors cause the pattern of illness observed? Molecular and biologic characterization of viral isolates and a more detailed analysis of the risk factors for infection and the development of disease may help to answer all these questions.

#### **Diagnostic criteria:**

1. Oral ulcer and many vesicles on both knees and buttocks.
2. Acute inflammation in brain, spinal cord and meninges.
3. Viral culture demonstrates enteroviral cytopathic effect in fresh tissue of medulla oblongata, midbrain, pons, spinal cord, cerebellum, stomach, small intestine, colon and skeletal muscle. Enterovirus 71 was identified by the immunofluorescent method.

#### **References:**

1. Liu C, Tseng H, Wang S, Wang J, Su I: An outbreak of enterovirus 71 infection in Taiwan, 1998: epidemiologic and clinical manifestations. *J Clin Virol* 17:23-30, 2000.
2. Yau J, Wang J, Liu C, Yang H, Su I: An outbreak of enterovirus 71 infection in Taiwan 1998: A comprehensive pathological, virological, and molecular study on a case of fulminant encephalitis. *J Clin virol* 17:13-22, 2000.
3. Wang SM, Lin CC, Tseng HW, Wang TR et al: Clinical spectrum of enterovirus 71 infection in children in southern Taiwan, with an emphasis on neurological complications. *Clin Infect Dis* 29:184-190, 1999.
4. Ho Monto, Chen E, Sc, D, Hsu K et al: An epidemic of enterovirus 71 infection in Taiwan. *New Engl J Med* 341:929-935, 1999.
5. Huang CC, Lin CC, Chang YC, Chen CY et al: Neurologic complications in children with enterovirus 71 infection. *New Engl J Med* 341:936-942, 1999.
6. Chang LY, Lin TY, Hsu KH, Huang YC et al: Clinical features and risk factors of pulmonary edema after enterovirus-71-related hand, foot and mouth disease. *Lancet* 354:1682-1686, 1999.
7. AbuBakar S, Chee HY, Al-Kobaisi MF, Xiaoshan J et al: Identification of enterovirus 71 isolates from an outbreak of hand, foot and mouth disease (HFMD) with fetal cases of encephalomyelitis in Malaysia. *Virus Res* 61:1-9, 1999.
8. Brown B A, Oberste M S, Alexander JP Jr, Kenn ML et al: Molecular epidemiology and evolution of enterovirus 71 strains isolated from 1970 to 1998. *J Virol* 73: 9969-9975, 1999.



## Comparative Pathology Case 154

**Presenter:** Chung-Tiang Liang (梁鍾鼎), DVM, MS.

National Laboratory Animal Breeding and Research Center, National Science Council.  
(國科會國家實驗動物繁殖及研究中心)

**History:** One of six adult male African green monkeys (*Cercopithecus aethiops*) inoculated intraperitoneally with 1000 plaque-forming units of Ebola (Zaire type) virus. The six monkeys were a placebo group in a drug therapy protocol and were treated with saline IM every eight hours beginning one day prior to virus inoculation. All six monkeys died 6 to 7 days postinoculation.

**Gross findings:** Petechiae were present on the eyelids. The liver was mottled dark red-brown to light tan, was friable, and had rounded capsular borders. The stomach mucosa had numerous pethechiaie.

### **Laboratory Results:**

#1 – one day prior to Ebola inoculation

#2 – day to death

### **Sreum Chemistry:**

		#1	#2	Normal
Glucose	(mg/dl )	104	27	7-111
BUN	(mg/dl )	15	68	6-20
Creatinine	(mg/dl )	1.0	7.5	0.6-1.4
Na	(mmol/l)	129	139	136-144
K	(mmol/l)	3.7	4.6	3.9-5.1
Cl	(mmol/l)	106	97	99-107
CO <sub>2</sub>	(mmol/l)	28	23	24-32
AMYL	(u/l)	926	730	30-110
Calcium	(mg/dl )	8.6	6.3	9.0-10.2
PHOS	(mg/dl )	2.6	16.5	2.6-4.2
TP	(g/dl)	6.2	6.5	6.5-8.1
ALB	(g/dl)	3.5	3.4	3.9-4.7
ALKP	(u/l)	58	1266	36-108
GGT	(u/l)	97	476	8-78
AST	(u/l)	145	10279	10-42
ALT	(u/l)	213	4587	0-50
LDH	(u/l)	2492	3489	290-546
CPK	(u/l)	3523	2000	35-374
CHOL	(mg/dl )	129	166	120-200
TRIG	(mg/dl )	64	1212	35-160
TBIL	(mg/dl )	0.8	3.4	0.3-1.1

**CBC Results:**

	#1	#2	Differential	#1	#2
WBC (X 10 <sup>3</sup> )	5.1	8.5	SEG	47	57
RBC (X 10 <sup>6</sup> )	7.3	5.7	Lymph	52	11
Hgb (g/dl)	17.9	14.6	Mono	1	0
HCT (%)	54.0	41.6	EOS	0	32
MCV (fl)	74.4	72.5			
MCH (pg)	24.7	25.5			
MCHC (g/dl)	33.1	35.1			
PLT (X 10 <sup>3</sup> )	337	296			

**Coagulation:**

	#1	#2	Normal
PT	9.0	12.8	9.8-12.8
PTT	22.0	78.9	23.3-34.0

**Contributor's Diagnosis and Comments:**

1. Liver: Hepatocellular degeneration and necrosis, multifocal to coalescing, random, moderate with minimal acute inflammation, Kupffer cell hypertrophy, and multifocal eosinophilic intracytoplasmic hepatocellular inclusions.
2. Spleen, cords of Billoth: Fibrin deposition and histiocyte loss/necrosis, diffuse, moderate.
3. Spleen, white pulp: Lymphoid depletion and lymphocytolysis, diffuse, moderate.
4. Spleen, white pulp: Fibrin thrombi, multifocal, mild.
5. Spleen, marginal zone: Congestion/hemorrhage, diffuse, mild.

**Etiology:** Ebola (Zaire type) virus.

The filoviridae family consists of one genus, Filovirus. Marburg virus and Ebola (Zaire type, Sudan type, and Reston type) virus are the two species in the genus. Marburg virus and Ebola (Zaire type, Sudan type, and Reston type) virus are clearly associated with the African continent. The recent exportations of Ebola (Reston type) virus infected monkeys from the Philippines may indicate the existence of other filoviruses. During the 1976 Ebola outbreaks in Zaire and Sudan, the estimated case fatality rates in human beings were 88% for the Zaire type and 53% for the Sudan type. More recently, the Ebola (Reston type) virus was isolated from cynomolgus monkeys imported into the U.S. in 1989-1990, and from monkeys at the export facility in the Philippines. While highly lethal for naturally and experimentally infected monkeys, Ebola (Reston type) virus may be less virulent for humans, having infected four animal caretakers without causing clinical illness.

The natural sources and ecology of filoviruses are unknown. These viruses have a tropism for cells of the mononuclear phagocyte system and fibroblasts. The mode of entry of the filoviruses into cells remains unknown. Virion assembly involves budding from the plasma membranes of preformed nucleocapsids; nucleocapsids also accumulate in cytoplasm, forming

prominent inclusion bodies.

In Rhesus and African green monkeys inoculated with Ebola (Zaire type), the virus replicates to high titer in liver, spleen, and lymph nodes during the incubation period. Lesions include necrosis in liver and adrenal glands, fibrin thrombi in multiple organs, and interstitial hemorrhage, which is most evident in the gastrointestinal tract. Necrosis in liver and adrenal glands is caused directly by virus infection of paranchymal cells, and typically there is very little inflammatory response. Biochemical dysfunction of endothelial cells and platelets during Ebola (Zaire type) viral infection has been demonstrated and has been associated with edema, multiple effusions, hemorrhage, and hypovolemic shock. In primate infections, the intrinsic clotting pathway is affected and the extrinsic pathway is spared.

#### **AFIP Diagnoses:**

1. Spleen, red pulp: Fibrin deposition and necrosis, diffuse, moderate, African green monkey (*Cercopithecus aethiops*), non-human primate.
2. Spleen, white pulp: Lymphoid depletion and lymphocytolysis, diffuse, moderate, with marginal zone congestion/hemorrhage.
3. Liver: Hepatocellular degeneration and necrosis, multifocal to coalescing, random, moderate, with minimal acute hepatitis, and multifocal eosinophilic intracytoplasmic hepatocellular inclusions.

#### **Conference Note:**

Differential diagnosis for the splenic lesion was discussed and includes Ebola, simian hemorrhagic fever, anthrax, Rift Valley fever, severe endothemia or other causes of disseminated intravascular coagulation. Hepatic necrosis with formation of Councilman-like bodies (apoptotic bodies), as seen in this case, is not a feature of simian fevers including Ebola, Marburg, and yellow fever. Yellow fever virus typically produces midzonal hepatic necrosis and nephrosis. Ebola virus is pantropic and produces large amphophilic intracytoplasmic inclusion bodies in many tissues, most commonly including the liver, spleen and adrenal gland.

#### **Contributor:**

Pathology Division, UsAMRIID, Ft. Detrick, MK 21702-5011.

#### **References:**

1. Baskerville A, Bowen ETW, Platt GS, McArdell LB, and Simpson DIH: The pathology of experimental Ebola virus infection in monkeys. *J Pathol* 125: 131-138, 1978.
2. Baskerville A, Fisher-Hoch SP, Neild GH, and Dowsett AB: Ultrastructural pathology of experimental Ebola hemorrhagic fever virus infection. *J Pathol* 147: 199-209, 1985.
3. Bowen ETW, Platt GS, Lloyd G, Raymond RT, and Simpson EIH: A comparative study of stains of Ebola virus isolated from southern Sudan and northern Zaire. *J Med*



Viol 6: 129-138M 1980.

4. Buchmeier MJ, DeFries RU, McCormick JB, and Kiley MP: Comparative analysis of the structural polypeptides of Ebola viruses from Sudan and Zaire. *J Infect. Dis* 147: 276-281, 1983.
5. Cox NJ, McCormick JB, Johnson KM, and Kiley MP: Evidence for two subtypes of Ebola virus based on oligonucleotides mapping of RNA. *J Infect Dis* 147: 272-275, 1983.
6. Elliott LH, Kiley MP, and McCormick JB: Descriptive analysis of Ebola virus proteins. *Viol* 147:169-176, 1985.
7. Ellis DS, Bowen ETW, Simpson DIH, and Stamford S: Ebola virus: a comparison, at ultrastructural level, of the behavior of the Sudan and Zaire strains in monkeys. *Br J Exp Path* 59: 584-593, 1978.
8. Ellis DS, Simpson DIH, Francis PDP, Knobloch J, Bowen ETW, Lolik P, and Deng IM: Ultrastructure of Ebola virus particles in human liver. *J Clin Pathol* 31: 201-208, 1978.
9. Fisher-Hoch SP, Platt GS, Lloyd G, and Simpson DIH: Hematological and biochemical monitoring of Ebola infection in rhesus monkeys: implications for patient management. *Lancet* 1055-1058, 1983.
10. Fisher-Hoch SP, Platt GS, Neild GH, Southee T, Baskerville A, Raymond RT, Lloyd G, and Simpson DIH: Pathophysiology of shock and hemorrhage in a fulminating viral infection (Ebola). *J Infect Dis* 152: 887-894, 1985.
11. Geisbert TW, Jahrling PB, Hanes MA, and Zack PM: Association of Ebola-related Reston virus particles and antigen with tissue lesions of monkeys imported to the United States. *J Comp Path* 106: 137-152, 1992.
12. Jahrling PB, Kiley MP, Sanchez A, Klenk HD, Swanepoel TW, and Peters CJ: Filoviridae. In *Classification and Nomenclature of Viruses, Sixth Report of the International Committee on Taxonomy of Viruses* (in press). Springer-Verlag, New York, NY.
13. Johnson KM, Lange JV, Webb PA, and Murphy FAL: Isolation and partial characterization of a new virus causing acute hemorrhagic fever in Zaire. *Lancet* 569-574, 1977.
14. Kiley MP, Regnery RL, and Johnson KM: Ebola virus: Identification of virion structural proteins. *J Gen Virol* 49: 333-341, 1980.
15. McCormick JB, Bauer SP, Elliott LH, Webb PA, and Johnson KM: Biological differences between strains of Ebola virus from Zaire and Sudan. *J Infect Dis* 147: 264-267, 1983.
16. Murphy FA, Kiley MP, and Fisher-Hoch SP: Filoviridae Marburg and Ebola viruses. In *Virology*, ed. Fields BN, 2<sup>nd</sup> ed., Vol. 1, pp.933-942. Raven Press, New York, NY 1990.
17. Richman DD, Cleveland PH, McCormick JB, and Johnson KM: Antigenic analysis of

strains of Ebola virus: Identification of two Ebola virus serotypes. *J Infect Dis* 147:268-271m 1983.

18. Sanchez A, and Kiley MP: Identification and analysis of Ebola virus messenger RNA. *Virology* 157: 414-420, 1987.
19. Geisbert TW, Rhoderick JB, and Jahrling PB: Rapid identification of Ebola virus and related filoviruses in fluid specimens using indirect immunoelectron microscopy. *J Clin Pathol* 44: 521-522, 1991.

## Comparative Pathology Case 155

**Presenter:** Chung-Lin Yu (游忠霖), DVM.

Institute of Veterinary Medicine, National Taiwan University. (國立台灣大學獸醫學研究所)

**Clinical history:** This 1-year-old Longhorn steer was 1 of a group of 100 imported to Tennessee from Mexico 90 days prior to its presentation. The local veterinarian reported that the steer died following a 48 hours clinical course which included fever, ataxia and eventual recumbency. The owner indicated that one other steer had been found dead 2 weeks prior to this calf's illness.

**Gross findings:** No significant gross lesions were seen.

**Laboratory results:** Multiple tissues were negative for clostridia, infectious bovine rhinotracheitis, bovine viral diarrhea and bovine respiratory syncytial virus infection by florescent antibody methods. No growth was obtained from the liver. Bacteria interpreted as contaminants were obtained from the lung and kidney. The brain was positive for rabies virus by florescent antibody and mouse inoculation methods.

**Contributor's Diagnosis and Comment:** Brain, cerebellum, Meningoencephalitis, lymphocytic, chronic with numerous intracytoplasmic eosinophilic neuronal inclusions, due to rabies virus infection (Lyssavirus).

Examination of the cerebellum revealed mild perivascular lymphocytic cuffing accompanied by a few scattered lymphocytes within pia-arachnoid spaces. Purkinje cells contained numerous, variably sized, eosinophilic inclusions consistent with Negri bodies. Brains from the affected steer and the inoculated mice were forwarded to the Centers for Disease Control. Polymerase chain reaction studies revealed the rabies strain to have originated from the vampire bat. Based on the strain of virus and the time interval involved, the steer was most like in the incubation phase of the disease when imported into the United States from Mexico. The exact location from which the steer originated in Mexico could not be determined.

Rabies virus belongs to the genus Lyssavirus. Antigenic analysis of the rabies virus has revealed significant heterogeneity with 12 or more types being defined in bats and at least 5 different types being noted within terrestrial mammals. All mammals are susceptible, although species vary in degree of susceptibility. While cattle are dead-end hosts, they are especially susceptible to infection. The principle reservoir vectors in the United States are foxes and skunks, although the raccoon has become more important in recent years, particularly along the Atlantic seaboard. Vampire bats inhabit South and Central America, extending into northern Mexico, and historically have accounted for a high incidence of rabies in mammals within those countries. Annual estimates for death losses associated with bovine paralytic rabies in Mexico vary

substantially, ranging from 10,000 in one survey to greater than 100,000 in other surveys. A survey in the mid 1960's estimated annual mortality within Central and South American countries to be over a half a million animals per year. Random sampling in a Mexico City slaughter house indicated that approximately 4% of slaughtered cattle were positive for rabies by fluorescent antibody staining and mouse inoculation of brain tissue. Vampire bats, the chief vector in Central and South American countries, apparently prefer bovine blood above all others.

Clinical signs of bovine rabies include anorexia, repeated bellowing, dry feces, and ataxia, which later progresses to excessive salivation and recumbency. The morbidity period also varies, ranging from 1~3 months. The pathogenesis of rabies infection begins with the inoculation of virus into a wound, usually inflicted by the bite of a rabid animal. Virus replicates first in myocytes with later spread to the central nervous tissue by travel along peripheral nerves. Microscopic lesions within the brain vary depending upon the species the most severe lesions are generally found in dogs, whereas, ruminants show minimal inflammation, yet may have numerous Negri bodies. The Negri bodies are most commonly found in the hippocampus of carnivores and Purkinje cells of herbivores.

Most cases of rabies in the United States occur in wild animals. In 1992, 7,912 cases were reported cases. Approximately 8.5% of the reported cases (732 cases) were in domestic species. The number of cases of rabies in cattle in 1992 was 184. In contrast, Mexico reported 2,358 laboratory confirmed and 4,753 clinically diagnosed cases of rabies in domestic and wild animals in 1992. This case is somewhat unique in that it represents a new strain of rabies viral infection reported in the United States. As cattle are dead-end host, the importation of vampire bat rabies poses little threat in this case. However, the increased animal movement associated with the North American Free Trade Agreement warrants greater consideration of rabies in those animals having a history of originating from Mexico and exhibiting neurologic signs.

**AFIP Diagnosis:** Cerebellum: Meningoencephalitis, nonsuppurative, diffuse, mild, with numerous eosinophilic intracytoplasmic neuronal inclusion bodies. Longhorn, bovine, etiology, consistent with rabies virus.

**Conference Note:** All conference participants correctly diagnosed rabies. Many participants believed that there was a paucity of granular cell layer neurons.

In addition to bites and saliva-contaminated scratches, rabies transmission can occur by aerosol in bat caves, by the oral route in some species and via corneal transplants in humans. Oral rabies vaccines have been used effectively to prevent rabies in wildlife in Europe. Recently, oral rabies vaccine was air dropped in parts of southern Texas in an attempt to control an epizootic of rabies in coyotes and stray dogs; oral vaccines are also being evaluated in an effort to control the raccoon rabies epizootic ongoing in the Atlantic states. The differences between "fixed" and "street" viruses were discussed. "Fixed" rabies biotypes are vaccine strains that are neurotropic but are not secreted in the saliva, and do not produce Negri bodies. "Street" viruses are the biotypes enzootic or epizootic in wild animals and vary by animal species and

geographical area. In the United States, rabies vaccines are only licensed for use in dogs, cats, ferrets, horses, cattle and sheep. A recent case of rabies in a vaccinated wolf-dog hybrid has emphasized the need to consider public health issues associated with the vaccination of wild animals and wild-domestic hybrids kept as pets against rabies.

In 1993 in the United States, 9,495 cases of rabies were reported in animals and 3 in humans. Greater than 93% of the cases occurred in wild animals. The total number of animals cases was 9.9% greater than 1992, attributed mostly to the continued spread of rabies among raccoons (5,912 cases) along the Atlantic seaboard. Cats were the domestic species most commonly reported rabid (291 cases), which closely approaches the combined number of cases diagnosed in all other domestic species. In the United States, the last 4 cases of indigenously acquired human rabies were caused by a rabies variant associated with the silver-haired bat. Of these cases, three persons had no reported exposure to bats or bites by other animals. One of the victims had handled a bat during a hunting trip.

**Contributor:** C.E. Kord Animal Disease Laboratory. P.O. Box 40627, Melrose Station, Nashville, TN 37204

**Reference:**

1. Baer, GM: Vampire bat and bovine paralytic rabies. In: The Natural History of Rabies, 2nd ed. GM Baer. pp. 389-402. CRC press, Boca Raton, FL. 1991.
2. Jay MT, Reilly K, DeBess EE, Haynes EH, Bader DR, Barret LR: Rabies in a vaccinated wolf-dog hybrid. JAVMA, Vol 205, No. 12, pp. 1729-1732, 1994.
3. Jubb, KVF and Huxtable, CR: The nervous system, In: Jubb KVF, Kennedy PC, Palmer N. eds: Pathology of Domestic Animals, 4<sup>th</sup> ed. Academic Press, San Diego, CA. Vol 1, pp 403-407, 1993.
4. King AA, Turner GS: Rabies; A Review. J. Comp. Path. 108:1-39, 1993.
5. Krebs JW, Strine TW, Childs JE: Rabies surveillance in the United States during 1992. J. Am Vet. Med. Assoc. 203:1718-1731, 1993.
6. Krebs JW, Strine TW, Smith JS, Rupprecht CE, Childs JE: Rabies surveillance in the United States during 1993. J. Am Vet. Med. Assoc. Vol 205, No.12, pp.1718-1731, 1994.
7. Martin ML, Sedmak PA: Rabies. Part 1. Epidemiology, Pathogenesis, and diagnosis. Compendium on Continuing Education for the Practicing Veterinarian. 5:521-528, 1983.

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Laser disc frame # 00582, 04741, 05282, 09705, 14209-14211, 16939, 17065, 21489-21492, 22256, 24118-24122.

**Remark :** The cases is from cases 1 – 94-1 (AFIP 2458431) in AFIP Wednesday Slide Conference – No.13, 4 January 1995.

## Comparative Pathology Case 156

**Contributors:** Kwong- Chung Tung (董光中), DVM, MS, Cheng-Chung Lin (林正忠),

DVM, MS, Juinn-Shiow, Wang(王俊秀), DVM, PhD

College of Veterinary Medicine, National Chung-Hsing University

(國立中興大學獸醫學院)

**Clinical history:** One 0.5 kg wild male Formosan gem-faced civet (白鼻心) was taken by the traveler. Weakness, wasting, anorexia and diarrhea could be seen. When the civet revealed coma, the traveler brought it to our hospital. After clinical examination, BT was 37.8°C, yellowish watery diarrhea, and 8% dehydration were noticed, and then treated with keeping warm, drugs and fluid supply. But the civet was dead in the next day.

**Diagnosis:** *Parastrongylus cantonensis* infection.

**Gross findings:** Wasting and diarrhea could be seen. Few foamy bloody exudation was found in trachea and bronchi. Pulmonary edema and congestion were also noticed. Heart showed apex rounding slightly and the dilatated of the right ventricle.

**Histopathological findings:** The remarkable cross section of larvae through intestine showing lateral chords in cerebrum and cerebellum. Eosinophilic meningitis can't be seen in this case.

**Discussion:** *Parastrongylus cantonensis* is neurotropic, inhabit lungs, heart, and pulmonary artery of rodents. The fully mature nematodes live rat pulmonary arteries. Snails eat rat faces containing the first stage larvae. Not only rats but other hosts such as crabs, frogs or fresh water prawns ingest the snails or slugs which carry the immature larvae. It invades the brain of man in Southeast Asia and Pacific region, such as Cuba, Fijian Islands; Hawaii, Thailand, Austualia, Japan, and Taiwan. Following human ingestion larvae migrate to the central nervous system where they are unable to complete their life cycle and the larvae die. The human disease is caused by both the effects of larvae migration and the inflammatory reaction that occurs when larvae die in the nervous system. It characteristically follows a self limiting course lasting several weeks with neck rigidity, headache, meningism, and cerebrospinal fluid eosinophilia.

*Parastrongylus cantonensis* larvae can be seen in the subarachnoid spaces covering the base of rat brain. Here they mature to young adults which migrate to the pulmonary arteries via the cerebral. The larvae migrate to the brain where they cause eosinophilic meningitis or meningoencephalitis both in human, dog, mice, rat, and other animals.

This is the first case report in Formosan gem-faced civet in Taiwan.

**Diagnostic criteria:**

1. Eosinophilic meningitis or meningoencephalitis.
2. Section of larvae, adult worm. in lung.
3. Identification of adult worm.

**Reference:**

1. Allicata J. E. 1965. Biology and distribution of the rat lung worm, *Angiostrongylus cantonensis*, and other neurological disorders of man and animals. *Advances Pathol.* 3, 223.
2. Chen, E.R. 1979. Angiostrongyliasis and eosinophilic meningitis on Taiwan: A review. *Studies on angiostrongyliasis in eastern Asia and Australia.* J.H. Cross (editor). U.S. NAMRU-2, Taipei, Taiwan. 57-73.1.
3. Collins, G.H., Malik, R., Church, D.B., and H.K. 1992. Angiostrongylosis in dogs in Sydney. *Aust Vet. J.* 69:170-171. 27.
4. Hua, X. Hi. and Kentaro Y. 1990. Alteration in density of eosinophil in the cerebrospinal fluid of mice infected with *Angiostrongylus cantonensis*. *Int J. Parasitol.* 20: 681-693.
5. Pascual, J. E., Robertom P. B. and Hector, A. 1981. Eosinophilic meningoencephalitis in Cuba, caused by *Angiostrongylus cantonensis*. *Am. J. Trop. Med. Hyg.* 30:
6. Punyagupta. S., Papat, J., and Thanongsak, B. 1975. Eosinophilic meningitis on Thailand. *Am. J. Trop. Med. Hyg.* 24: 921-931. 35.
7. Sato, Y. and Otsuru M. 1983. Studies on eosinophilic meningitis and meningoencephalitis caused by *Angiostrongylus cantonensis* in Japan. *Southwest Asian J. Trop.Med. Pub. Hlth.* 14:515-524.
8. Wang, L.C., D. Chao. and E.R. Chen. 1991. Experimental infection routes of *Angiostrongylus cantonensis* in mice. *J. Helmin.* 65:296-300.13.
9. Woda, S., Matayoshe. S., Uchikawa R. and Sato, A. 1985. Acquisition of *Angiostrongylus cantonensis* infection in *Achatina fulica* under natural conditions and location in *Achatina fulica* and *Laecicaulia alte*. *Jpn. J. Parasitol.*35: 457-465.
10. Yii, Chin-Yun. 1976. Clinical observations on eosinophilic meningitis and meningoencephalitis caused by *Angiostrongylus cantonensis* on Taiwan. *An. J. Trop. Med. Hyg.* 25:233-249. 31

## Comparative Pathology Case 157

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**Clinical history:** A young adult female Norway rat was caught at Su-Lin, Taipei during the field parasitic investigation from October 1998 to January 1999. The body length and weight of this rat were 230 mm and 271 gm respectively. It did not showed significant clinical sign. The blood chemistry examination revealed that ALT (110.8 IU/L), AST (190.4 IU/L) and LDH (429.0 IU/L) were significantly higher than the others.

**Diagnosis:** 1. Multiple, severe, chronic, granulomatous eosinophilic hepatitis, *Capillaria hepatica* infection, Norway rat.  
2. Multiple, severe, chronic, granulomatous pneumonitis, *Angiostrongylus cantonensis* infection, Norway rat.

**Gross findings:** The rat was normal in appearance. Gross findings of liver showed multifocal to coalescing white-yellowish pinpoint lesions scattered under the capsule and inside of liver, which lined up in thread form. Moreover, lung also displayed multiple yellow-grayish granulomatous lesions on the surface. Being compressed with cover slide, numerous of parasitic eggs with bipolar plugs and large amount of larva with thin shell egg but no plug were found in liver sections and lung parenchyma respectively.

**Histopathological findings:** Adult worms and eggs occupied and replaced part of hepatic parenchyma. The inflammatory of worms and eggs ranged from none to severe granulomatous hepatitis accompany with eosinophilic infiltration. Hepatic cells showed slight vacuolation and necrosis. The older lesions exhibited chronic, severe and focal granulomatous granuloma. Eggs were gradually digested by macrophages and formed multinuclear giant cells. In the portal triads, slight bile duct proliferation was noted. Furthermore, multiple, severe and chronic granulomatous lesions were also found in the lungs. Cuboidal cell proliferation was seen in the lining bronchial epithelial cells. A brownish material deposited in the hepatic and splenic parenchyma.

**Discussion:** Both *Capillaria hepatica* and *Angiostrongylus cantonensis* are the important nematodes of field rodents, which cause zoonosis in Taiwan (2). *Capillaries hepatica* (Trichurata, Capillariadae) has been recorded worldwide in over 20 mammalian species including humans (1). The life cycle of *C. hepatica* is unique among the helminthes of mammals in that release of eggs requires death of the mammalian host, ingestion and digestion of infected liver. Eggs are



liberated either through cannibalism, necrophagy or predation (6, 7, 9). The life cycle is directly and female worms lay eggs in the liver which become trapped by a granulomatous host response (8). Rodents are thought to become infected through embryonated eggs adhering to their fur or feet and then being ingested during preening (9). In previous studies, this worm infected rats throughout Taiwan and induced granulomatous eosinophilic hepatitis in rats. Human infection with this nematode also caused granulomatous eosinophilic hepatitis. Over 28 confirmed cases have been reported (3), it tends to occur in unsanitary conditions. However, accidental infection with small number of eggs might occur in a rather sanitary environment because domestic cats sometimes acted as egg dissemination (3).

*Angiostrongylus cantonensis* larvae infected rats, slum and some snails such as *Achatina folic* (4, 5, 10). This worm also infected rats throughout Taiwan. It induced granuloma formation in the lung of rats and eosinophilic meningitis or meningoencephalitis in human (10). Considering the transmission mode of this worm into man, ingestion or handling of *Achatina fulica* is supposed to be the main route of infection in Taiwan. It is also possible that infection with this parasite occurred through eating raw vegetables or fruits contaminated by infected slugs or snails (5).

Epidemiological investigation on the field rodents infected with these two nematodes was conducted at 12 localities in Taiwan from October 1998 to January 1999. Total of 227 head of the field rodents, including 92 of *Rattus losea*, 35 of *Apodemus agrarius*, 30 of *Rattus norvegicus*, 44 of *Mus formosanus* and 26 of *Badicota indica*, were trapped and inspected. *A. cantonensis* not only infected *B. indica*, *R. norvegicus*, and *R. losea*, but also infected *A. agrarius*. The incidence rate was 50.0%, 33.3%, 19.6% and 2.9%, respectively. *C. hepatica* was only found in the fields rodents of *B. indica*, *R. norvegicus* and *R. losea*. The incidence rate was 11.5%, 36.7% and 5.4%, respectively. Furthermore, *A. cantonensis* infected the rodents at 11 localities, and the prevalence rate was 91.7%. *C. hepatica* infected the rodents at 7 localities; the prevalence rate was 58.3%. Unfortunately, twelve of 19 rodents infected by *A. cantonensis* also accompanied with the infection of *C. hepatica*. It is further remained to clarify the possible infected mechanism between *A. cantonensis* and *C. hepatica* of the field rodents.

#### **Diagnostic criteria:**

1. Specific gross findings in liver and lung
2. Histopathological findings in liver and lung
3. Parasite eggs and adult worms identification

#### **References:**

1. Borucinska JD, Van Kruiningen HJ, Caira JN and Garmendia AE, Clinicopathological features and histopathology of experimental hepatic capillariasis in muskrats (*Ondatra zibethicus*). *J. Wildlife Diseases*. 33: 122-130, 1997.
2. Durfee PT and Cross JH. A catalogus of the zoonoses of Taiwan. *J. Formosan Med. Ass.* 71: 509-524. 1972.

- 3.Hiroshi K and Osamu Z. A space-occupying lesion in the liver due to *Capillaria* infection. *Am. J. Trop. Med. Hyg.* 52: 414-418, 1995.
- 4.Kuntz RE and Myers BJ. The lung worm *Angiostrongylus cantonensis* of rodents on Taiwan (Formosa) and the offshore islands. *Am. J. Trop. Med. Hyg.* 13: 686-692, 1964.
- 5.Lin CY and Chen SN. Epidemiology studies of Angiostrongyliasis in north Taiwan. *Med. J. of Osaka Univ.*31:7-11,1980.
- 6.McCallum HI and Singleton GR. Models to assess the potential of *Capilalia hepatica* to control population outbreaks of house mice. *Parasitol.* 98: 425-437, 1989.
- 7.McCallum HI. Evaluation of a nematode (*Capilaria hepatica* Bancroft, 1893) as a control agent for populations of house mice (*Mus musculus domesticus* Schwartz and Schwartz 1943) *Rev. Sci. Tech. Off. Int. Epiz.* 12: 83-93, 1993.
- 8.Raybourne R and Solomon GB. Granulomatous hypersensitivity and antibody production in response to antigens of *Capillaria hepatica* eggs. *Int. J. Parasitol.* 14: 371-375, 1984.
- 9.Singleton GR, Spratt DM, Barker SC and Hodgson PF. The geographic distribution and host range of *Capilaria hepatica* (Bancroft) (nematode) in Australia. *Int. J. Parasitol.* 21: 945-957, 1991.
- 10.Yen CM”Chen ER and Cheng CW. A survey of Ampullarium canaliculatus for natural infection of *Angiostrongylus cantonensis* in south Taiwan. *J. Trop. Med. Hyg.* 93:347-350, 1990.

<b>中華民國比較病理學會</b> <b>第一次至第十九次比較病理學研討會病例一覽表</b>
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**第一次比較病理學研討會病例（83 年 10 月 30 日於台灣養豬科學研究所舉行）**

動物別	診斷	提供單位
1. Dog	Myxoma	美國紐約動物醫學中心
2. Ferret	Chordoma	美國紐約動物醫學中心
3. Human	Ependymoblastoma	長庚紀念醫院
4. Goat	Cryptosporidiosis	台灣養豬科學研究所
5. <i>Lemur fulvus</i>	Amoebiasis	台灣養豬科學研究所
6. Monkey	Tuberculosis	台灣大學獸醫學系
7. Human	Tuberculosis	省立新竹醫院

**第二次比較病理學研討會病例（84 年 4 月 9 日於台北病理中心舉行）**

8. Pigeon	Synovial sarcoma	美國紐約動物醫學中心
9. Cat	Perinephric pseudocyst	台灣大學獸醫學系
10. Human	Choledochocyst	長庚紀念醫院
11. Rat	Bile duct ligation	中興大學獸醫學系
12. Human	<i>H. pylori</i> -induced gastritis	台北病理中心
13. Human	Pseudomembraneous colitis	省立新竹醫院
14. Dog	Dirofilariasis	台灣省家畜衛生試驗所
15. Human	Pulmonary dirofilariasis	台北榮民總醫院
16. Squirrel	Toxoplasmosis	台灣養豬科學研究所
17. Pig	Toxoplasmosis	屏東技術學院獸醫學系

**第三次比較病理學研討會病例（84 年 8 月 27 日於國立台灣大學舉行）**

18. Human	Malignant lymphoma	長庚紀念醫院
19. Wistar rat	Malignant lymphoma	國家實驗動物繁殖及研究中心
20. Human	Sparganosis	台北榮民總醫院
21. Chickens	Newcastle disease	國立台灣大學獸醫學系
22. Goldfish	Herpesvirus infection	國立台灣大學獸醫學系
23. Human	Chromomycosis	台北病理中心
24. Human	Metastatic thyroid carcinoma	省立新竹醫院
25. Human	Chordoma	新光吳火獅紀念醫院
26. Pig	Swine salmonellosis	國立中興大學獸醫學系
27. Pig	Vegetative valvular endocarditis	台灣養豬科學研究所

**第四次比較病理學研討會病例（84 年 11 月 19 日於新光吳火獅紀念醫院舉行）**

28. Human	Nocardiosis	台灣省立新竹醫院
29. Largemouth bass	Nocardiosis	屏東縣家畜疾病防治所
30. Dog	Demyelinating encephalitis	台灣養豬科學研究所
31. Malayan sun bears	Adenovirus infection	國立台灣大學獸醫學系
32. Human	Actinomycosis	台灣省立豐原醫院
33. Human	Tuberculosis	苗栗頭份為恭紀念醫院
34. Dog	Interstitial cell tumor	國立中興大學獸醫學系
35. Human	Carcinoid tumor	長庚紀念醫院
36. Siamese cat	Hepatic carcinoid	美國紐約動物醫學中心
37. Human	Myositis ossificans	台北醫學院

**第五次比較病理學研討會（85 年 2 月 4 日於台北市立仁愛醫院舉行）：**

中華民國比較病理學會成立大會暨專題演講

**第六次比較病理學研討會（85 年 6 月 9 日於台中榮民總醫院舉行）**

38. Ferret	Pheochromocytoma	美國紐約動物醫學中心
39. Human	Extra adrenal pheochromocytoma	新光吳火獅紀念醫院
40. Rat	Mammary gland fibroadenoma	國家實驗動物繁殖及研究中心
41. Human	Fibroadenoma	省立豐原醫院
42. Pointer bitch	Canine benign mixed mammary gland tumor	國立中興大學獸醫學系
43. Human	Phyllodes tumor	台中榮民總醫院
44. Dog	Canine oral papilloma	國立台灣大學獸醫學系
45. Human	Squamous cell papilloma	中國醫藥學院

**第七次比較病理學研討會（85 年 11 月 10 日於國立屏東技術學院獸醫系舉行）**

46. Cat	Feline dirofilariasis	美國紐約動物醫學中心
47. Human	Lung: metastatic carcinoma associated with cryptococcal infection. Liver: metastatic carcinoma. Adrenal gland, right: carcinoma (primary)	三軍總醫院
48. Wild rodents	Adiaspiromycosis	國立台灣大學獸醫學系
49. Human	Echinococcosis	台北榮民總醫院
50. Piglet	Porcine cytomegalovirus infection	台灣省家畜衛生試驗所
51. Human	Pneumocystis carinii pneumonia	台北病理中心
52. Goslings	Aspergillosis	屏東縣家畜疾病防治所
53. Human	Intracavitary aspergilloma and cavitary tuberculosis, lung.	羅東聖母醫院

- |              |  |              |
|--------------|--|--------------|
| 54. Human    | Fibrocalcified pulmonary TB mixed actinomycosis and aspergillosis lung infection with abscess DM, NIDDM. | 林口長庚紀念醫院     |
| 55. Broilers | Infectious laryngo-tracheitis (Herpesvirus infection)  | 國立屏東技術學院獸醫學系 |

**第八次比較病理學研討會（86年3月2日於台中榮民總醫院第一會議廳舉行）**

- |             |  |            |
|-------------|--|------------|
| 56. Human   | Gastrointestinal stromal tumor   | 台中榮民總醫院    |
| 57. Chicken | Cecal coccidiosis  | 國立中興大學獸醫學系 |
| 58. Human   | Tuberculous enteritis with perforation                                 | 佛教慈濟綜合醫院   |
| 59. Dog     | Colonic adenocarcinoma   | 美國紐約動物醫學中心 |
| 60. Human   | Intestinal capillariasis   | 台北馬偕醫院     |
| 61. Goose   | Spirochetosis  | 國立嘉義農專獸醫科  |
| 62. Human   | Submucosal leiomyoma of stomach  | 頭份為恭紀念醫院   |
| 63. Porcine | Proliferative enteritis ( <i>Lawsonia intracellularis</i> infection)   | 屏東縣家畜疾病防治所 |
| 64. Human   | 1. Adenocarcinoma of sigmoid colon<br>2. Old schistosomiasis of rectum | 省立新竹醫院     |
| 65. Caprine | Cryptosporidiosis  | 台灣養豬科學研究所  |

**第九次比較病理學研討會（86年7月20日於新光吳火獅紀念醫院 B1 大會議室舉行）**

- |                        |  |               |
|------------------------|--|---------------|
| 66. Chapman's zebra    | Echinococcosis                                   | 國立台灣大學獸醫學系    |
| 67. Human              | Hepatic ascariasis and cholelithiasis            | 彰化基督教醫院       |
| 68. Human              | Liver abscess ( <i>Klebsillae pneumoniae</i> )   | 台北醫學院         |
| 69. Pig                | Pseudorabies (Herpesvirus infection)             | 台灣養豬科學研究所     |
| 70. Human              | Acute Q fever hepatitis                          | 佛教慈濟綜合醫院      |
| 71. Human              | Myelolipoma                                      | 台北耕莘醫院        |
| 72. Mouse              | Reticulum cell sarcoma                           | 國家實驗動物繁殖及研究中心 |
| 73. Human              | Hepatocellular carcinoma                         | 新光吳火獅紀念醫院     |
| 74. Wistar strain rats | Hepatocellular carcinoma induced by aflatoxin B1 | 台灣省農業藥物毒物試驗所  |
| 75. Rabbits            | Acute yellow phosphorus intoxication             | 國立中興大學獸醫學系    |

**第十次比較病理學研討會（86年11月2日於三軍總醫院研究大樓一樓視聽教室舉行）**

- |             |   |                       |
|-------------|---|-----------------------|
| 76. Cat     | Polycystic kidney bilateral and renal failure   | 美國紐約動物醫學中心            |
| 77. Human   | 1. Xanthogranulomatous inflammation with nephrolithiasis, kidney, right.<br>2. Ureteral stone, right. | 羅東聖母醫院                |
| 78. Chicken | Marek's disease in native chicken   | 屏東縣家畜疾病防治所            |
| 79. Human   | Emphysematous pyelonephritis  | 彰化基督教醫院               |
| 80. SHR rat | 1. Glomerular sclerosis and hyalinosis, segmental, focal, chronic, moderate                           | 國防醫學院 & 國家實驗動物繁殖及研究中心 |

	2. Benign hypertension	
81. Human	Angiomyolipoma	羅東博愛醫院
82. Human	Inverted papilloma of prostatic urethra	省立新竹醫院
83. SD rats	Phagolysosome-overload nephropathy	國家實驗動物繁殖及研究中心
84. Human	Nephrogenic adenoma	國泰醫院
85. Dog	Renal amyloidosis	台灣養豬科學研究所
86. Human	Multiple myeloma with systemic amyloidosis	佛教慈濟綜合醫院
87. Human	Squamous cell carcinoma of renal pelvis and calyces with extension to the ureter	台北病理中心
88. Human	Fibroepithelial polyp of the ureter	台北耕莘醫院
89. Goose	1. Severe visceral gout due to kidney damaged 2. Infectious serositis	國立中興大學獸醫學系
90. Human	Clear cell sarcoma of kidney	台北醫學院
91. Orange-rumped agoutis	Hypervitaminosis D	國立台灣大學獸醫學系

**第十一次比較病理學研討會（87年3月1日於佛教慈濟綜合醫院舉行）**

92. Pig	Foot-and-mouth disease (FMD)	屏東縣家畜疾病防治所
93. Dog	Mammary gland adenocarcinoma, complex type, with chondromucinous differentiation	國立台灣大學獸醫學系
94. Human	1. Breast, left, modified radical mastectomy, showing papillary carcinoma, invasive 2. Nipple, left, modified radical mastectomy, papillary carcinoma, invasive 3. Lymph node, axillary, left, lymphadenectomy, papillary carcinoma, metastatic	羅東聖母醫院
95. Dog	Transmissible venereal tumor	國立中興大學獸醫學系
96. Human	Malignant lymphoma, large cell type, diffuse, B-cell phenotype	彰化基督教醫院
97. Tiger	Carcinosarcomas	台灣養豬科學研究所
98. Human	Mucinous carcinoma with intraductal carcinoma	省立豐原醫院
99. Mouse	Mammary gland adenocarcinoma, type B, with pulmonary metastasis, BALB/cBYJ mouse	國家實驗動物繁殖及研究中心
100. Human	Malignant fibrous histiocytoma and paraffinoma	中國醫藥學院
101. Pig	Swine pox	國立屏東科技大學獸醫學系
102. Human	Pleomorphic adenoma (benign mixed tumor)	佛教慈濟綜合醫院

**第十二次比較病理學研討會（87 年 4 月 19 日於臺灣養豬科學研究所舉行）：**  
**心臟血管專題演講**

**第十三次比較病理學研討會（87 年 6 月 14 日於台北市立動物園舉行）**

103. Human	Atypical central neurocytoma	新光吳火獅紀念醫院
104. SD rat	Cardiac schwannoma	國家實驗動物繁殖及研究中心
105. Human	1. Mucormycosis 2. Diabetes mellitus	花蓮佛教慈濟綜合醫院
106. Dog	Parasitic meningoencephalitis, caused by <i>Toxocara canis</i> larvae migration	臺灣養豬科學研究所
107. Human	1. Primary cerebral malignant lymphoma 2. Acquired immune deficiency syndrome	台北市立仁愛醫院
108. Lamb	Listeric encephalitis	屏東縣家畜疾病防治所
109. Human	Desmoplastic infantile ganglioglioma	高雄醫學院
110. Piglet	Pseudorabies	國立屏東科技大學
111. Human	Schwannoma	三軍總醫院
112. Chicken	Avian encephalomyelitis	國立中興大學
113. Human	Tuberculous meningitis	羅東聖母醫院
114. Dog	Osteosarcoma	美國紐約動物醫學中心

**第十四次比較病理學研討會（87 年 11 月 15 日於國立中興大學舉行）**

115. Dog	Mixed germ-cell stromal tumor, mixed Sertoli cell and seminoma-like cell tumor	美國紐約動物醫學中心
116. Human	Krukenberg's Tumor	台北病理中心
117. Human	Primary insular carcinoid tumor arising from cystic teratoma of ovary.	花蓮慈濟綜合醫院
118. Dog	Cystic endometrial hyperplasia	臺灣養豬科學研究所
119. Human	Polypoid adenomyoma	大甲李綜合醫院
120. Human	Gonadal stromal tumor	耕莘醫院
121. Dog	Cystic subsurface epithelial structure (SES)	國科會實驗動物中心
122. Human	Gestational choriocarcinoma	彰化基督教醫院
123. Horse	Ovarian granulosa cell tumor	國立中興大學

**第十五次比較病理學研討會（88 年 4 月 11 日於國立臺灣大學農學院附設動物醫院舉行）**

124. Dog	Superficial necrolytic dermatitis	美國紐約動物醫學中心
125. Human	Solitary congenital self-healing histiocytosis	羅東博愛醫院
126. Mouse	Alopecia areata	國家實驗動物繁殖及研究中心
127. Human	Eumycotic mycetoma	花蓮佛教慈濟綜合醫院
128. Goat	Contagious pustular dermatitis	屏東縣&台東縣家畜疾病防治所
129. Human	Kaposi's sarcoma	華濟醫院

- |              |                              |            |
|--------------|------------------------------|------------|
| 130. Chicken | Fowl pox and Marek's disease | 國立中興大學獸醫學系 |
| 131. Human   | Basal cell carcinoma (BCC)   | 羅東聖母醫院     |
| 132. Dog     | Transmissible venereal tumor | 國立臺灣大學獸醫學系 |

**第十六次比較病理學研討會（88年6月6日於新光吳火獅紀念醫院舉行）**

- |            |   |               |
|------------|---|---------------|
| 133. Human | Japanese encephalitis   | 花蓮佛教慈濟綜合醫院    |
| 134. Swine | Swine salmonellosis with meningitis   | 國立中興大學獸醫學系    |
| 135. Swine | Meningoencephalitis, fibrinopurulent and lymphocytic, diffuse, subacute, moderate, cerebrum, cerebellum and brain stem, caused by <i>Streptococcus</i> spp. infection | 國家實驗動物繁殖及研究中心 |

**第十七次比較病理學研討會（88年10月31日於台北榮民總醫院舉行）**

- |              |   |                 |
|--------------|---|-----------------|
| 136. Lorry   | Viral encephalitis, polymavirus infection   | 美國紐約動物醫學中心      |
| 137. Dog     | Canine Glioblastoma Multiforme in Cerebellopontine Angle  | 國立中興大學獸醫學院病理研究所 |
| 138. Dog     | 1. <i>Aspergillus</i> spp. encephalitis and myocarditis<br>2. Demyelinating canine distemper encephalitis | 國立臺灣大學獸醫學系      |
| 139. Human   | Disseminated strongyloidiasis   | 花蓮佛教慈濟綜合醫院      |
| 140. Calf    | Coliform septicemia of newborn calf   | 屏東縣家畜疾病防治所      |
| 141. Human   | Eosinophilic meningitis caused by <i>Angiostrongylus cantonensis</i>                                      | 台北榮民總醫院病理檢驗部    |
| 142. Chicken | Avian encephalomalacia (Vitamin E deficiency)   | 國立屏東科技大學獸醫學系    |

**第十八次比較病理學研討會（89年4月30日於國立臺灣大學農學院附設動物醫院會議廳舉行）**

- |              |  |                      |
|--------------|--|----------------------|
| 143. Dog     | Osteosarcoma associated with metallic implants | 紐約動物醫學中心             |
| 144. Human   | Radiation-induced osteogenic sarcoma           | 花蓮慈濟綜合醫院             |
| 145. Dog     | Osteosarcoma, osteogenic                       | 國立臺灣大學獸醫學系           |
| 146. Human   | Pleomorphic rhabdomyosarcoma                   | 行政院衛生署新竹醫院           |
| 147. Leopard | Papillary Mesothelioma of pericardium          | 國立屏東科大學獸醫學系          |
| 148. Human   | Cystic ameloblastoma                           | 台北醫學院                |
| 149. Canine  | Giant cell tumor of bone                       | 國立中興大學獸醫學院           |
| 150. Human   | Desmoplastic small round cell tumor (DSRCT)    | 華濟醫院                 |
| 151. Goat    | Osteodystrophia fibrosa                        | 台灣養豬科學研究所&台東縣家畜疾病防治所 |
| 152. Human   | Hepatocellular carcinoma                       | 羅東聖母醫院               |

**第十九次比較病理學研討會（89年9月3日於台北市立動物園教育中心演講廳舉行）**

- |                           |                          |                  |
|---------------------------|--------------------------|------------------|
| 153. Human                | Enterovirus 71 infection | 彰化基督教醫院          |
| 154. African Green monkey | Ebola virus infection    | 行政院國家科學委員會實驗動物中心 |
| 155. Longhorn             | Rabies                   | 國立臺灣大學獸醫學系       |



	steer		
156	Formosan civet	<i>Parastrongylus cantonensis</i> infection	國立中興大學獸醫學院
157	Norway Rat	<i>Capillaria hepatica</i> , <i>Angiostrongylus cantonensis</i>	行政院農委會農業藥物毒物 試驗所

**中華民國比較病理學會**  
**第一次至第十九次比較病理學研討會病例分類一覽表**

分 類	病 例 編 號	診 斷	動 物 別	提 供 單 位
腫 瘤	1.	Myxoma	Dog	美國紐約動物醫學中心
	2.	Chordoma	Ferret	美國紐約動物醫學中心
	3.	Ependymoblastoma	Human	長庚紀念醫院
	8.	Synovial sarcoma	Pigeon	美國紐約動物醫學中心
	18.	Malignant lymphoma	Human	長庚紀念醫院
	19.	Malignant lymphoma	Wistar rat	國家實驗動物繁殖及研究中心
	24.	Metastatic thyroid carcinoma	Human	省立新竹醫院
	25.	Chordoma	Human	新光吳火獅紀念醫院
	34.	Interstitial cell tumor	Dog	國立中興大學獸醫學系
	35.	Carcinoid tumor	Human	長庚紀念醫院
	36.	Hepatic carcinoid	Siamese cat	美國紐約動物醫學中心
	38.	Pheochromocytoma	Ferret	美國紐約動物醫學中心
	39.	Extra adrenal pheochromocytoma	Human	新光吳火獅紀念醫院
	40.	Mammary gland fibroadenoma	Rat	國家實驗動物繁殖及研究中心
	41.	Fibroadenoma	Human	省立豐原醫院
	42.	Canine benign mixed type mammary gland tumor	Pointer bitch	國立中興大學獸醫學系
	43.	Phyllodes tumor	Human	台中榮民總醫院
	44.	Canine oral papilloma	Dog	國立台灣大學獸醫學系
	45.	Squamous cell papilloma	Human	中國醫藥學院
	47.	Lung: metastatic carcinoma associated with cryptococcal infection. Liver: metastatic carcinoma. Adrenal gland, right: carcinoma (primary)	Human	三軍總醫院
	56.	Gastrointestinal stromal tumor	Human	台中榮民總醫院
	59.	Colonic adenocarcinoma	Dog	美國紐約動物醫學中心
	62.	Submucosal leiomyoma of stomach	Human	頭份為恭紀念醫院
	64.	1. Adenocarcinoma of sigmoid colon 2. Old schistosomiasis of rectum	Human	省立新竹醫院
	71.	Myelolipoma	Human	台北耕莘醫院
	72.	Reticulum cell sarcoma	Mouse	國家實驗動物繁殖及研究中心
	73.	Hepatocellular carcinoma	Human	新光吳火獅紀念醫院

分 類	病 例 編 號	診 斷	動 物 別	提 供 單 位
	74.	Hepatocellular carcinoma induced by aflatoxin B1	Wistar strain rats	台灣省農業藥物毒物試驗所
	81.	Angiomyolipoma	Human	羅東博愛醫院
	82.	Inverted papilloma of prostatic urethra	Human	省立新竹醫院
	84.	Nephrogenic adenoma	Human	國泰醫院
	86.	Multiple myeloma with systemic amyloidosis	Human	佛教慈濟綜合醫院
	87.	Squamous cell carcinoma of renal pelvis and calyces with extension to the ureter	Human	台北病理中心
	88.	Fibroepithelial polyp of the ureter	Human	台北耕莘醫院
	90.	Clear cell sarcoma of kidney	Human	台北醫學院
	93.	Mammary gland adenocarcinoma, complex type , with chondromucinous differentiation	Dog	國立台灣大學獸醫學系
	94.	1.Breast, left, modified radical mastectomy, showing papillary carcinoma, invasive 2.Nipple, left, modified radical mastectomy, papillary carcinoma, invasive 3.Lymph node, axillary, left, lymphadenectomy, papillary carcinoma, metastatic	Human	羅東聖母醫院
	95.	Transmissible venereal tumor	Dog	國立中興大學獸醫學系
	96.	Malignant lymphoma, large cell type, diffuse, B-cell phenotype	Human	彰化基督教醫院
	97.	Carcinosarcomas	Tiger	台灣養豬科學研究所
	98.	Mucinous carcinoma with intraductal carcinoma	Human	省立豐原醫院
	99.	Mammary gland adenocarcinoma, type B, with pulmonary metastasis, BALB/cBYJ mouse	Mouse	國家實驗動物繁殖及研究中心
	100.	Malignant fibrous histiocytoma paraffinoma	Human	中國醫藥學院
	102.	Pleomorphic adenoma (benign mixed tumor)	Human	佛教慈濟綜合醫院
	103.	Atypical central neurocytoma	Human	新光吳火獅紀念醫院
	104.	Cardiac schwannoma	SD rat	國家實驗動物繁殖及研究中心
	109.	Desmoplastic infantile ganglioglioma	Human	高雄醫學院

分 類	病 例 編 號	診 斷	動 物 別	提 供 單 位
	107.	1.Primary cerebral malignant lymphoma 2.Acquired immune deficiency syndrome	Human	台北市立仁愛醫院
	111.	Schwannoma	Human	三軍總醫院
	114.	Osteosarcoma	Dog	美國紐約動物醫學中心
	115.	Mixed germ-cell stromal tumor, mixed sertoli cell and seminoma-like cell tumor	Dog	美國紐約動物醫學中心
	116.	Krukenberg's Tumor	Human	台北病理中心
	117.	Primary insular carcinoid tumor arising from cystic teratoma of ovary.	Human	花蓮慈濟綜合醫院
	119.	Polypoid adenomyoma	Human	大甲李綜合醫院
	120.	Gonadal stromal tumor	Human	耕莘醫院
	122.	Gestational choriocarcinoma	Human	彰化基督教醫院
	123.	Ovarian granulosa cell tumor	Horse	國立中興大學
	129.	Kaposi's sarcoma	Human	華濟醫院
	131.	Basal cell carcinoma (BCC)	Human	羅東聖母醫院
	132.	Transmissible venereal tumor	Dog	國立臺灣大學獸醫學系
	137	Canine Glioblastoma Multifo Cerebellopontine Angle	Dog	國立中興大學獸醫學院病理研究所
	143	Osteosarcoma associated with metallic implants	Dog	紐約動物醫學中心
	144	Radiation-induced osteogenic sarcoma	Human	花蓮慈濟綜合醫院
	145	Osteosarcoma, osteogenic	Dog	國立臺灣大學獸醫學系
	146	Pleomorphic rhabdomyosarcoma	Human	行政院衛生署新竹醫院
	147	Papillary Mesothelioma of pericardium	Leopard	國立屏東科大學獸醫學系
	148	Cystic ameloblastoma	Human	台北醫學院
細菌	149	Giant cell tumor of bone	Canine	國立中興大學獸醫學院
	150	Desmoplastic small round cell tumor (DS	Human	華濟醫院
	152	Hepatocellular carcinoma	Human	羅東聖母醫院
	6.	Tuberculosis	Monkey	國立臺灣大學獸醫學系
	7.	Tuberculosis	Human	省立新竹醫院
	12.	<i>H. pylori</i> -induced gastritis	Human	台北病理中心
	13.	Pseudomembranous colitis	Human	省立新竹醫院
	26.	Swine salmonellosis	Pig	國立中興大學獸醫學系
	27.	Vegetative valvular endocarditis	Pig	台灣養豬科學研究所
	28.	Nocardiosis	Human	台灣省立新竹醫院
	29.	Nocardiosis	Largemouth bass	屏東縣家畜疾病防治所
	32.	Actinomycosis	Human	台灣省立豐原醫院
	33.	Tuberculosis	Human	苗栗頭份為恭紀念醫院
	53.	Intracavitary aspergilloma and cavitary tuberculosis, lung.	Human	羅東聖母醫院

分 類	病 例 編 號	診 斷	動 物 別	提 供 單 位
	54.	Fibrocalcified pulmonary TB, left Apex. Mixed actinomycosis and aspergillosis lung infection with abscess DM, NIDDM.	Human	林口長庚紀念醫院
	58.	Tuberculous enteritis with perforation	Human	佛教慈濟綜合醫院
	61.	Spirochetosis	Goose	國立嘉義農專獸醫科
	63.	Proliferative enteritis ( <i>Lawsonia intracellularis</i> infection)	Porcine	屏東縣家畜疾病防治所
	68.	Liver abscess ( <i>Klebsillae pneumoniae</i> )	Human	台北醫學院
	77.	1.Xanthogranulomatous inflammation with nephrolithiasis, kidney, right. 2.Ureteral stone, right.	Human	羅東聖母醫院
	79.	Emphysematous pyelonephritis	Human	彰化基督教醫院
	89.	1.Severe visceral gout due to kidney damaged 2.Infectious serositis	Goose	國立中興大學獸醫學系
	108.	Listeric encephalitis	Lamb	屏東縣家畜疾病防治所
	113.	Tuberculous meningitis	Human	羅東聖母醫院
	134.	Swine salmonellosis with meningitis	Swine	國立中興大學獸醫學系
	135.	Meningoencephalitis, fibrinopurulent and lymphocytic, diffuse, subacute, moderate, cerebrum, cerebellum and brain stem, caused by <i>Streptococcus</i> spp. infection	Swine	國家實驗動物繁殖及研究中心
	140	Coliform septicemia of newborn calf	Calf	屏東縣家畜疾病防治所
病 毒	21.	Newcastle disease	Chickens	國立台灣大學獸醫學系
	22.	Herpesvirus infection	Goldfish	國立台灣大學獸醫學系
	30.	Demyelinating canine distemper encephalitis	Dog	台灣養豬科學研究所
	31.	Adenovirus infection	Malayan sun bears	國立台灣大學獸醫學系
	50.	Porcine cytomegalovirus infection	Piglet	台灣省家畜衛生試驗所
	55.	Infectious laryngo-tracheitis (Herpesvirus infection)	Broilers	國立屏東技術學院獸醫學系
	69.	Pseudorabies (Herpesvirus infection)	Pig	台灣養豬科學研究所
	78.	Marek's disease in native chicken	Chicken	屏東縣家畜疾病防治所
	92.	Foot- and- mouth disease (FMD)	Pig	屏東縣家畜疾病防治所
	101.	Swine pox	Pig	屏東科技大學獸醫學系
	110.	Pseudorabies	Piglet	國立屏東科技大學
	112.	Avian encephalomyelitis	Chicken	國立中興大學
	128.	Contagious pustular dermatitis	Goat	屏東縣&台東縣家畜疾病防治所
	130.	Fowl pox and Marek's disease	Chicken	國立中興大學獸醫學系
	133.	Japanese encephalitis	Human	花蓮佛教慈濟綜合醫院

	136	Viral encephalitis, polymavirus infection	Lory	美國紐約動物醫學中心
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分 類	病 例 編 號	診 斷	動 物 別	提 供 單 位
	138	1. <i>Aspergillus</i> spp. encephalitis and myocarditis 2.Demyelinating canine distemper enceph	Dog	國立臺灣大學獸醫學系
	153	Enterovirus 71 infection	Human	彰化基督教醫院
	154	Ebola virus infection	African Green monkey	行政院國家科學委員會實驗動物中心
	155	Rabies	Longhorn Steer	國立臺灣大學獸醫學系
黴菌	23.	Chromomycosis	Human	台北病理中心
	47.	Lung: metastatic carcinoma associated with cryptococcal infection. Liver: metastatic carcinoma. Adrenal gland, right: carcinoma (primary)	Human	三軍總醫院
	48.	Adiaspiromycosis	Wild rodents	國立台灣大學獸醫學系
	52.	Aspergillosis	Goslings	屏東縣家畜疾病防治所
	53.	Intracavitary aspergilloma and cavitary tuberculosis, lung.	Human	羅東聖母醫院
	54.	Fibrocalcified pulmonary TB, left Apex. Mixed actinomycosis and aspergillosis lung infection with abscess DM, NIDDM.	Human	林口長庚紀念醫院
	105.	Mucormycosis Diabetes mellitus	Human	花蓮佛教慈濟綜合醫院
	127.	Eumycotic mycetoma	Human	花蓮佛教慈濟綜合醫院
	138	1. <i>Aspergillus</i> spp. encephalitis and myocarditis 2.Demyelinating canine distemper enceph	Dog	國立臺灣大學獸醫學系
寄生蟲	14.	Dirofilariasis	Dog	台灣省家畜衛生試驗所
	15.	Pulmonary dirofilariasis	Human	台北榮民總醫院
	20.	Sparganosis	Human	台北榮民總醫院
	46.	Feline dirofilariasis	Cat	美國紐約動物醫學中心
	49.	Echinococcosis	Human	台北榮民總醫院
	60.	Intestinal capillariasis	Human	台北馬偕醫院
	64.	1.Adenocarcinoma of sigmoid colon 2.Old schistosomiasis of rectum	Human	省立新竹醫院
	66.	Echinococcosis	Chapman's zebra	國立台灣大學獸醫學系
	67.	Hepatic ascariasis and cholelithiasis	Human	彰化基督教醫院
	106.	Parasitic meningoencephalitis, caused by <i>Toxocara canis</i> larvae migration	Dog	臺灣養豬科學研究所
	139	Disseminated strongyloidiasis	Human	花蓮佛教慈濟綜合醫院
	141	Eosinophilic meningitis caused by	Human	台北榮民總醫院病理檢驗

		<i>Angiostrongylus cantonensis</i>		部
	156	<i>Parastrongylus cantonensis</i> infection	Formosan gem-faced civet	國立中興大學獸醫學院
	157	<i>Capillaria hepatica</i> , <i>Angiostrongylus cantonensis</i>	Norway Rat	行政院農業委員會農業藥物毒物試驗所
原蟲	4.	Cryptosporidiosis	Goat	台灣養豬科學研究所
	15.	Amoebiasis	<i>Lemur fulvus</i>	台灣養豬科學研究所
	16.	Toxoplasmosis	Squirrel	台灣養豬科學研究所
	17.	Toxoplasmosis	Pig	屏東技術學院獸醫學系
	51.	<i>Pneumocystis carinii</i> pneumonia	Human	台北病理中心

分 類	病 例 編 號	診 斷	動 物 別	提 供 單 位
	57.	Cecal coccidiosis	Chicken	國立中興大學獸醫學系
	65.	Cryptosporidiosis	Carprine	台灣養豬科學研究所
立 克 次 體	70.	Acute Q fever hepatitis	Human	佛教慈濟綜合醫院
其 它	9.	Perinephric pseudocyst	Cat	台灣大學獸醫學系
	10.	Cholelithiasis	Human	長庚紀念醫院
	11.	Bile duct ligation	Rat	中興大學獸醫學系
	37.	Myositis ossificans	Human	台北醫學院
	75.	Acute yellow phosphorus intoxication	Rabbits	國立中興大學獸醫學系
	76.	Polycystic kidney bilateral and renal failure	Cat	美國紐約動物醫學中心
	151	Osteodystrophia fibrosa	Goat	台灣養豬科學研究所&台東縣家畜疾病防治所
	80.	1.Glomerular sclerosis and hyalinosis, segmental, focal, chronic, moderate 2.Benign hypertension	SHR rat	國防醫學院 & 國家實驗動物繁殖及研究中心
	83.	Phagolysosome-overload nephropathy	SD rats	實驗動物繁殖及研究
	85.	Renal amyloidosis	Dog	台灣養豬科學研究所
	89.	1.Severe visceral gout due to kidney damaged 2.Infectious serositis	Goose	國立中興大學獸醫學系
	91.	Hypervitaminosis D	Orange-rumped agoutis	國立台灣大學獸醫學系
	118.	Cystic endometrial hyperplasia	Dog	台灣養豬科學研究所
	121.	Cystic subsurface epithelial structure (SES)	Dog	國科會實驗動物中心
	124.	Superficial necrolytic dermatitis	Dog	美國紐約動物醫學中心
	125.	Solitary congenital self-healing histiocytosis	Human	羅東博愛醫院
	126.	Alopecia areata	Mouse	實驗動物繁殖及研究中心

	142	Avian encephalomalacia (Vitamin E defi	Chicken	國立屏東科技大學獸醫學系
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# 會員資料更新服務

各位會員：

您好！如果您的會員資料有更新或誤刊情形，

麻煩您填妥表格後寄回學會秘書處或電話連絡：

中華民國比較病理學會秘書處

106 台北市大安區舟山路 142 號

國立台灣大學獸醫學系 吳憲青 先生

Tel: (02) 23630231 轉 2548 轉 1401-2(附電話答錄機)

Fax: (02) 23633289

e-mail address: wushiannching@kimo.com.tw

-----中華民國比較病理學會-----

會員資料更改卡

姓 名：\_\_\_\_\_

會員類別：☐ 一般會員  
☐ 學生會員  
☐ 贊助會員

最高學歷：\_\_\_\_\_

服務單位：\_\_\_\_\_ 職 稱：\_\_\_\_\_

永久地址：\_\_\_\_\_

通訊地址：\_\_\_\_\_

電 話：\_\_\_\_\_ 傳 真：\_\_\_\_\_

E-Mail Address：\_\_\_\_\_

# 中華民國比較病理學會

## 誠摯邀請您加入

### 入 會 辦 法

#### 一、本會會員申請資格為：

- (一) 一般會員：贊同本會宗旨，年滿二十歲，具有國內外大專院校（或同等學歷）生命科學及其它相關科系畢業資格或高職畢業從事生命科學相關工作滿兩年者。
- (二) 學生會員：贊同本會宗旨，在國內、外大專院校生命科學或其他相關科系肄業者（請檢附學生身份證明）。
- (三) 贊助會員：贊助本會工作之團體或個人。
- (四) 榮譽會員：凡對比較病理學術或會務之推廣有特殊貢獻，經理事會提名並經會員大會通過者。

#### 二、會員：

- (一) 入 會 費：一般會員新台幣一仟元，學生會員一百元，贊助會員伍仟元，於入會時繳納。
- (二) 常年會費：一般會員新台幣伍佰元，學生會員一百元。 【註：學生會員身份變更為一般會員時，只需繳交一般會員之常年會費】

三、請填妥入會申請表，並連同入會費及常年會費（一般會員合計新台幣壹仟伍佰元，學生會員合計貳佰元，贊助會員伍仟元）以郵政匯票或支票（抬頭請開：中華民國比較病理學會）寄 106 台北市大安區舟山路 142 號 國立臺灣大學獸醫學系，中華民國比較病理學會秘書處吳憲青先生收，電話：02-23630231 轉 2548 轉 1401 或 1402(附電話答錄)，傳真 02-23633289