

中華民國比較病理學會九十四年度第三十四次比較病理學研討會
(遺傳、營養與環境專題)

病例摘要

Case 230 台灣大學獸醫學研究所：NTU2001-344①

The tissue is from a 15-year-old, male magnificent bird-of-paradise (*Diphyllodes magnificus*).

Case 231 天主教耕莘醫院：132312

A 33 year-old male first visited our O.P.D. due to recent body weight loss (for 12 kg in 2 months) and L't lower abdominal pain. He was first treated at the medical department under the impression of irritable colon. However, the symptoms only improved slightly. Therefore, examinations on the G.I. system were performed, the results were as follows: 1. Colonofiberscopy: diverticulum noted over 40 cm from anal verge; 2. Endoscopy: hiatal hernia and superficial gastritis; 3. Abdominal ultrasound: multiple mass-like lesions in the abdominal cavity and chronic parenchymal liver disease. He was thus subsequently admitted to further evaluate the cause of continuous body weight loss and abdominal distension.

After admission, serial examinations were done on the patient. Abdominal CT scan revealed multiple huge mass occupying the abdominal cavity measuring totally > 30 x 20 x 10 cm. Small bowel series also showed huge retroperitoneal tumor with displacement of normal anatomical location of small intestine. He was also moderately anemic with hemoglobin level: 8.9 gm%. No other abnormalities were noted.

He was then suggested to receive surgery to effectively improve his discomfort and to further confirm the diagnosis of the intra-abdominal tumor. Exploratory laparotomy with near total removal of intra-abdominal mass was performed. Intra-operative findings revealed multiple fragile tumor mass occupying the whole abdominal cavity with peritoneal seeding. The removed tumor mass was consequently sent for pathologic examination.

Case 232 台灣大學獸醫學研究所：NTU04-1094 o

A 7-year-old, female, domestic medium-haired cat had a recurrent deep dermal mass at the interscapular region.

Case 233 高雄醫學大學附設中和紀念醫院：KMU-05-987A1 & KMU-05-987C1 數位相片

A 44 year-old male suffered from headache, dizziness, and left leg numbness for two weeks in last December. Brain CT revealed right parietal tumor. At that time, he got admitted to neurosurgery ward for surgical intervention and right craniotomy with brain tumor removal was performed. Chest CT was performed in this January, and it revealed lung mass over left upper lobe and multiple nodules over pleura. Therefore, left pneumonectomy with pleural biopsy and regional lymph nodes dissection was performed.

Case 234 屏東縣家畜疾病防所：Q77-273

The owner of a dairy farm at Pingtung Hsieng consecutively referred three newborn, one to nine days old, female calves to our lab during July, 1988. The calves showed signs of cervical swelling, hyperthermia, weak, anorexia, dyspnea and tachypnea. The calves didn't respond to antibiotic treatment. The owner used to feed the dairy cows with cheap iodine-deficient salt. The dairy cows were fed with iodized salt or minerals after diagnosis and the symptoms of their newborn calves subsided thereafter. Both lateral lobes of the thyroid gland were uniformly enlarged and each lobe measured 15 x 8 x 5 cm in size. The enlargements resulted in palpable and visible swellings in the cranial cervical area. The slide tissue was taken from the enlarged thyroid gland of a one day old calf.

Case 235 花蓮慈濟醫院病理科：A230-16

This 14 y/o boy was a victim of type I neurofibromatosis and developed malignant peripheral nerve sheath tumor (MPNST). Large café-au-lait patch over the right anterior chest and abdomen was noted since birth and several skin nodules developed over trunk and extremities.

A progressively enlarging tumor over right upper back was noted since 10 y/o and the first tumor excision was performed at 13 y/o. Still the tumor kept growing and more excision attempts and radiotherapy were tried. Paralysis of bilateral lower limbs and incontinence of urination and defecation occurred. He

was referred to our hospital.

MRI and CT scan showed tumor mass in right posterior chest wall (*the section of microscopic slide taken from this mass*) and abdominal wall involving subcutaneous adipose tissue and muscles with para-spinal and intra-spinal extension. The spinal cord is encased and displaced to the left anterior of the canal. The mass had caused destruction of mid thoracic vertebral bodies and extended into the subcarinal and right para-tracheal region with invasion and thrombosis of the superior vena cava. Besides, some nodular lesions in left lung are also noted. In the end, he died of respiratory failure on Feb. 16, 2005.

Case 236 中興大學獸醫病理研究所：CO 05-230

Male and female Sprague-Dawley rats, 6-wk old, were fully supplemented in diet for 4 weeks. The control rats were fed with the LabDiet® Rodent diet (Purina Mills, USA) and reverse distilled water *ad libitum*. No clinical signs or other abnormalities of rats were found at the end of treatment.

Comparative Pathology Case 230

Contributors: Liang-Tao Lin (林良道), DVM; Chung-Lin Yu (游忠霖), DVM; Chen-Hsuan Liu (劉振軒), DVM, PhD

Graduate Institute of Veterinary Medicine, National Taiwan University

Clinical History: This 15-year-old, male magnificent bird-of-paradise (*Diphyllodes magnificus*) had been attacked by other birds and lost both eyeballs and head feathers.

Diagnosis:

Hemochromatosis, liver

Gross findings: The lungs were congested. Subdural hemorrhage was present in the right cerebral hemisphere, and underlying brain parenchyma showed swelling. Hepatomegaly and splenomegaly were noted. Multiple urate deposits were also observed in the kidneys.

Histopathological findings: The liver sections show markedly massive necrosis characterized as pyknosis, karyolysis and more acidophilic cytoplasm, and residual degenerative hepatocytes in clusters are embedded in the necrotic regions. Tremendous irregular, variably-sized, rusty brown granular pigment suggestive of hemosiderin is randomly deposited in the cellular debris and the degenerative hepatocytes.

Histochemistry stain: Berlin blue stain confirms that granular and globular pigment in the hepatocytes is iron.

Discussion: Hemochromatosis is an overload iron deposited in parenchymal cells, including the major organs of the liver, heart, and small intestine, leading to chronic progressively fatal disease. The disease can occur either iron metabolism defect or owing to absorption of overload iron by any reasons.

Thus many synonyms used to describe the condition, including iron storage disease, iron overload disease, cytosiderosi, and idiopathic hemochromatosis.

The disease has been recognized in humans, cattle, rock hyrax, and birds. The affected birds have been reported in Indian Hill mynah birds (*Gracula religiosa*), Othskild's (*Leucospar rothschildi*), Quetzals (*Pharomachrus mocino*) and paradise (*Paradiseaidea*), and Toco toucan (*Pamphastos toco*). The pathogenesis of avian hematochromatosis is not fully understood and controversial, the causes may be attributed to genetics, high iron diet, and stress physiology.

In humans, hemochromatosis can occur as a genetic defect termed idiopathic or primary hemochromatosis; it may also occur as secondary hemochromatosis arising from frequent transfusions, or possibly from prolonged consumption of excessive iron. In primary hemochromatosis, iron is deposited in a wide variety of tissues and somehow interferes with cellular function. In secondary hemochromatosis, the hemosiderin is largely restricted to macrophages and hepatocytes.

Diagnostic criteria:

1. In H&E sections, large amounts of brown pigment granules are deposited in the cytoplasm of the affected cells.
2. Berlin blue histochemistry for iron stain shows green-blue granules in the affected tissues.

References:

1. Jones TC, Hunt RD and King NW. Veterinary pathology, 6th ed. Lippincott Williams and Wilkins, Baltimore, Maryland, USA, 1996.
2. Mete A, Hendriks HG, Klaren PH, Dorrestein GM, van Dijk JE, Marx JJ. Iron metabolism in mynah birds (*Gracula religiosa*) resembles human hereditary haemochromatosis. Avian Pathol 32: 625-632, 2003.
3. Mete A, Jalving R, van Oost BA, van Dijk JE, Marx JJ. Intestinal over-expression of iron transporters induces iron overload in birds in captivity. Blood Cells Mol Dis 34: 151-156, 2005.
4. Randell MG, Patnaik AK, Gould WJ. Hepatopathy associated with excessive iron storage in mynah birds. J Am Vet Med Assoc 179: 1214-1217, 1981.

Comparative Pathology Case 231

Contributors: Chia-Ing Jan (詹佳穎), Guo-Xiong Xie (謝國雄), Zheng-Hong Shun (孫政宏), Fur-Jiang Lu (呂福江)

財團法人天主教耕莘醫院病理科

Clinical History:

A 33 year-old male first visited our O.P.D. due to recent body weight loss (for 12 kg in 2 months) and L't lower abdominal pain. He was first treated at the medical department under the impression of irritable colon. However, the symptoms only improved slightly. Therefore, examinations on the G.I. system were performed, the results were as follows: 1.Colonofiberscopy: diverticulum noted over 40 cm from anal verge; 2.Endoscopy: hiatal hernia and superficial gastritis; 3.Abdominal ultrasound: multiple mass-like lesions in the abdominal cavity and chronic parenchymal liver disease. He was thus subsequently admitted to further evaluate the cause of continuous body weight loss and abdominal distension.

After admission, serial examinations were done on the patient. Abdominal CT scan revealed multiple huge mass occupying the abdominal cavity measuring totally > 30 x 20 x 10 cm. Small bowel series also showed huge retroperitoneal tumor with displacement of normal anatomical location of small intestine. He was also moderately anemic with hemoglobin level: 8.9 gm%. No other abnormalities were noted.

He was then suggested to receive surgery to effectively improve his discomfort and to further confirm the diagnosis of the intra-abdominal tumor. Exploratory laparotomy with near total removal of intra-abdominal mass was performed. Intra-operative findings revealed multiple fragile tumor mass occupying the whole abdominal cavity with peritoneal seeding. The removed tumor mass was consequently sent for pathologic examination.

Diagnosis:

Malignant melanoma, metastasis to intra-abdominal cavity

Gross Findings:

Multiple huge fragile tumor mass occupying the whole abdominal cavity with peritoneal seeding. Cut sections revealed light-gray to white colored, mildly firm, solid tumor with necrosis and hemorrhage.

Histopathological Findings:

Highly atypical epithelioid cells with poor cohesion revealing enlarged, pleomorphic nuclei and prominent nucleoli. Frequent mitosis with atypical mitosis is noted. The tumor cells contained considerable amount of eosinophilic and granular cytoplasm.

Laboratory Results:

Histochemistry:

PAS: -, Mucin: -, Alcian blue: -

Immunohistochemistry:

CK: -, Calretinin: -, Actin (HHF-35): -, CEA: -, Bcl-2: -

S-100: +, CD68: focally +, HMB-45: +, α 1-antichymotrypsin: +, P53: strongly +

Discussion:

Metastatic melanoma to the mesentery is relatively uncommon. Most patients have a previous history of melanoma of the skin. One serial study revealed: 7.4% patients had evidence of small bowel and mesenteric involvement on CT after being diagnosed of skin melanoma. Of the patients with small bowel and mesenteric involvement, 71% had at least one symptom referable to the gastrointestinal tract, while 29% were clinically asymptomatic. It is easy for clinicians to neglect the skin lesion when patients approach the physician with a chief complaint of the gastrointestinal tract. Therefore delaying treatment.

Considering the treatment of melanoma metastasis to intra-abdomen, one study concluded: in highly selected patients with melanoma metastatic to intra-abdominal solid organs, aggressive attempts at complete surgical resection may improve overall survival. However, prognosis of patients with distant melanoma metastases is still poor; generally with median survival time of 4 to 8 months.

Diagnostic Criteria:

1. Highly atypical epithelioid cells with enlarged, pleomorphic nuclei and prominent nucleoli. The tumor cells reveal poor cohesion and contained considerable amount of eosinophilic and granular cytoplasm.
2. Tumor reactivity to S-100, HMB-45, CD68 and Melan-A.

Reference:

1. Hirota T, Kaneda M, Iwasa M, Tamaki H, Tsuneoka K, Tagawa S. Malignant melanoma with mesenteric metastasis causing an intrapelvic abscess: report of a case. Surg Today. 1995;25(5):451-4.
2. Shamim MS, Ali SA, Shirazi B, Shamim M. Metastatic melanoma of mesentery. J Coll Physicians Surg Pak. 2004 Apr;14(4):250-1.
3. Kawashima A, Fishman EK, Kuhlman JE, Schuchter LM. CT of malignant melanoma: patterns of small bowel and mesenteric involvement. J Comput Assist Tomogr. 1991 Jul-Aug;15(4):570-4.
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Comparative Pathology Case 232

Contributor: Hui-Wen Chang, Sheng-Yu Ho, Hong-Fei Lo, Yang-Chang Tu, Chian-Ren Jeng, Chen-Hsuan Liu, Fun-In Wang, Victor Fei Pang

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Clinical history: A 7-year-old, female, spayed, domestic medium-haired cat had been on a regular vaccination program since young. The cat had received a deep intramuscular injection of a killed rabies vaccine and a killed five-in-one vaccine for feline rhinotracheitis, panleukopenia, calicivirus, pneumonitis, and leukemia in the interscapular region. Two months later, a mass was found at the vaccination site and was removed but it recurred locally 3 months later. The cat was euthanized 7 months after vaccination due to hind limb paralysis and poor prognosis.

Diagnosis: Vaccine-associated rhabdomyosarcoma

Gross findings: Upon necropsy, multiple poorly demarcated nodular masses were seen in the muscles around the shoulders, neck, and thoracic vertebrae. Pulmonary metastasis and spinal epidural invasion at T1-T3 with regional cord compression and malacia were noted.

Histopathological findings: Microscopically, the masses consisted of interwoven bundles of spindle cells with prominent multinucleated giant cell formation. The neoplastic cells were stained strongly positive for myoglobin and moderately but variably positive for vimentin, desmin, and α smooth muscle actin. Phosphotungstic acid-hematoxylin staining revealed cytoplasmic striations in scattered tumor cells. The tumor was considered as a vaccine-associated rhabdomyosarcoma.

Discussion: Similar to previous reports, the immunolabeling and histological findings of the tumor herein are also suggestive of a mesenchymal origin. The

positive staining results of tumor cells with desmin, vimentin, and α SMA in the present case are consistent with the VAS of myofibroblastic phenotype. However, the strong myoglobin reaction in most tumor cells and demonstration of cross-striations in the cytoplasm of highly pleomorphic tumor cells in the present case suggest that it could be further classified as a rhabdomyosarcoma. The exact pathogenesis of feline VAS is still uncertain and it is very likely multifactorial. In early studies, aluminum adjuvant, special antigen types, or particular vaccine brands have been suggested to be related to the occurrence of VAS in cats. Sarcomas reported in the post-traumatic eyes, in the uterus with long-standing pyometra, and in the injection site with medications such as long-acting penicillin and methyl prednisolone acetate, however, also suggest that inflammation might be an important element in the development of VAS in cats. The unique high susceptibility to oxidative injury in cats such as Heinz body anemia and acetaminophen toxicity has also been suggested as a cause for the induction of VAS. Transforming growth factor- β (TGF- β) and granulocyte-macrophage colony stimulating factor (GM-CSF) produced by activated macrophages are considered to contribute to the malignant transformation of mesenchymal cells into fibroblastic or fibromyoblastic VAS in cats. More recently, basic fibroblast growth factor (FGF-b), P53 protein, and TGF- α have also been suggested to participate in the pathogenesis of VAS.

Diagnostic criteria:

1. The history of vaccination
2. Location of tumor arising
3. Histological characteristics

References:

1. Couto SS, Griffey SM, Duarte PC, Madewell BR: Feline vaccine-associated fibrosarcoma: morphologic distinctions. *Vet Pathol* **39**:33-41, 2002.
2. Hendrick MJ, Goldschmidt MH, Shofer FS, Wang YY, Somlyo AP: Postvaccinal sarcomas in the cat: epidemiology and electron probe microanalytical identification of aluminum. ' case-control study of risk factors associated with development of vaccine-associated sarcomas in cats. *J Am Vet Med Assoc* **223**:1283-1292, 2003.

3. Macy DW: The potential role and mechanisms of FeLV vaccine-induced neoplasms. *Semin Vet Med Surg (Small Anim)* **10**:234-237, 1995.
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Comparative Pathology Case 233

Contributors: Chun-Chieh Wu(吳俊杰), Sheau-Fang Yang(楊曉芳), Chee-Yin Chai(蔡志仁)

高雄醫學大學附設中和醫院病理科

Clinical history: A 44 year-old male suffered from headache, dizziness, and left leg numbness for two weeks in last December. Brain CT revealed right parietal tumor. At that time, he got admitted to neurosurgery ward for surgical intervention and right craniotomy with brain tumor removal was done. Chest CT was arranged in this January, and it revealed lung mass over left upper lobe and multiple nodules over pleura. Therefore, left pneumonectomy with pleural biopsy and regional lymph nodes dissection was performed. Tracing his history, he had worked in the dockyard (拆船工人) for 20 years and smoked cigarette 1 pack per day for 20 years.

Diagnosis:

Pleura: fibrous plaque

Lung: adenocarcinoma

Brain: metastatic adenocarcinoma

Gross findings:

The specimen submitted consisted of a left upper lobe of lung and pleura. The lung measured 20x12x5.4 cm in size and 391 gm in weight. An irregular, ill-defined mass located in main bronchial was found and measure 2.9x2.5x2.3 cm in size at 0.4 cm to the section margin of bronchus. On cut section, the mass was whitish-gray and elastic. Multiple whitish nodules over pleura were noticed also. Several lymph nodes submitted and dissected from the specimen was noted.

Histopathological findings:

Pleura: fibrosis with layers of acellular hyaline collagen and proliferative

fibroblasts were seen in areas. A mild lymphocytic infiltrate was associated focally.

Lung: it showed moderately-differentiated adenocarcinoma composed of hyperchromatic and pleomorphic cancer cells arranged in glandular or cribriform pattern with surrounding desmoplastic, increase in cytologic atypia and myofibroblastic stroma. Vascular and perineural invasion were noted also.

Brain: metastatic lesion

Laboratory results:

CEA: 2.77 ng/ml, PSA: 0.43 ng/ml, α -fetoprotein: 1.63 IU/ml

Others: within normal limits

Discussion:

Pleural plaque involves scarring of the lining of the lung indicating that an individual has had lung damage sufficient to be at risk for more serious complications. The condition is not cancerous. Bilateral pleural plaque applies to individuals with asbestos exposure, fibrous tumor of pleura, mesothelioma, and pleural metastasis. However, unilateral pleural plaques may develop as a consequence of chronic pleural irritation of any type; they are commonly associated with infections such as tuberculosis or empyema, chronic or recurrent pleural hemorrhage, and chest wall trauma.

Asbestos was used as building materials and concrete. The health disorders due to asbestos exposure of construction workers who commonly handle building materials are concerned. Asbestosis is defined as pulmonary interstitial fibrosis caused by the inhalation of asbestos fibers. Patients with asbestosis range from asymptomatic to severe dyspnea at rest. Pulmonary function tests typically show restrictive changes, and the diffusion capacity is reduced. Patients with asbestosis who smoke cigarettes have a markedly increased risk in developing lung cancer. Although pleural plaques alone are rarely symptomatic, and the pleural changes serve as a suggestive indicator of an asbestos etiology of pulmonary fibrosis, the term asbestosis should not be applied to these pleural abnormalities when they occur in the absence of parenchymal disease. Pleural plaques consist of layers of acellular hyalinized collagen, arranged in a "basket-weave" pattern. A mild lymphocytic infiltrate sometimes accompanies the fibrosis. Their possible relationship to bronchogenic carcinoma or mesothelioma has been examined. The plaques themselves appear not to be precursor lesions for malignancies, but are simple

markers of dust exposure.

Although lung cancer can be caused by many different factors, ex: cigarette smoking, it is clear that people who are exposed to asbestos are at a higher risk of lung cancer. The most common types of asbestos related cancer are adenocarcinoma and squamous-cell carcinoma. As compared with cigarette, the number of lung cancer cases caused by asbestos is relatively small, with smoking accounting for 90% of all lung cancer cases and asbestos only 2 to 5%. However, the combination of the two factors is a deadly mix, greatly increasing the risk of developing lung cancer.

Malignant mesothelioma is a rare form of lung cancer. Mesothelioma is the tumor involves the mesothelial cells of an organ, usually the lungs, heart or abdominal organs. Pleural mesothelioma of the lung lining is the most common form of mesothelioma cancer. The onset of mesothelioma, asbestos lung cancer, is usually very slow, and the most commonly noted mesothelioma symptoms are chest pain and pain in the lower back. The latent period between the first exposure to asbestos and the diagnosis of methothelioma was 40 to 50 years.

As the incidence of malignant mesothelioma and primary lung cancer associated with asbestos exposure are high, though the pleural and parenchymal changes caused by asbestos may be recognized on plain films, CT is considered to be necessary for being more sensitive and specific.

Diagnostic criteria:

1. Pleural fibrous plaque: hypocellular, dense bundles of hyalinized collagen, with a “basket-weave” arrangement.
2. Asbestos body: a rod-like, beaded, or dumbbell-shaped structure with golden brown coating and a thin, translucent core.

References:

1. Kishimoto T, Morinaga K, Kira S. The prevalence of pleural plaques and/or pulmonary changes among construction workers in Okayama, Japan. Am J Ind Med. 2000 Mar;37(3):291-5.
2. Luo S, Liu X, Mu S, Tsai SP, Wen CP. Asbestos related diseases from environmental exposure to crocidolite in Da-yao, China. I. Review of exposure and epidemiological data. Occup Environ Med. 2003 Jan;60(1):35-41

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4. Kishimoto T, Ohnishi K, Saito Y. Clinical study of asbestos-related lung cancer. *Ind Health*. 2003 Apr;41(2):94-100.
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Comparative Pathology Case 234

Contributors: Mu-Tsung Tsai (蔡睦宗), DVM, MS; Wen-Liah Chen (陳文烈), DVM, BS; Hsin-Hsiung Hung (洪信雄), DVM, MS.

Pingtung Hsieng Livestock Diseases Control Center(屏東縣家畜疾病防所), Pingtung, Taiwan

Clinical History: The owner of a dairy farm at Pingtung Hsieng consecutively referred three newborn, one to nine days old, female calves to our lab during July, 1988. The calves showed signs of cervical swelling, hyperthermia, weak, anorexia, dyspnea and tachypnea. The calves didn't respond to antibiotic treatment. The owner used to feed the dairy cows with cheap iodine-deficient salt. The dairy cows were fed with iodized salt or minerals after diagnosis and the symptoms of their newborn calves subsided thereafter. Both lateral lobes of the thyroid gland were uniformly enlarged and each lobe measuring 15x 8x 5 cm in size. The enlargements resulted in palpable and visible swellings in the cranial cervical area. The slide tissue was taken from the enlarged thyroid gland of a one day old calf.

Diagnosis: Congenital Hyperplastic Goiter in Holstein Calves. .

Gross Findings: The thyroids of all the affected calves were bilaterally and diffusely enlarged without any nodular lesions or cystic follicles in the affected gland. Each lobe of enlarged thyroid gland of a calf measured 15x 8x 5 cm in size with the cut surfaces dark red or reddish brown in color and firm. Marked diffuse edema was noticed in the subcutaneous tissues of the neck region.

Histopathological Findings: The follicles of the affected thyroid glands were increased in number, irregular in shape, and variable in size, showing marked hyperplasia of epithelial cells forming many small or narrow follicles. The follicles were lined by single or multiple layers of hyperplastic follicular cells which form papillary projections into the lumen of some follicles. The epithelial cells were columnar, with abundant cytoplasm showing eosinophilic affinity and hyperchromatic nuclei located at the cellular base. Pale epithelial cells

lined up the whole of several follicles frequently. The colloid was scarce or depletive in amount and poor in eosinophilic affinity. Blood capillaries were abundant and severely congested. (Thyroid gland: Hyperplastic goiter, diffuse, severe, Holstein , bovine)

Discussion: Goiter is the clinical term used for noninflammatory and nonneoplastic enlargement of the thyroid gland. It develops in all domestic mammals, bird, and submammalian vertebrates. It may be accompanied by hypo- or hyperthyroidism, or compensated function. Several forms exist in animals including : (1) Simple goiter (hyperplastic goiter, colloid goiter, diffuse nontoxic goiter)(2) Multinodular goiter (adenomatous goiter, nodular thyroid hyperplasia)(3) Exophthalmic goiter (goiter of hyperthyroidism toxic goiter, Graves' disease) .

Simple goiter can have many causes and diverse histopathological features in the thyroid gland. It may be accompanied by hypothyroidism. Three general causes exist: (1) iodine-deficient diets (2) goitrogenic compound that interfere with thyroxinogenesis, dietary iodide excess (3) genetic enzyme defects in the biosynthesis of thyroid hormones. Iodine deficiency that resulted in diffuse thyroid hyperplasia was common in many goitrogenic areas throughout the world before the widespread addition of iodized salt to animal diets. Although iodine-deficient goiter still occurs in large areas of the world in domestic animals, the outbreaks are sporadic, and fewer animals are affected. A simple deficiency of iodine in the diet and drinking water may occur and is related to the geographical circumstances. Areas where the soil iodine is not replenished by cyclical accession of oceanic iodine include large continental land masses and coast areas where prevailing winds are offshore. In such areas, iodine deficiency is most likely to occur where rainfall is heavy and soil iodine is continually depleted by leaching. Soil formations rich in calcium or lacking in humus are also likely to be relatively deficient in iodine. Marginal iodine-deficient diets containing certain goitrogenic compounds result in severe thyroid hyperplasia and clinical evidence of goiter. These substances include thiouracil, sulfonamides, anions of Hofmeister series, and a number of plants from the family Brassicaceae and Cruciferae spp. Young animals born to females on iodine-deficient diets are more likely to develop severe thyroid hyperplasia and have clinical signs of hypothyroidism. An excess of iodide in the diet also can result in thyroid hyperplasia in animals and human. Foals of mares fed dry seaweed containing excessive iodide may develop thyroid hyperplasia and clinically evident goiter. Goiter in adult animals usually is of

little clinical significance and, except for occasional local pressure influences. The general health is not impaired. It does, however, continue to be of significance as a disease of the newborn, although the previous drastic losses in endemic areas are now controlled by the prophylactic use of iodized salt. Congenital hypothyroidism in domestic animals is almost exclusively associated with hyperplastic goiter, even though the dam may have shown no evidence of the thyroid dysfunction. Gestation is significantly prolonged in mare, ewes, and sows, the larger goiters may cause dystocia, and there is a tendency to retain the fetal placenta. Affected foals show extreme weakness and die within a few days after birth. The thyroids may be slightly enlarged. Calves seem to be somewhat more resistant to the effects of hypothyroidism and although up to 70-80% may have quite large goiters in endemic areas, the majorities survive and thrive. A few are partially or completely hairless, but these are born dead or die soon after birth. In adults thyroid gland enlargement is rather rare. Loss of libido in the bull, failure to express estrus in the cow can be observed. Newborn, goitrous pigs, goats, and lambs frequently show myxedema and alopecia, and the mortality rate is high, the majority being born dead or dying within a few hours of birth. Enlarged thyroid glands are readily palpable or visible in kids and lambs, but are not apparent in piglets because of the combination of short neck and myxedema. The myxedema of skin, subcutis, and connective tissue in pigs affects especially the enlarged forepart of the body. Young, goitrous animals which are treated and survive usually do not show permanent ill effects. Congenital hyperplastic goiter with hypothyroidism is not a prominent feature of the thyroid disease in domestic carnivores. In puppies, the thyroid enlargement may be sufficient to cause dystocia or asphyxiation. Both lobes of the thyroids are uniformly enlarged in young animals with diffuse hyperplastic goiter. The enlargements may be extensive and result in palpable swellings in cranial cervical area. The affected lobes are firm and dark red because an extensive interfollicular capillary network develops under the influence of long-term TTH stimulation. Colloid goiter represents the involutionary phase of diffuse hyperplastic goiter in young adult and adult animals. The markedly hyperplastic follicular cells continue to produce colloid, but endocytosis of colloid is decreased. Both thyroid lobes are diffusely enlarged but are more translucent and lighter in color than with hyperplastic goiter.

Nodular thyroid hyperplasia in thyroid glands of old horses, cats and dogs appears as multiple white to tan nodules of varying size. The affected lobes are moderately enlarged and irregular in contour. Nodular goiter in most animals is endocrinologically inactive and encountered as an incidental lesion at autopsy; however, functional thyroid adenomas often develop in glands with

multi-nodular hyperplasia in old cats. In contrast to thyroid adenoma, nodules of hyperplasia are not encapsulated and result in minimal compression of adjacent parenchyma. Nodular goiter consists of multiple foci of hyperplastic follicular cells that sharply demarcated but not encapsulated from the adjacent thyroid parenchyma. The microscopic appearance within a nodule is variable. Some hyperplastic cells form small follicles with little or no colloid. Other nodules are formed by larger irregularly shaped follicles lined by one or more layers of columnar cells that form papillary projection into the lumen. Some of the follicles are involuted and filled with densely eosinophilic colloid. As a general rule, hyperplastic nodules are multiple, poorly or not at all encapsulated, variable in their histological structure, and do not cause compression of adjacent thyroid parenchyma. Adenoma, on the other hand, tends to be solitary, well encapsulated, fairly uniform in histological structure, and cause compression of the surrounding parenchyma owing to progressive expansile growth.

Inherited dys hormonogenic goiter is an inability to synthesize and secrete adequate amounts of thyroid hormones beginning before or at birth has been documented in human infants and in several animal species. It is inherited as an autosomal recessive trait in Corriedale, Dorset Horn, Merino, and Romney Marsh sheep, Afrikaner cattle, and Sannen dwarf goats. The subnormal growth rate, absence of normal wool development or a rough sparse hair coat, myxedematous swellings of the subcutis, weakness, and sluggish behavior suggest that the affected young are clinical hypothyroid. Most lambs with congenital goiter either die shortly after birth or are highly sensitive to the effects of adverse environmental conditions. Thyroid glands are symmetrically enlarged at birth because of an intense diffuse hyperplasia of follicular cells. Thyroid follicles are lined by tall columnar cells but often are collapsed because of a lack of colloid resulting from the marked endocytotic activity.

Exophthalmic goiter (goiter of hyperthyroidism toxic goiter or Graves' disease), also known as Basedow disease, is a disorder of humans characterized by hyperthyroidism, marked exophthalmos, and sometimes multifocal edematous dermatopathy. A comparable syndrome has not been clearly documented in animals; however, in some examples of hyperthyroidism in cats, thyroid autoantibodies have been demonstrated and the thyroid contains lymphocytic infiltration.

Although various domestic mammals can be affected with goiter, it is common in lambs and calves that goiter is frequently associated with such perinatal diseases as abortion, stillbirth, alopecia, or birth of weak young. Lesions of the thyroid glands were histologically classified into normal, slight,

mild, moderate, and marked mainly based on the criteria described by Mason in 1976. The enlarged thyroid glands of the three calves submitted for our lab showed moderately to markedly goitrous lesions and diffuse edema around the thyroid gland. It is well known that goiter is caused by deficiency or excess intake of iodine, goitrogens, which were classified into thiocyanate and thiouracil type, and genetic defects of certain hormonal or enzymatic substances. Of these causal factors, deficiencies of iodine and goitrogens of thiocyanate type can be overcome by administration of iodine. The dairy cows of this farm were fed with iodized salt or minerals after diagnosis and the symptoms of their newborn calves subsided thereafter. No evidence was found of significant goitrogenic plants in the diet fed to the cows, as the Seimiya's report in 1991 of possible thiocyanate content of the plant from family Cruciferae may have been responsible for the goiter in the Japanese farm. The causes of hyperplastic goiter of the Holstein calves in this farm may be due to iodine deficiency but still needs to be further investigated.

There are a number of conditions in which thyroid enlargement (goiter) is associated with hypothyroidism in humans. The causes are diverse, but in all cases goiter is a compensator response to the lack of adequate secretion of thyroid hormone. The etiology of goitrous hypothyroidism includes iodine deficiency, antithyroid agents (drug or dietary goitrogens), chronic iodide intake, and a number of hereditary defects in the synthesis of thyroid hormone. These are divided into endemic goiter, endemic cretinism, goiter induced by antithyroid agents, iodide-induced goiter, and hereditary defects in thyroid hormone. The evolution of the pathological changes in goitrous hypothyroidism is similar to nontoxic goiter, which is included diffuse nontoxic goiter and multinodular nontoxic goiter.

Diagnostic Criteria: In cattle the most prominent clinical signs of goiter are abortion, stillbirth and weakness in newborn calves. Gross pathology of the goitrous thyroid gland usually shows symmetrical enlargement of both lobes of the gland. Histologically the follicles of the thyroid gland are irregular in size and shape with varying amounts of colloid in lumen and some are collapsed due to lack of colloid. The follicles are lined by single or multiple layers of hyperplastic follicular cells which may form papillary projections into the lumen of some follicles. Estimations of iodine levels in the blood and milk are reliable indicators of the thyroxine status of the animal.

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Comparative Pathology Case 235

Contributors: Ming-Hsun Li (李明勳), Yung-Hsiang Hsu (許永祥)

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Clinical History: A 14 y/o boy with type I neurofibromatosis (NF-1) found a progressively enlarging tumor over right upper back since 4 years ago. Despite of subtotal tumor excision, radiotherapy, and chemotherapy, the tumor kept growing. He became paraplegic and lost sensation below T5.

Image study showed that the spinal cord was encased by the tumor and thrombosis of the superior vena cava. He died of respiratory failure and SVC syndrome. Autopsy was performed.

Diagnosis:

- (1) Neurofibromatosis, type I
- (2) Malignant peripheral nerve sheath tumor (MPNST)

Gross findings:

- (1) Café au Lait macule, trunk; Nodular lesions (neurofibromas), trunk and extremities; Lisch nodules, Iris; Fractures with pseudoarthrosis, right lower leg
- (2) Back tumor bulging into right pleural cavity, with seedings on the thoracic wall, diaphragm, and surface of lungs; invading and nearly total occlusion of SVC

Histopathological findings:

The tumor is composed of irregularly arranged pale cytoplasmic wavy spindle cells with high cellularity and mitotic rate. Tumor necrosis and subendothelial growth are seen. Immunohistochemically, focal and partially reactive for S-100 protein.

Discussion:

Neurofibromatosis affected one in every 2500~3000 live births. Half of the patient have affected family members, the others arise from new mutations. The mutation rate estimated at 10^{-4} per gamete per generation. Located at chromosome 17q11.2, the gene encoded neurofibromin, a tumor suppressor gene. It acts through Ras GTPase activating proteins (GAPs), transforming GTP-Ras to GDP-Ras and inactivating Ras.

Nervous system tumors associated with NF-1: (1) Neurofibroma, (2) MPNST, (3) Optic pathway glioma; other tumors including pheochromocytoma, other sarcomas, leukemia, Wilms tumor, etc.

About 3-5% of patients with NF-1 develop MPNSTs vs. 0.001% in the general population, such as our case.

Diagnostic criteria:

- (1) Diagnostic criteria for NF-1: (if any 2 or more of the following are identified)
 - (1) 6 or more café-au-lait macules, >5 mm diameter before puberty, >15 mm after puberty
 - (2) Freckling in the axillary or inguinal areas,
 - (3) 2 or more neurofibromas or one plexiform neurofibroma,
 - (4) a first-degree relative with NF-1,
 - (5) 2 or more Lisch nodules,
 - (6) bone lesion: sphenoid dysplasia, thinning of the cortex of long bones with or without pseudoarthrosis
- (2) *There are 2 circumstances in which the diagnosis of MPNST should be the primary consideration in the presence of a malignant tumor of soft tissue composed of spindle cells: (1) when the tumor develops in a patient with type I Recklinghausen's disease or (2) when the tumor is obviously arising within the anatomic compartment of a major nerve or in continuity with a neurofibroma. In the absence of these circumstances the light microscopic diagnosis of MPNST is often only presumptive.*

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Comparative Pathology Case 236

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Clinical History: Male and female Sprague-Dawley rats, 6-wk old, were fully supplemented in diet for 4 weeks. The control rats were fed with the LabDiet® 5001 Rodent diet (Purina Mills, USA) and reverse distilled water *ad libitum*. No clinical signs or other abnormalities of rats were found at the end of treatment.

Diagnosis: Hepatic lipidosiis (fatty liver), rats

Materials and Methods: Rats were divided to two groups with 20 rats in each group (10 males and 10 females), and housed in air conditioned room and received diets *ad libitum*. Rats of control group (A control) were given free access to the diet, a Purina Rodent Chow, 5001 with 23% protein, 4.5% fat, 4.5% crude fiber, 8% ash, 2.5% minerals and 3.04 kcal/g metabolizable energy (Purina Mills LLC, St. Louis, Missouri, USA; <http://www.labdiet.com/indexlabdiethome.htm>). Rats of the treated group were fed 100% test diet chow with higher protein, fat, crude fiber, ash, and minerals for 4 weeks. At the end of treatment, rats from each group were measured the changes of body weight change, food consumption, hematology, biochemistry, urinary, organ weight, and pathology.

Gross Findings: Slight pale yellowish color of livers was found in the treated rats. No significant lesions were noted in the other organs.

Histopathological Findings: No alterations of liver were detectable in the control rats. In the treated group, microvacuolar cytoplasmic alterations of hepatocytes were exclusively detected in the periportal area (zone I) by staining with H&E stain. These alterations were Oil Red positive, thus enabling

the diagnosis of microvacuolar periportal steatosis. A mild to moderate macrovacuolar steatosis was present, which disturbed the trabecular pattern of liver parenchyma in zone I and II, where hepatocytes were slightly enlarged, with clear, foamy cytoplasm. The typical trabecular liver structure was better preserved in centrilobular areas (zone III), where hepatocytes exhibited an intense homogeneously distributed Oil Red positive micro- and macrovacuolar alteration. Some hepatocytes also exhibited a condensed appearance in their nuclei, indicating that some of them were at an early stage of necrosis. No inflammatory cellular infiltration was observed around the affected areas. However, slight, multiple necrotic foci were found that was considered to be a non-specific lesion.

Discussion: Hepatic lipidosis (fatty liver) refers to the accumulation of triglycerides (TG) within hepatocytes, and they are visible as clear vacuoles by routine light microscopy (Haschek and Rousseaux, 1996). In many societies, fats are considered part of the basic food supply and may have long-term, low-intensity, negative consequences. Hepatic lipidosis or fatty change is a frequent finding in human liver biopsies. It is generally considered to be a critical effect that may degenerate to fibrosis and cirrhosis. Moreover, steatosis *per se*, before any appearance of degenerative lesion, sensitizes the liver tissue to toxic events, like drugs (paracetamol), toxicants (ethanol), and chemicals (carbon tetrachloride) (Delzenne et al., 1997). Dietary fat has been implicated as one of major factors promoting excess energy intakes and obesity. The Western diet generally includes at least 30% to 40% of energy as fat, and a typical American diet is 20% fat, resulting in a 40% energy intake from lipid sources having saturated fatty acids and polyunsaturated fatty acids.

In the liver, newly synthesized fatty acids are good substrates for esterification into triglycerides and phospholipids (PL), which are channeled preferentially into very low density lipoprotein (VLDL) for export. Any imbalance between the rates of hepatic TG synthesis and secretion may lead to accumulation of lipids in the liver (Delzenne et al., 1997). In the present study, rats were fully supplemented in diet for 4 weeks. It was found that hepatic lipidosis is mainly found in the hepatic cells based on the histologic evaluation. It was suggested that the diet composition contains higher fat of 9% in the treated rats than that of 4% in the control diet (LabDiet® 5001 Rodent diet, USA). Although lipidosis may associated with hepatic necrosis, most evidence suggests that moderate lipidosis alone does not impair hepatic function (Haschek and Rousseaux, 1996). There is no significant alteration on the total cholesterol and triglyceride in sera. Gai'va et al. (2003) suggested

that the hepatic lipid accumulation was accompanied by a decrease in plasma total lipids and triglyceral and cholesterol concentrations in the fish oil and soy bean and fish oil groups. There are other consequences related to high-fat dietary intake, such as increased ROS and alteration on markers of oxidative stress in cardiac tissue (Diniz et al., 2004).

Diagnostic Criteria: Micro and macro vacuolar cytoplasmic alterations of hepatocytes, and altered liver structure with clear foamy cytoplasm and showed Oil Red positive.

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中華民國比較病理學會
第一次至第三十二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 |

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|-----|--|--------------------|---------------|
| 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 |
| 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 |

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|------|--|---------|-----------------|
| 100. | Malignant fibrous histiocytoma and 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 |
| 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 Multiforme in 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 |
| 149 | Giant cell tumor of bone | Canine | 國立中興大學獸醫學 |

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|-----|--|----------|--------------|
| | | | 院 |
| 150 | Desmoplastic small round cell tumor (DSRCT) | Human | 華濟醫院 |
| 152 | Hepatocellular carcinoma | Human | 羅東聖母醫院 |
| 158 | Hemangiopericytoma | Human | 羅東聖母醫院 |
| 160 | Cardiac fibroma | Human | 高雄醫學大學病理學科 |
| 166 | Nephroblastoma | Rabbit | 紐約動物醫學中心 |
| 168 | Nephroblastoma | Pig | 台灣動物科技研究所 |
| 169 | Nephroblastoma with rhabdomyoblastic differentiation | Human | 高雄醫學大學病理科 |
| 172 | Spindle cell sarcoma | Human | 羅東聖母醫院 |
| 174 | Juxtaglomerular cell tumor | Human | 新光醫院病理檢驗科 |
| 190 | Angiosarcoma | Human | 高雄醫學大學病理學科 |
| 192 | Cardiac myxoma | Human | 彰化基督教醫院病理科 |
| 194 | Kasabach-Meritt syndrome | Human | 慈濟醫院病理科 |
| 195 | Metastatic hepatocellular carcinoma, right atrium | Human | 新光醫院病理科 |
| 197 | Papillary fibroelastoma of aortic valve | Human | 新光醫院病理科 |
| 198 | Extraplacental chorioangioma | Human | 耕莘醫院病理科 |
| 208 | Granulocytic sarcoma (Chloroma) of uterine cervix | Human | 高雄醫學大學病理學科 |
| 210 | Primary non-Hodgkin's lymphoma of bone, diffuse large B cell, right humerus | Lymphoma | 彰化基督教醫院病理科 |
| 213 | Lymphoma, multi-centric type | Dog | 中興大學獸醫系 |
| 214 | CD30 (Ki-1)-positive anaplastic large cell lymphoma (ALCL) | Human | 新光醫院病理科 |
| 215 | Lymphoma, mixed type | Koala | 國立臺灣大學獸醫學系 |
| 217 | Mucosal associated lymphoid tissue (MALT) lymphoma, small intestine | Cat | 國立臺灣大學獸醫學研究所 |
| 218 | Nasal type NK/T cell lymphoma | Human | 高雄醫學大學病理科 |
| 222 | Acquired immunodeficiency syndrome (AIDS) with disseminated Kaposi's sarcoma | Human | 慈濟醫院病理科 |
| 224 | Epithelioid sarcoma | Human | 彰化基督教醫院病理科 |
| 226 | Cutaneous B cell lymphoma , eyelid , | Human | 羅東聖母醫院病理科 |

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|----|-----|--|-----------------|---------------|
| | | bilateral | | |
| | 227 | Extramammary Paget's disease (EMPD) of the scrotum | Human | 萬芳北醫皮膚科, 病理科 |
| | 228 | Skin, back, excision, CD30+diffuse large B cell lymphoma Soft tissue, leg, side not stated, excision, vascular leiomyoma | Human | 高雄醫學大學附設醫院病理科 |
| 細菌 | 6. | Tuberculosis | Monkey | 國立臺灣大學獸醫學系 |
| | 7. | Tuberculosis | Human | 省立新竹醫院 |
| | 12. | H. pylori-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 |
| | 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 (Lawsonia intracellularis infection) | Porcine | 屏東縣家畜疾病防治所 |
| | 68. | Liver abscess (Klebsillae pneumoniae) | 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 |

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| | 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 Streptococcus 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 |
| | 161 | Porcine polyserositis and arthritis (Glasser's disease) | Pig | 國立中興大學獸醫學院 |
| | 162 | Mycotic aneurysm of jejunal artery secondary to infective endocarditis | Human | 慈濟醫院病理科 |
| | 170 | Chronic nephritis caused by Leptospira spp | Pig | 國立中興大學獸醫學院 |
| | 173 | Ureteropyelitis and cystitis | Pig | 中國化學製藥公司 |
| 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 |

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| | | | 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 |
| 138 | 1.Aspergillus spp. encephalitis and myocarditis 2.Demyelinating canine distemper encephalitis | 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 |
| 163 | Parvoviral myocarditis | Goose | 屏東科技大學獸醫學系 |
| 199 | SARS | Human | 台大醫院病理科 |
| 200 | TGE virus | swine | 臺灣動物科技研究所 |
| 201 | Feline infectious peritonitis(FIP) | Feline | 臺灣大學獸醫學系 |
| 209 | Chicken Infectious Anemia (CIA) | Layer | 屏東防治所 |
| 219 | 1.Lymph node:Lymphdenitis, with lymphocytic depletion and intrahistiocytic basophilic cytoplasmic inclusion bodies. Etiology consistent with Porcine Circovirus(PCV)infection. 2.Lung: Bronchointerstitial pneumonia,moderate, lymphoplasmacytic, subacute. | Pig | 臺灣動物科技研究所 |
| 220 | Cytomegalovirus colitis | Human | 彰化基督教醫院病理科 |
| 221 | Canine distemper virus Canine adenovirus type II co-infection | Canine | 國家實驗動物繁殖及研究中心 |
| 223 | 1.Skin,mucocutaneous junction (lip): Cheilitis, subacute, diffuse, sever, with epidermal pustules, ballooning degeneration, proliferation, and eosinophilic intracytoplasmic inclusion bodies, Saanen goat. 2.Haired skin: Dermatitis, proliferative, lymphoplasmacytic, subacute, diffuse, sever, with marked epidermal pustules, ballooning degeneration, acanthosis, hyperkeratosis, and eosinophilic intracytoplasmic | Goat | 台灣動物科技研究所 |

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| | | inclusion bodies. | | |
| 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 cavitory 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 |
| 寄生蟲 | 138 | 1.Aspergillus spp. encephalitis and myocarditis 2.Demyelinating canine distemper encephalitis | Dog | 國立台灣大學獸醫學系 |
| | 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 Toxocara canis 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 |

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| | 141 | Eosinophilic meningitis caused by Angiostrongylus cantonensis | Human | 台北榮民總醫院病理檢驗部 |
| | 156 | Parastrongylus cantonensis infection | Formosan gem-faced civet | 國立中興大學獸醫學院 |
| | 157 | Capillaria hepatica, Angiostrongylus cantonensis | Norway Rat | 行政院農業委員會農業藥物毒物試驗所 |
| | 202 | Colnorchiasis | Human | 高雄醫學院附設醫院 |
| | 203 | Trichuriasis | Human | 彰化基督教醫院 |
| | 204 | Psoroptes cuniculi infection (Ear mite) | Rabbit | 農業藥物毒物試驗所 |
| | 205 | Pulmonary dirofilariasis | Human | 和信治癌中心醫院 |
| | 206 | Capillaries philippinesis | Human | 和信治癌中心醫院 |
| | 207 | Adenocarcinoma with schistosomiasis | Human | 花蓮佛教慈濟綜合醫院 |
| 原蟲 | 4. | Cryptosporidiosis | Goat | 台灣養豬科學研究所 |
| | 15. | Amoebiasis | Lemur fulvus | 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. | Pneumocystis carinii pneumonia | Human | 台北病理中心 |
| | 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 |
| | 211 | Avian malaria, African black-footed penguin | Avian | 臺灣動物科技研究所 |
| 立克次體 | 70. | Acute Q fever hepatitis | Human | 佛教慈濟綜合醫院 |
| | 229 | Necrotizing inflammation due to scrub typhus | Human | 佛教慈濟醫院病理科 |
| 皮膚 | 216 | Cytophagic histiocytic panniculitis with terminal hemophagocytic syndrome | Human | 佛教慈濟綜合醫院病理科 |
| 其它 | 9. | Perinephric pseudocyst | Cat | 台灣大學獸醫學系 |
| | 10. | Choledochocyst | 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 | SHR rat | 國防醫學院 & 國家 |

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| | hyalinosis, segmental, focal, chronic, moderate 2.Benign hypertension | | 實驗動物繁殖及研究中心 |
| 83. | Phagolysosome-overload nephropathy | SD rats | 實驗動物繁殖中心 |
| 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 endometrical hyperplasia | Dog | 臺灣養豬科學研究所 |
| 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 deficiency) | Chicken | 國立屏東科技大學獸醫學系 |
| 159 | Hypertrophic cardiomyopathy | Pig | 國立台灣大學獸醫學系 |
| 165 | Chinese herb nephropathy | Human | 三軍總醫院病理部及腎臟科 |
| 167 | Acute pancreatitis with rhabdomyolysis | Human | 慈濟醫院病理科 |
| 171 | Malakoplakia | Human | 彰化基督教醫院 |
| 183 | Darier's disease | Human | 高雄醫學大學病理科 |
| 191 | 1. Polyarteritis nodosa 2. Hypertrophic Cardiomyopathy | Feline | 台灣大學獸醫系 |
| 193 | Norepinephrin cardiotoxicity | Cat | 台中榮總 |
| 196 | Cardiomyopathy (Experimental) | Mice | 綠色四季 |
| 212 | Kikuchi disease (histiocytic necrotizing lymphadenitis) | Lymphadenitis | 耕莘醫院病理科 |
| 225 | Calcinosis circumscripta ,soft tissue of the right thigh , dig | Dog | 台灣大學獸醫所 |

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

350 苗栗縣竹南鎮頂埔里科東二路 52 號

台灣動物科技研究所動物醫學組 病理室收

Tel: (037) 585872

Fax: (037) 585850

e-mail address: hic01@mail.atit.org.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、請填妥入會申請表郵寄或傳真方式寄回中華民國比較病理學會秘書處收。

地址：350 苗栗縣竹南鎮頂埔里科東二路 52 號 台灣動物科技研究所動物醫學組 電話：037-585872、傳真 037-585850。

中華民國比較病理學會入會申請及會員卡

會籍電腦編號_____

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| 姓名 | 中文 | | 性別 | 男 <input type="checkbox"/> | 出生 | 民國 | 年 | 月 | 日 | 出生地 | 省 市 | |
| | | | | 女 <input type="checkbox"/> | 身份證字號 | | | | | | | |
| | 英文 | | 會員身份: <input type="checkbox"/> 一般 <input type="checkbox"/> 學生 <input type="checkbox"/> 贊助 | | | | | | | | | |
| 學歷 | (1) | | | | | 稱謂(請圈選) 先生 小姐 醫師 獸醫師 研究員 博士 教授 主任 其它:_____ | | | | | | |
| | (2) | | | | | 研究興趣 | (1) | | | | | |
| | (3) | | | | | | (2) | | | | | |
| | (4) | | | | | | (3) | | | | | |
| 主要經歷 | 機關名稱 | | | | 職務 | | 起 | | 止 | | | |
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| | | | | | | | 年 月 | | 年 月 | | | |
| 現職 | | | | | | | 年 月 | | 年 月 | | | |
| 通訊地址: 現在 _____ 電話 _____ 傳真 _____ 永久 _____ 電話 _____ 傳真 _____ 電子郵件遞(E-mail)地址 _____ | | | | | | | | | | | | |
| 茲 贊 同 貴會宗旨擬加入為會員嗣後並願遵守一切規章共圖發展 此 致 中華民國比較病理學會 申請人 _____ 簽章 介紹人 _____ 簽章 介紹人 _____ 簽章 中華民國 _____ 年 _____ 月 _____ 日 | | | | | | | | | | 審核結果 | | |