

中華民國比較病理學會

Chinese Society of Comparative Pathology

第 55 次比較病理學研討會



Chung Shan Medical University

中山醫學大學 主辦

July 7, 2012 (中華民國 101 年 7 月 7 日)

Chinese Society of Comparative Pathology

中華民國比較病理學會 協辦

SCHEDULE

55TH MEETING OF COMPARATIVE PATHOLOGY

中華民國比較病理學會第 55 次比較病理學研討會

Date: July 7, 2012 (Sat) 08:30~17:00

時間：101 年 7 月 7 日(星期六) 08:30~16:30

Location: Chung Shan Medical University

地點：中山醫學大學正心樓二樓 0211 教室

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Time(時間)	Schedule(議程)		Moderator(主持)
08:30~09:00	Registration (報到)		
09:00~09:10	Opening Ceremony (致詞) – Dr. Te-Jen Lai (賴德仁 校長)		
09:10~10:00	專題演講	Dr. Huei Lee (李輝 教授) 講題：環境與肺癌	Dr. M.T. Lai 賴銘淙 主任
10:00~10:20	Coffee Break		
10:20~11:10	專題演講	Dr. Fung-Jou Lu (呂鋒洲 教授) 講題：腐植酸與烏腳病	Dr. M.T. Lai 賴銘淙 主任
11:10~11:40	Case 389	T.H. Lin (林宗賢 醫師) Department of Pathology, ChiMei Hospital (奇美醫院病理部)	Dr. C. W. Shih 施洽雯 主任
11:40~12:10	Case 390	Hao-Kai Chang (張皓凱 獸醫師) Department of veterinary pathology, NPUST (國立屏東科技大學獸醫教學醫院病理科)	
12:10~13:30	Lunch, and Board Meeting (中華民國比較病理學會理監事會議)		
13:30~14:00	Case 391	Chih-Hung Lin (林智鴻 醫師) Department of Pathology, Kaohsiung Medical University Hospital (高醫附設醫院病理科)	Dr. Y. H. Hsu 許永祥 主任
14:00~14:30	Case 392	Liu, Yu-Chang (劉祐彰 醫師) Buddhist Tzu Chi General Hospital and University, Taiwan (佛教慈濟綜合醫院暨慈濟大學病理科)	
14:30~14:50	Coffee Break		
14:50~15:20	Case 393	C.Y. Chu (朱家俞 獸醫師) Department of Veterinary Medicine, National Chung Hsing University (中興大學獸醫學系)	Dr. C. H. Liu 劉振軒 院長
15:20~15:50	Case 394	Shih-Chung Chen (陳世忠 醫師) Department of Pathology, School of Medicine, Chung Shan Medical University and Hospital (中山醫學大學醫學系病理學科暨附設醫院病理科)	
15:50~16:20	General Discussion (綜合討論)		

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Lung cancer is a different disease in nonsmokers

Huei Lee

Institute of Medicine, Chung Shan Medical Univeristy, Taichung, Taiwan.

Cigarette smoking is considered to be a predominant risk factor for lung cancer; however, the prevalence of nonsmokers with this disease is increasing in the world, particularly in Taiwan. More than 60% Taiwanese lung cancer patients are nonsmokers, but only 15% nonsmokers are shown in Caucasian patients. Therefore, etiological factor(s) other than cigarette smoking may play more important role in Taiwanese lung cancer development. Our previous reports have indicated that HPV16/18 infection may be linked with lung cancer development, especially in female nonsmokers. In this talk, we questioned: (1) whether nickel accumulated in lung tissues could contribute to p53 and EGFR mutations? (2) whether IL-10 expression could be associated with HPV infection? (3) whether HPV infection could be associated with EGFR mutations? (4) whether peripheral blood lymphocytes (PBLs) could act a mediator of HPV infection in normal bronchial epithelial (NHBE) cells and whether lung adenocarcinoma cells could be developed after being NHBE cells co-cultured with HPV-positive PBLs? We provide the evidence to support: (1) nickel may promote the occurrence of p53 and EGFR mutation in nonsmokers with lung cancer via reduced DNA repair activity; (2) nickel could contribute to HPV persistent infection in lung cancer via elevated IL-10 expression and promote tumor aggressiveness via CIP2A/PP2A axis; and (3) lung adenocarcinoma cells can be developed from NHBE cells after being co-cultured with viral load HPV16 PBLs for 8 months. In summary, we addressed the possibility that nickel environment population may play a role in Taiwanese lung cancer development among nonsmokers, especially in HPV-infected lung cancer.

腐植酸，自由基與烏腳病

中山醫學大學醫學研究所講座教授 呂鋒洲

一、 概述：腐植酸與地方性疾病

腐植酸 (humic acid) 是存在於環境中的酚類聚合物 (polymers of phenolic acids)。它們不僅參與環境中一系列與人類生存有關的過程，而且與人類的健康有密切的關係。近 50 年來，中國大陸和台灣學者在「腐植酸自由基」與克山病、大骨節病、甲狀腺腫和烏腳病的致病的關係的研究證實，飲用水和土壤中過高的腐植酸有利於上述地方性疾病的發生。學者們進一步的研究顯示，環境中的腐植酸降低了硒、碘的生物可利用性。腐植酸是一種外源性的「安定的自由基物質」，本身又是多陰離子性的聚合物，因此腐植酸除加上述兩種因素外，再與第三種致病因子的結合可能是克山病、大骨節病、甲狀腺腫和烏腳病的另外病因因素。我們當前應當特別重視研究腐植酸在誘發不同地方性疾病的不同致病機理，才能防患腐植酸誘發其他疾病之可能性。本文特別介紹發生於台灣的烏腳病之病因與腐植酸的關係，並且探討「腐植酸自由基」在烏腳病發病過程中的可能作用機理。

二、 烏腳病 (blackfoot disease)：

烏腳病是台灣西南沿海地區特有的一種末梢血管疾病，發病初期，患者通常是四肢先有麻木及冰冷現象，接著患部潰爛，然後壞疽病變。至今仍無良好預防及治療方法，唯有以手術鋸去患肢，但症狀仍會繼續惡化。此外，烏腳病地區

亦具有高度流行率的癌症（膀胱癌、腎臟癌、肺癌、皮膚癌、肝癌、攝護腺癌等）、糖尿病、心血管疾病、高血壓以及甲狀腺腫大等各種疾病。所有烏腳病病人都有飲用承壓自流井水的歷史。台灣學者先後發現井水中砷含量偏高和腐植酸偏高。因此，形成烏腳病的「砷中毒學說」和「腐植酸中毒學說」。兩種學說都有一些流行病學或動物實驗的證據。後者的學說是以呂鋒洲教授所主導的一系列研究報告（1975-2003）為根據。

三、「烏腳病」與「自由基」相關聯的觀念：

烏腳病病人血清脂質過氧化物偏高：脂質過氧化物（lipid peroxide）是脂質經過自由基（free radicals）之攻擊後發生脂質過氧化過程（lipid peroxidation）的產物；而脂質過氧化過程是未飽和脂肪酸被氧化及被破壞的反應，脂質过氧化物的產生是脂質遭受自由基攻擊的一種指標。

1952年，Glavind等人指出血管內的脂質過氧化物含量與動脈硬化的程度有極度密切的關係。許多研究者在這領域投入更多的努力後，使脂質過氧化物與動脈硬化間的關係被肯定。發生於台灣西南沿海一帶的烏腳病，是一種末梢血管閉塞性疾病。雖然此病在臨床病理學之變化有二種類型：（1）閉塞性血栓血管炎型（thromboangitis obliterans group）和（2）閉塞性動脈硬化型（arteriosclerosis obliterans group），可是基本上都是屬於血管方面的疾病。另外，學者更指出當地居民有超尋常高的動脈硬化以及心臟血管疾病的併發比例。因此，呂鋒洲等人在開始研究烏腳病病因的初期（1975年）就懷疑烏腳病病人的血清脂質过氧化物的偏高。1987年檢測21位正常健康女性和18位正常健康男性血清脂質過氧化物含量的結果，平均各是 2.25 ± 0.79 nmol/ml和 1.94 ± 0.58 nmol/ml，兩者在統計學上有差異（ $P < 0.02$ ）；14位烏腳病地區非烏腳病病人血清脂質過氧化物含量平均是 3.49 ± 1.64 nmol/ml，比正常值高（ $P < 0.01$ ）；而檢測27位烏腳病病人血清脂

質過氧化物含量平均是 13.91 ± 14.55 nmol/ml，比正常人和非烏腳病病人血清脂質過氧化物含量高出許多 ($P < 0.01$ ； $P < 0.025$)，其中 6 位女性烏腳病患者平均是 5.48 ± 3.97 nmol/ml，21 位男性烏腳病患者平均是 16.32 ± 15.62 nmol/ml，兩者沒有性別上的差異 ($P > 0.05$)。

烏腳病病人血清脂質過氧化物含量的變異，除個人體質及性別差異外，可能和病情的程度有正比例的關係。為何烏腳病病人之血清脂質過氧化物含量特別高？除上述內在因素外，其外在因素是什麼？如何去尋求解決？這些問題啟發了往後的呂鋒洲對「烏腳病病因」和「自由基」關聯之間的深入研究。

四、井水中螢光物質的發現和腐植酸的鑑定

1975 年呂鋒洲發現烏腳病地區的井水在紫外光燈的照射下，發射出藍綠色螢光，井水螢光濃度越高，飲用此井水之村民的烏腳病病情越高。1977 年使用陰離子交換樹脂提取水中螢光物質，將其稀釋注射入種蛋，種蛋孵化後發現幼雞出現畸形和死亡。劑量越大受害越重。1980 年研究螢光物質對人類末梢血液中淋巴細胞染色體的影響，發現螢光物質對細胞分裂有抑制作用，並能誘導染色體迷亂。1979 年和 1988 年兩次使用烏腳病區井水中螢光物質對老鼠進行試驗，發現小白鼠經 22-32 天連續注射螢光物質後，其中 8 隻出現跛行，腳趾變黑，四肢腫大，潰爛和壞疽症狀與烏腳病相似，1986 年發現病區井水的螢光物質與膀胱癌發病率呈正相關。

在對螢光物質的成分進行研究過程中，1977 年使用薄層色層分析法、紫外線光譜分析法、螢光光譜分析法在螢光物質中發現含有麥角酸，1978 年發現含有類似維生素 D2 的物質，1980 年使用氣相色譜與質譜連機法在螢光物中測到 10 種有機物組成分，其中 3 種為有機氮化物。1982 年使用高效液相色譜儀發現螢光物中含有麥角胺 (ergotamine)。1987 年使用氣相層析質譜儀在螢光物中發現辟

瘧酸酯 (phthalate esters)。1988 年將病區井水中提出的螢光物質分離成 S1、S2、S3 三種水溶性組成分和 S4 的一種醇溶性組成分，再使用等離子體發射光譜測定它們的元素組成分，使用原子吸收光譜儀發現 4 種螢光物質都含有較高的砷和鐵。使用電子自旋共振譜儀發現螢光物質是「安定性的自由基」(stable free radical)。在使用離子色譜質譜儀及紅外線光譜儀對螢光物質的官能團進行分析，最後的結論是此種螢光物質是「腐植物質」(humic substances)。

五、井水腐植酸對血管內皮細胞的影響：

早期 (1994 年以前)，有關井水腐植酸與烏腳病關係的研究，我注重在動物實驗和影響血液凝固因子的研究，例如(1)井水腐植酸可以使小白鼠誘發末梢組織發生壞疽；(2)將放射線標定的腐植酸經腹腔注射入小白鼠體內發現腐植酸所分布的器官與烏腳病區流行病學調查之各種器官疾病呈正相關且具有累積性；(3)對小白鼠之肝臟引起過氧化體 (peroxisome) 增生過盛；(4)引起小白鼠之睪丸萎縮；(5)可以加速血液之凝固以及抑制胞漿素 (plasmin) 的活性，胞漿素是一種蛋白質溶解酶可以溶解血塊內的纖維素，對血栓有分解作用的活性。1996 年以後，我把腐植酸帶入細胞生物學以及分子生物學領域的研究，在這方面的研究成果均歸功於優秀的碩士、博士學生相繼的努力表現。

內皮細胞是血管最內層直接接觸血流的單層細胞，其功用主要藉由分泌及合成一些衍生物來調節血管及血液方面的功能，在血液凝固和血栓形成方面扮演重要的角色。

利用從井水抽取的腐植酸作用於血管內皮細胞後，發現其效應有許多，包括：(1)促進組織因子 (tissue factor) 及血液凝固第三因子的活化及 m-RNA 量的增加；加入蛋白質激酶 C (protein kinase C) 之抑制劑 (H7)，可以使組織因子之活性下降；(2)非競爭型的抑制「攜凝血酵素」的活性 (down-regulation of

thrombomodulin)；加入的抗氧化酵素 (SOD, catalase) 具保護作用；(3)促進內皮素 (endothelin-1) 的表現及活性；(4)促進「血纖維蛋白溶解酵素原活化劑之抑制劑」(plasminogen activator inhibitor, PAI) 的生成量；(5)在腐植酸長時間的作用下，會造成細胞型態之變化以及細胞之凋亡 (apoptosis)。以上所述腐植酸之各種作用皆可以促進血液之凝固及血栓的反應。

以分子機制的觀點，發現腐植酸與血管內皮細胞作用後，可以使細胞外的鈣離子進入細胞內並在加入腐植酸後約 30 分鐘，達到最高峰，因而增加細胞內游離鈣離子的濃度，而且在鈣離子「通道阻斷劑」(verapamil) 存在下，鈣離子仍可以進入細胞內。鈣離子可被視為細胞內之二級訊息物 (second messenger)，可以活化蛋白質激酶 C。因此，細胞內訊息傳遞系統 (signal transduction) 在腐植酸造成血液凝固及血栓相關因子的分子機制上扮演重要角色。蛋白質激酶 C 持續活化後，可以造成一些反應，包括細胞的增生 (proliferation) 及分化

(differentiation)。血管內膜細胞的增生，會逐漸形成粥狀硬化，最後導致動脈硬化。近年來學者發現蛋白質激酶 C，在致癌機制的調控上扮演重要角色，可以造成許多致癌基因的表現 (expression)，這或許可以解釋為何烏腳病區具有癌症的高盛行率之一的原因。

六、腐植酸對紅血球造成「氧化壓力」性的破壞：

為探討烏腳病病人的普遍貧血的原因。1999 年研究腐植酸對紅血球的影響。研究結果發現腐植酸對紅血球造成氧化性的傷害 (oxidative damage)，主要的原因是透過腐植酸氧化紅血球細胞的血色素 (hemoglobin) 造成脂質的進一步氧化，並且促使血球變形能力的下降以及溶血，這些結果與烏腳病病人貧血現象一致。

另外，在人類纖維母細胞的實驗中，腐植酸對它所產生的氧化壓力，除造成細胞生長之停止外，也會造成細胞的凋亡。由這些實驗結果也可以從不同的角度

進一步說明烏腳病的形成與自由基之參與作用的可能性關係。

七、 腐植酸增加「過氧化體增生接受子」(PPAR, Peroxisome Proliferation Activated Receptor)：

1999-2002 年發現腐植酸誘導小白鼠肝臟進行脂質過氧化反應並且誘發肝臟的過氧化體增生(peroxisome proliferation)，增加「過氧化體增生接受子」(PPAR)之 RNA，蛋白質以及轉錄的活性，並且誘導 C3H10T1/2 及 3T3-L1 細胞走向脂肪細胞分化，並且伴隨著細胞外間質的 glycosaminoglycan 的增加。由這些實驗結果提供了烏腳病患者，血中出現的類血管動脈粥狀硬化斑塊(atherosclerotic like plaque)的一項可能性原因的解釋。

2003 年一項令人興奮的研究成果是腐植酸可以增加血球前驅細胞(HL-60)之脂肪過氧化體增生接受子 r (PPAR-r) 的產生。PPAR-r 是一個與脂肪的代謝有關的轉錄因子，其在血球細胞的表現一般認為與血球細胞的分化有關，尤其是誘導存在於吞噬細胞(macrophage)內的「氧化型低密度脂蛋白受體」(CD 36)的表現，促使吞噬細胞成功的分化成「泡沫細胞」(foam cell)。泡沫細胞是與動脈硬化的病理機轉有密不可分的關係。實驗結果顯示，不論是高濃度的腐植酸(100-400 $\mu\text{g/ml}$)或是低濃度的腐植酸(20-50 $\mu\text{g/ml}$)均可以單獨誘導 HL-60 細胞產生 PPAR-r；而且腐植酸與 PMA 結合使用時，也可以加強 PPAR-r 的誘導作用。可見腐植酸在 HL-60 細胞可作為一種 PPAR-r 的誘導劑。再者，利用流式細胞儀的分析顯示，經腐植酸處理的 HL-60 細胞，其細胞表面上的「氧化型低密度脂蛋白受體」(ox-LDL-receptor, 即 CD36)約增加 15 倍。可見腐植酸對巨噬細胞之形成泡沫細胞有明顯的促進作用。藉由以上的實驗結果，更加說明腐植酸與烏腳病患者的動脈粥狀塊的形成的相關性。

八、 腐植酸可以抑制由內毒素（LPS）所刺激誘導的細胞表面黏著蛋白（因子）（cell-surface adhesion proteins）的產生：

2000 年間研究腐植酸影響血管內皮細胞表面黏著蛋白的表現以及對轉錄因子 NF- κ B 的影響。利用免疫螢光法及流式細胞儀分析人類臍帶血管內皮細胞之細胞表面黏著因子（蛋白），包含 ICAM-1，VCAM-1 及 E-selectin 等因子的表現。先以腐植酸處理人類臍帶內皮細胞後，再處理內毒素（LPS），結果細胞表面黏著因子 ICAM-1，VCAM-1 及 E-selectin 的表現會受到抑制，而且此種抑制作用會隨者處理腐植酸的濃度及時間的增加，其抑制作用更加明顯。

實驗證明腐植酸可以抑制 LPS 所刺激產生的細胞表面黏著因子，並且降低血球細胞之黏著到血管內皮細胞的能力，更證明此項抑制效果是透過抑制細胞內的轉錄因子 NF- κ B 的活化途徑所致。

腐植酸可以抑制內皮細胞對外界（內毒素）之刺激所引起的發炎或免疫作用，而此項實驗結果也許可用以解釋我們所觀察到的烏腳病病人之免疫能力或發炎作用失去調節之因。NF- κ B 可能在這種病程上扮演重要之角色。

九、 腐植酸對嗜中性白血球作用：

血液中的嗜中性白血球（neutrophils）除了可以辨認且殺死外來的微生物外，過度且持續性的活化，也會造成血管或組織的損傷。因此，2003 年也探討腐植酸對此細胞的作用。實驗結果發現以腐植酸處理人類嗜中性白血球可促進嗜中性白血球貼壁，此現象隨者濃度增加而增加，且可被 ERK1/2(extracellular signal-related kinase)，p38 MAPK (p38 mitogen activated kinase)，和 PI3Ks (phosphoinositide 3 kinases)的抑制劑不同程度的抑制。以原兒茶酸(protocatechuic acid)合成的聚合物

(合成的腐植酸)也可促進其貼壁，但其單體 (monomer) 則不可。貼壁的現象除了於塑膠介面以外，也可附著於內皮細胞或血管內皮表面。此外，腐植酸也可以活化嗜中性白血球產生超氧陰離子自由基 ($O_2^{\cdot-}$)，此現象也可被 ERK1/2、p38 MAPK 和 PI3K 的抑制劑抑制。以腐植酸處理後，可測得嗜中性白血球受 ERK1/2、p38 MAPK 和 PI3K 之活化而活性增加，因此，可能經由此途徑活化嗜中性白血球的功能。由此結果顯示，腐植酸可活化嗜中性白血球，但其機理與更上游的活化途徑則需做更進一步的實驗證實。

十、 腐植酸，自由基與細胞毒性：

1988 年時已經證明腐植酸是一種外源性的、安定的自由基，2001 年時再繼續著手研究腐植酸是否會刺激人類臍帶靜脈血管內皮細胞產生活性氧化物質 (ROS)。以腐植酸處理人類臍帶靜脈血管內皮細胞後，發現腐植酸確實會刺激該細胞產生 ROS，而且此種刺激作用隨著處理腐植酸的濃度之增加以及處理時間之加長，而使產生 ROS 之現象更加明顯。超氧陰離子自由基 ($O_2^{\cdot-}$) 之清除劑 SOD 與氫氧自由基 ($\cdot OH$) 之清除劑 mannitol 只能部分的抑制 ROS 的產生，而過氧化氫 (H_2O_2) 之清除劑 catalase 則幾乎會完全抑制 ROS 之產生。此外，xanthine oxidase 之抑制劑 allopurinol 和 NADPH oxidase 之抑制劑 diphenylene iodonium(DPI)，以及鈣離子的螯合劑 BAPTA 皆無法有效的抑制 ROS 的產生。Protein Kinase C 的抑制劑 H-7 也只能部分的抑制 ROS 的產生。但是補充細胞內的抗氧化劑 glutathione 以及補充鐵離子的螯合物 desferrioxamine(DFO)則幾乎完全抑制 ROS 的產生。

測量人類臍帶靜脈血管內皮細胞受腐植酸之刺激而產生脂質过氧化物的濃度情形後，發現處理腐植酸的濃度越高，產生的脂質過氧化程度也越嚴重。若細胞前處理 DFO 則會明顯的降低腐植酸所引起的脂質過氧化作用。由以上之實驗

結果顯示腐植酸刺激人類臍帶靜脈血管內皮細胞所造成的氧化壓力，主要是有「鐵」的參與作用。事實上實驗確實證明腐植酸會刺激人類臍帶血管內皮細胞產生 ROS，其作用是透過腐植酸會將細胞外的鐵輸送進入細胞內，而使細胞內游離的鐵增加所致。

早在 1987 年時呂鋒洲已經發現到烏腳病病人之血清脂質過氧化物含量特別高。眾所週知，「氫氧自由基」($\cdot\text{OH}$)會引起脂質過氧化作用(lipid peroxidation)，而促進「氫氧自由基」產生的「Fenton reaction」的催化劑就是鐵，故鐵在脂質過氧化作用中扮演極重要的角色。在上段說明中已敘述腐植酸會刺激人類臍帶血管內皮細胞產生 ROS，引起脂質過氧化作用；腐植酸也會將細胞外的鐵輸送進入細胞內增加游離鐵的濃度。為進一步瞭解腐植酸如何使細胞內游離鐵的濃度增加，故於 2003 年再繼續探討其原因。發現結果如下：

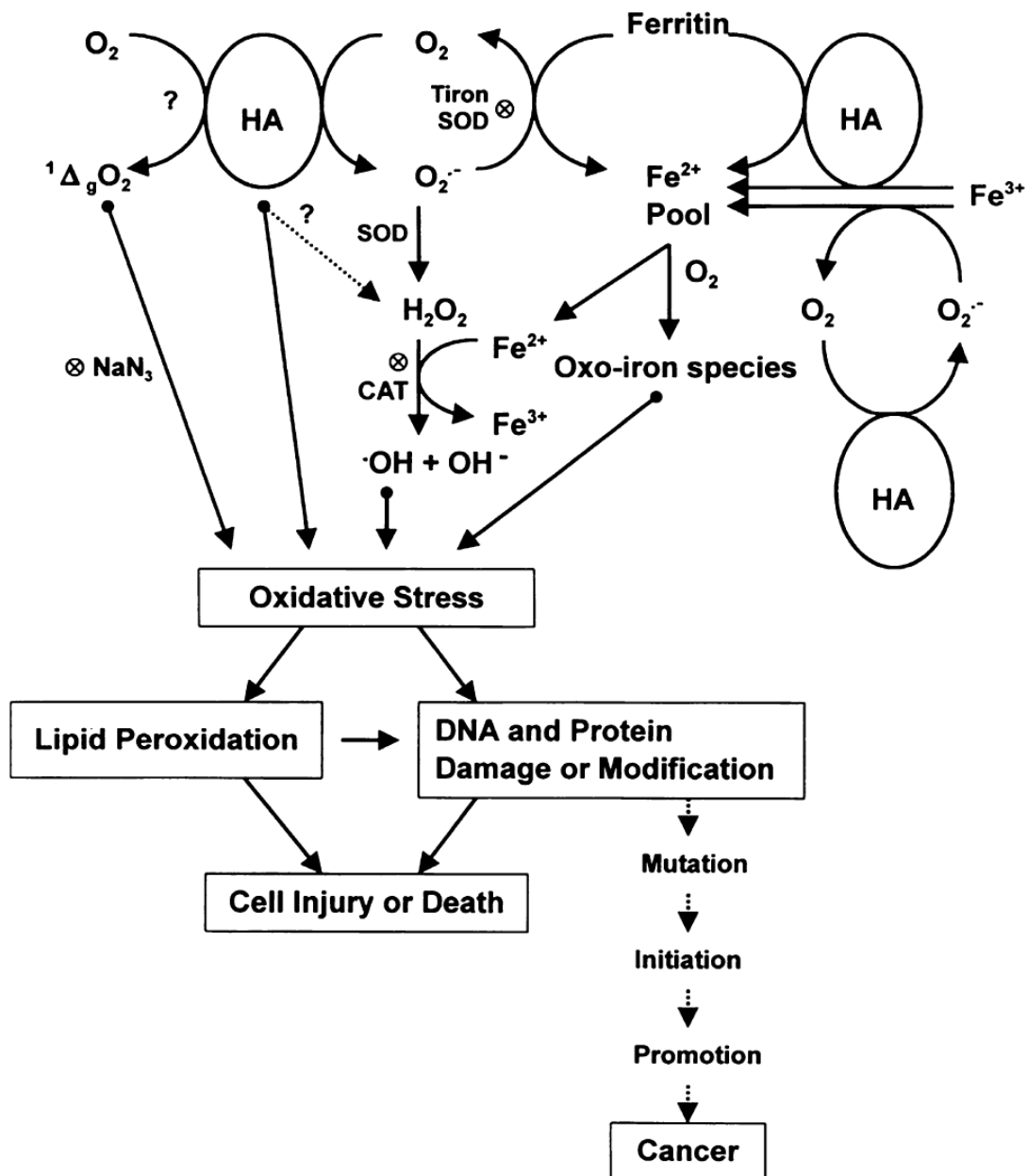
(1) 腐植酸在很廣範圍的 pH 值 (pH4.0-9.0) 的水溶液中都可以把 3 價鐵還原成 2 價之亞鐵，2 價的亞鐵是 Fenton reaction 中產生氫氧自由基 ($\cdot\text{OH}$) 之主要催化劑。

(2) 腐植酸可以對 linoleic acid 和老鼠肝臟微粒體 (microsomes) 增加脂質過氧化作用，但此種脂質過氧化作用受到 sodium azide (a singlet oxygen scavenger) 或 disodium 4,5-dihydroxy-1,3-benzene-disulfonic acid (a superoxide scavenger) 之部分抑制，表示脂質過氧化之過程有部分的 singlet oxygen 和 superoxide anion 之參與。

(3) 添加腐植酸的反應中會產生 superoxide anion。

(4) 腐植酸會把 ferritin 中之鐵還原成亞鐵並且從 ferritin 中釋放出來，此種釋放亞鐵的過程部分受到 superoxide scavenger 之抑制。

(5) 從 ferritin 釋放出來之亞鐵，可以加速腐植酸誘導之脂質過氧化作用。由以上的實驗結果可以綜合的說明腐植酸配合由 ferritin 釋放之亞鐵可以擾亂生物體內之氧化還原平衡系統，造成生物體內之氧化壓力，而表現出腐植酸的細胞毒性。此種作用機制可在下圖表示，會更加明瞭：



Lu et al. (Arch. Toxicol. (2003) 77:100-109)

腐植酸本身以及它再透過「自由基」的中間作用所表現出來的生物毒性，也許可以部分解釋烏腳病區除烏腳病外，尚具有高度流行率之癌症、糖尿病、心血管疾病、高血壓以及甲狀腺腫大等各種疾病之因。

十一、 結論

自 1975 年到 1996 年間，呂鋒洲以環境毒物學、流病調查學和生化學以及動物實驗的方法來研究探討烏腳病病因和井水中的腐植酸之關聯性。從 1996 年到 2003 年，更進一步的以細胞生物學和分子生物學配合自由基生物學的觀點繼續深入研究腐植酸誘導烏腳病的作用機理。實驗證實致病過程有「腐植酸、自由基」的參與作用。研究結果闡明了腐植酸對健康影響的重要性，可是到目前為止尚存在著待解決的幾項問題：

(1) 為何腐植酸在中國大陸會造成克山病和大骨節病，而在台灣卻會造成烏腳病？是否不同地區的腐植酸表現出不同之健康效應？

(2) 腐植酸之結構複雜，不同地區不同方法採到的樣本之間難以相互比較，各學者的研究成果難以互相驗證。

(3) 腐植酸的差別主要決定於其生成時之地球化學條件，這些條件首先是環境、水、熱，其次是腐植酸酸化過程完成的程度，最後則決定於腐植酸形成時的界質含水層、沉積物或土壤中各種化學元素的種類含量及存在狀態。以上問題的研究可稱為腐植酸的環境地球化學。

(4) 腐植酸在不同疾病中的致病機理不同。它既可能是透過抑制、拮抗、保護性因子而致病，也可以作為致病因子而直接致病，在烏腳病的問題上也一樣。

(5) 砷和腐植酸在致病之協同作用上的關係有待進一步研究。

(本文摘自國科會生命科學簡訊：焦點文章,第 17 卷第 6 期,92 年 6 月 10 日發行.)

著者 呂鋒洲)

CASE SIGNALMENT

55TH MEETING OF COMPARATIVE PATHOLOGY

July 7, 2012

(中華民國比較病理學會第 55 次比較病理學研討會)

Case No.	Presenter	Institution	Slide No.	Signalment
Case 389	林宗賢	Department of Pathology, ChiMei Hospital (奇美醫院病理部)	201202-1998-F	75-year-old man
Case 390	張皓凱	Department of veterinary pathology, NPUST (國立屏東科技大學獸醫教學醫院病理科)	D100-20974-10	9-year-old male Pomeranian dog
Case 391	林智鴻	Department of Pathology, Kaohsiung Medical University Hospital (高醫附設醫院病理科)	KMU-11-18371	57-year-old woman
Case 392	劉祐彰	Buddhist Tzu Chi General Hospital and University, Taiwan (佛教慈濟綜合醫院暨慈濟大學病理科)	A2009-6C	49-year-old man
Case 393	朱家俞	Department of Veterinary Medicine, National Chung Hsing University (中興大學獸醫學系)	CO12-420 Puppy-1	12-year-old, female mongrel dog
Case 394	陳世忠	Department of Pathology, School of Medicine, Chung Shan Medical University and Hospital (中山醫學大學醫學系病理學科暨附設醫院病理科)		61-year-old woman

CASE DIAGNOSIS

55TH MEETING OF COMPARATIVE PATHOLOGY

July 7, 2012

(中華民國比較病理學會第 55 次比較病理學研討會)

Case No.	Presenter	Institution	Slide No.	Diagnosis
Case 389	林宗賢	Department of Pathology, ChiMei Hospital (奇美醫院病理部)	201202-1998-F	Mantle cell lymphoma involving ascending colon, cecum, ileum, appendix and regional lymph nodes with hemorrhagic necrosis in the colon and leukemic change.
Case 390	張皓凱	Department of veterinary pathology, NPUST (國立屏東科技大學獸醫教學醫院病理科)	D100-20974-10	Pulmonary Squamous Cells Carcinoma of a Canine
Case 391	林智鴻	Department of Pathology, Kaohsiung Medical University Hospital (高醫附設醫院病理科)	KMU-11-18371	Squamous cell carcinoma, lymphoepithelioma-like type
Case 392	劉祐彰	Buddhist Tzu Chi General Hospital and University, Taiwan (佛教慈濟綜合醫院暨慈濟大學病理科)	A2009-6C	Lithium nephrotoxicity
Case 393	朱家俞	Department of Veterinary Medicine, National Chung Hsing University (中興大學獸醫學系)	CO12-420 Puppy-1	Malignant peripheral nerve sheath tumor (MPNST), subcutis, canine.
Case 394	陳世忠	Department of Pathology, School of Medicine, Chung Shan Medical University and Hospital (中山醫學大學醫學系病理學科暨附設醫院病理科)		Desmoplastic malignant melanoma (mimic malignant peripheral nerve sheath tumor)

Lin, T.H. (林宗賢), M.D./Chuang, S.S. (莊世松), M.D.
Department of Pathology, ChiMei Hospital (奇美醫院病理部)

CASE HISTORY:

Signalment: 75-year-old man (Pathol no.2012-02-1998F, section from ileum)

Clinical History:

This 75-year-old man had a history of chronic obstructive pulmonary disease. He was noted to have a splenic nodule and splenomegaly by abdominal echography during health examination half a year ago. He visited local hospital due to abdominal fullness and pain for several days where severe leukocytosis was found. He was transferred to our hospital and admitted under the impression of lymphoma/leukemia. Abdominal CT scans showed hepatosplenomegaly and enlarged lymph nodes at the aortocaval region. He was diagnosed as having lymphoma and chemotherapy with COP regimen was administered. Unfortunately severe diffuse abdominal pain occurred five days later and pneumoperitoneum was noted. Exploratory laparotomy showed a perforated duodenal ulcer and with simple closure, ulcer excision and feeding jejunostomy were performed. One week later, an episode of dyspnea, abdominal pain and shock happened. The second exploratory laparotomy disclosed a dilated cecum with gangrenous change and right hemicolectomy was performed. The patient passed away three days later.

Laboratory Data:

Hemoglobin	13.7 g/dl (13.52-17.5g/dL)
WBC	90.9 x10 ³ /ul (3.4-9.1x10 ³ /uL)
Platelet	38 x10 ³ /ul (105-400x10 ³ /uL)
Seg/Lym/Mono/Atypical lymphocyte	9.5/86.75/1.75/0.5 (%)
LDH	601 IU/L (85-227IU/L)

Other findings: GOT: 158IU/L (10-50IU/L), GPT: 86IU/L (10-50IU/L), BUN: 22mg/dL (6-22mg/dL), Creatinine: 1.4mg/dL (0.6-1.3mg/dL).

Gross Findings:

The right hemicolectomy specimen is composed of the following parts:

1. Ascending colon: 14 cm in length and 7 cm in circumference with hemorrhagic necrosis and a very thin wall. No gross tumor or polyp is identifiable.
2. Ileum: 4 cm in length and 1.5 cm in diameter without gross tumor.
3. Appendix: 3 cm in length and 0.3 cm in diameter.

Lin, T.H. (林宗賢), M.D./Chuang, S.S. (莊世松), M.D.
Department of Pathology, ChiMei Hospital (奇美醫院病理部)

CASE RESULT:

Histopathologic Findings:

Sections of the ascending colon show hemorrhagic necrosis with mixed leukocytic infiltration. The ascending colon and ileum show florid atypical lymphocytic infiltration mainly in the submucosa. These lymphocytes form discrete aggregates or thick plaques in a diffuse pattern without germinal center formation or mantle zone pattern. The atypical lymphocytes are monotonous and small to medium-sized with occasional mitosis. The intestinal muscle wall and adventitia are also patchily infiltrated by atypical lymphocytes. The appendiceal mucosa and submucosa is also involved by the same process of lymphocytic infiltration. The 5 regional lymph nodes found are also involved with a diffuse infiltration by small to medium-sized atypical lymphocytes and distended sinuses by lymph.

Immunohistochemistry:

Stainings for CD3 and CD20 confirm that most lymphocytes are B-cells. These cells also express cyclin D1 and bcl-2 but not CD43.

Differential diagnosis:

1. Chronic lymphocytic leukemia/small lymphocytic lymphoma
2. Mucosa-associated lymphoid tissue lymphoma/marginal zone lymphoma
3. Mantle cell lymphoma

Diagnosis:

Mantle cell lymphoma involving ascending colon, cecum, ileum, appendix and regional lymph nodes with hemorrhagic necrosis in the colon and leukemic change.

Discussion:

Mantle cell lymphoma is an aggressive B-cell neoplasm, comprising 3-10% of non-Hodgkin lymphomas. It may present as multiple polyps throughout the gastrointestinal tract, referred to as multiple lymphomatous polyposis. Peripheral blood involvement is common. The classical morphology is monomorphic small to medium-sized lymphoid cells with irregular nuclear contours. The immunophenotype is CD5+, CD10-, CD23-, CD43+, bcl2+, bcl6-, IgD+, IgM+, and cyclin D1+. CCND1 translocation is present in almost all cases. The median survival is 3-5 years.

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CASE HISTORY:

Signalment: 9 years old male Pomeranian dog

Clinical history:

A 9 years old male Pomeranian showed inappetency, breathe heavily and cough clinically. The dog was hospitalized on 14th September, 2011. On 29th September, the patient presented hematochezia with mucinous materials in the feces, and died later in the afternoon. Necropsy was performed to diagnose the cause of death.

Clinical Pathology:

RBC: 5.72×10⁶/uL (5.5~8.3×10⁶/uL), Hb: 13.7 gm/dL (13.0-19.0 gm/dL), PCV: 38.8% (37~57%), MCV: 67.8 fL(62-77 fL), MCHC: 35.3 g/dL (32-36 g/dl), WBC: 104400/uL (6000-17000/uL), Plt: 15.9×10⁴/dL (16-50×10⁴/dL), Lymphocyte: 522(900-4800/uL), Neutrophil: 97614 (3000-11400/uL), Monocyte: 6264(100-1400/uL), Creatinine: 2.9 mg/dL (0.5-1.5 mg/dL), ALT: 207 U/L (15-90U/L), ALP:946 U/L(10-110 U/L), Na: 135.1 mmol/L(141-152 mmol/L), K: 4.07 mmol/L(3.8-5.0 mmol/L), Cl: 97.0 mmol/L (102-117)

Gross findings:

Yellow white cyst-like structure could be seen on the surface of the right apical lung lobe and attached to the parietal pleura, with yellow mucin-like materials accumulated multifocally. Yellow nodules with caseous materials within distributed multifocally on the left cranial lobe and caudal lobe.

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CASE RESULT:

Histopathological finding:

Pulmonary mass cells were poor differentiation, which showed big, polymorphism, hyperchromatic nuclei with moderate mitotic rate with abundant foamy-like cytoplasm. Intracellular bridge and keratin pearl often can be seen indefinitely in the mass. The same mass structure also can found in kidney and liver.

Immunohistochemistry:

The mass cells of pulmonary showed positive of Cytokeratin 5/6, partially positive of P63. Negative of TTF-1 and Cytokeratin 7.

Differential diagnosis:

1. Thyroid adenocarcinoma
2. Primary Pulmonary adenocarcinoma
3. Primary Pulmonary Squamous Cell Carcinoma
4. Pulmonary Squamous Cell Carcinoma metastatic from other organ
5. Small cell carcinoma
6. Cholangiocarcinoma

Diagnosis: Primary Pulmonary Squamous Cell Carcinoma

Discussion:

Pulmonary Squamous Cell Carcinoma(SCC) is a type of non-small cell lung cancer formed from reserve cells—round cells that replaced injured or damaged cells in the lining of the bronchi, the lung's major airways. It most often arises centrally in larger bronchi, and while it often metastasizes

to local regional lymph nodes early in its course, it generally disseminates outside the thorax somewhat later than other major types of lung cancer. Large tumors may undergo central necrosis, resulting in cavitation. These tumors can form cavities in the lung if they grow to a large size¹. Breeds at an increased risk for canine pulmonary SCC may include the Boxer, Doberman Pinscher, Australian Shepherd, Irish Setter and Bernese mountain dog. The average age of canine at diagnosis is 10 years with no sex predilection.

The infrequency of pulmonary SCC in the dog's and cat's lung cancer, 6% and 4% respectively, is in sharp contrast to its high frequency in man. It is tempting to speculate that the frequencies of carcinoma types in man might resemble those in animals if cigarette smoking were not a major factor². Lung cancer has been known to metastasize to every organ system. Intrathoracic sites by local spread include mediastinal lymph nodes, pleura, diaphragm, chest wall, and pericardium. Extrathoracic sites by far metastasized include bones, adrenal glands, the liver, small intestine, or brain. The most common extrathoracic sites are the adrenal glands, bone, kidney, and brain³. The prognosis for an advanced stage of this extrathoracic type of lung cancer is not good.

Precancerous changes are common in the larger airways of man, especially prior to the formation of SCC. Changes such as cellular atypia, irregular hyperplasia, and metaplasia of columnar cells to squamous cells are encountered. These changes rarely are reported in animals because animals are not examined regularly with a bronchoscope, and by the time the diagnosis is made the carcinoma is far advanced². The histological origin of the SCC is sometimes in dispute. Most of these neoplasms arise from the lining epithelium of the bronchi, but some may arise from squamous metaplasia of glandular epithelium.

Characteristic of pulmonary SCC was composed of solid, often branching cords or masses of cells irregular in shape and size. These cells had intercellular bridges. Cytoplasm of the cells are rich and foamy-like with big, hollow nucleus². The cells often filled the alveolar lumina. Keratin pearl is also a feature to diagnosis SCC, though it is few in this case.

Differential diagnosis of pulmonary SCC in human medicine is complicated, whereas in veterinary medicine is lack of data because of the low frequently to detect lung tumor.

To distinction of pulmonary small cell carcinoma from poorly differentiated squamous cell carcinoma, immunohistochemical(IHC) stain is helpful. Thyroid transcription factor-1(TTF-1), p63, high molecular weight keratin, like Cytokeratine(CK) 56, CK7, CK20 are usually used to diagnosis SCC⁴. According to the recently research, development of hypercalcemia of malignancy (HHM) results from dysregulated secretion of parathyroid hormone-related protein(PTHrP) typically in patients with epithelia-derived cancers, like SCC⁵, may be used as IHC marker to distinct pulmonary SCC. SCC should to showed TTF-1 negative(96.4%), P63 positive(100%), Cytokeratine 56(100%)⁴, Cytokeratine 7 and Cytokeratine 20 negative(100%)⁶. The positive rate of PTHrP is still disputed. Though it lacks of statistics evidence to prove the IHC figure of Canine tumors should be the same to the human, we still use it as the tool of supplementary diagnosis. Look back to the case we provided, the IHC result of pulmonary SCC showed TTF-1 negative, CK 7 negative, P63 partially positive, CK 56

positive. Contrast to the review paper, the result can make diagnosis as Pulmonary Squamous Cell Carcinoma definitely.

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CASE HISTORY:

Signalment: 57-year-old woman

Clinical history:

This 57 y/o female was a case of hypertension without regular medication control. She suffered from post-menopausal bleeding with clot for one month. She denied postcoital bleeding, abdominal pain, diarrhea, constipation, hematuria, urinary urgency, urinary frequency, and body weight loss. She went to another hospital for help two weeks ago. Pelvic examination was done and showed a cervical mass up to 4 cm without either vaginal or parametrium invasion. Her past history of OBS/GYN was G6P3A3, all via NSD. The menarche age was 14. Intrauterine device was implanted for many years, but was removed a few years ago. The age of menopause was 54. She denied previous use of oral contraceptive pills or Pap smear before. Under the impression of cervical cancer, stage Ib1, she was then transferred of our hospital for surgical intervention.

Clinical Pathology:

RBC: $3.05 \times 10^6/\mu\text{L}$ ($3-5 \times 10^6/\mu\text{L}$), Hb: 9.3 gm/dL (14.0-18.0 gm/dL), Hct: 26.6 % (40-54%), MCV: 87.1 (80-96.1), WBC: 7800/ μL (4500-11000/ μL), Plt: $22.9 \times 10^4/\text{dL}$ ($15-40 \times 10^4/\text{dL}$), SCC:0.5 (<37)

Gross findings:

Radical hysterectomy, bilateral oophorectomy and salpingectomy were received. A polypoid tumor was found in the cervix, measuring 4.0 x 3.5 x 3.2 cm in size. On cut, the tumor is solid with infiltration the cervical stroma more than two third of the thickness. The rest of the uterus, bilateral ovaries, fallopian tubes, parametrium, and pelvic lymph nodes were not involved

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CASE RESULT:

Histopathological finding:

The tumor cells were large and contained scant ill-defined cytoplasm, oval and large round vesicular nuclei with prominent nucleoli, syncytial growth patterns, and numerous mitoses (4–10 mitoses per high-power field). The nuclear membrane was irregular and enfolded, with peripheral deposits of chromatin along the membrane. The prominent lymphoid reaction consisted of small lymphocytes that were sometimes admixed with plasma cells and histocytes. There was focal squamoid differentiation of main tumor and squamous intraepithelial dysplasia in adjacent cervical epithelium.

Immunohistochemistry and molecular study:

The neoplastic cells were immunoreactive for pan-cytokeratin(AE1/AE3) and p16. Synaptophysin, Chromogranin A, inhibin, CD10 were negative.

The EBER in situ hybridization was negative in both tumor cells and inflammatory infiltrate.

Differential Diagnosis:

1. Squamous cell carcinoma
Non-keratinizing
Basaloid
2. Lymphoepithelioma-like
3. Glassy cell carcinoma
4. Neuroendocrine carcinoma
5. Endometrial stromal sarcoma
6. Uterine tumor resembling ovarian sex-cord tumor (UTROSCT)

Diagnosis: Squamous cell carcinoma, lymphoepithelioma-like type (LELC of cervix)

Discussion:

LELC of uterine cervix is a rare variant of squamous cell carcinoma. It was first reported by a Japanese group in 1977. In the female genital tract, LELC has been reported in vulva, vagina, endometrium, and uterine cervix. In one study, this type of tumor constitutes 0.7 % of all primary cervical malignancies.

A review of the literature on this relatively rare tumor shows that the incidence of this LELC is

higher in Asia than in the West, just as lymphoepithelial carcinoma of the nasopharynx is more common in Asia than in the West. Having a similar histologic pattern, speculation that EBV may have been associated with the pathogenesis of these tumors has been made. However, the lack of EBV in both SCC and adenocarcinomas of the cervix was reported. Payne et al. described absence of EBV EBER ISH in 20 out of 30 samples with PCR-determined EBV preinvasive squamous lesions of the cervix.

A review of the literature revealed that positivity of EBV in LELC of the cervix is different between Asians and other ethnicities. However, there has been conflicting data about the presence of EBV even in the same country. The discrepancy may be due to different method of detection. On the other hand, presence of high risk HPV has been detected in several reports, indicating that HPV may also play a role in the pathogenesis of cervical LELC.

Studies have demonstrated that LELC of the cervix has a better prognosis than conventional cervical SCC. In the largest series of the literature, women with this type of cancer had a significantly better prognosis ($P < 0.05$). The inflammatory infiltrates in the stroma reflect both the humoral and cell-mediated immune responses of the patients to the tumor that result in decreased lymph node metastases, suggesting a good prognostic indicator.

In conclusion, we hereby present a case of unusual variant of cervical squamous cell carcinoma characterized by intense inflammatory infiltration and poor differentiated cytomorphology. EBV virus is absent in our case. This unique subtype of cervical cancer is expected to have a favorable prognosis.

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CASE HISTORY:

Signalment: 49-year-old men

Clinical history:

The 49-year-old man had been diagnosed of bipolar disorder for more than twenty years. He was followed up at 台北市立療養院 with the medications of Lithium 600mg HS, Risperdal 2mg HS, Eurodin 2mg HS and Rivotril 0.5mg BID. His psychotic symptoms were under control by those medications. According to the patient's family, he had polyuria and polydipsia. There is no clinical evidence about those symptoms.

On June 13, 2006, he complained of cough, dyspnea, loss appetite and general malasia, so he went to LMD for help. Under the impression of pneumonia and sepsis, he was admitted to 新店慈濟醫院 on June 17. Septic shock and delirium developed on June 19. The patient experienced an abrupt onset of apnea on 6/20. In spite of intensive management of his respiratory failure, his condition got worse and expired on June 20.

Clinical Pathology:

June 17, 2006

RBC: 2.08×10^6 /uL, Hb: 6.0 gm/dL, Hct: 18.4%, WBC: 27.0×10^3 /uL, Lymphocyte: 8%, Neutrophil: 85%, Monocyte: 3%, Myelocyte: 2%, Metamyelocyte: 1%,
CRP: 3.94, BUN: 111.6 mg/dL, Creatinine: 3.69 mg/dL, Na: 133 mmol/L, K: 3.9 mmol/L, Cl: 107 mmol/L, Ca: 2.12 mmol/L, Lithium: 1.29 mmol/L (0.5~1.4 mmol/L)

June 18, 2006

Urine analysis: no specific finding, Stool examination: no specific finding

June 20, 2006

BUN: 101.2 mg/dL, Creatinine: 4.73 mg/dL, Na: 183 mmol/L, K: 10.51 mmol/L, Cl: 150.9 mmol/L, Ca: 2.54 mmol/L, Lithium: 0.92 mmol/L (0.5~1.4 mmol/L)

Gross findings:

At autopsy, the bilateral kidneys were symmetric and at normal anatomical position. The right kidney was measured about 10.5 cm in length (no obvious shrinkage). The surface of the kidney was uneven and contained many irregular, depressed scars. The border between cortex and medulla was not obvious at cross-sectional view.

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CASE RESULT:

Histopathological finding:

Microscopically, it showed chronic tubulointerstitial nephritis, including cortical and medullary interstitial fibrosis and tubular atrophy. There were lots of interstitial lymphocyte infiltrations. Some atrophic tubules with eosinophilic hyaline casts resembled thyroid follicles (thyroidization). Tubular cysts and tubular dilatations were also found. Focal segmental glomerulosclerosis (FSGS) and global glomerulosclerosis were observed. Under the PAS stain, the lesions of FSGS were more obvious.

Immunohistochemistry:

EMA positive in the cystic wall

Differential diagnosis:

1. Chronic pyelonephritis
2. Cystic kidney disease
3. Drug induced (hypersensitivity) tubulointerstitial nephritis
4. Analgesic nephropathy
5. Lithium nephrotoxicity

Diagnosis: *Lithium nephrotoxicity*

Discussion:

Lithium is one of the most effective drugs for the treatment and prophylaxis of bipolar disorder. A common side effect of lithium therapy is renal toxicity. The lithium-induced nephrotoxicity had three different categories: 1. acute intoxication, 2. nephrogenic diabetes insipidus, 3. chronic kidney disease. The acute intoxication is due to lithium overdose. The acute effects include mental status change and acute renal failure, leading to the need for hemodialysis.

Nephrogenic diabetes insipidus (NDI) is the most common side effect of lithium therapy (up to 40% patient). The mechanism of NDI is that lithium inactivates adenylyl cyclase and then inhibits protein kinase A-induced phosphorylation of cytoplasmic aquaporin 2. The cytoplasmic aquaporin 2 can't be transport to apical membrane. Therefore, the capacity to reabsorb water is restricted. According to our patient's family, the patient had complained of polyuria and polydipsia, suspected NDI. Although there was no clinical evidence about it, our patient was highly possible to have NDI due to long term lithium therapy.

Under the chronic lithium therapy (no acute intoxication), the most common form of lithium-induced chronic kidney disease is the chronic tubulointerstitial nephritis (CTIN). The lithium-induced CTIN includes tubular atrophy and interstitial fibrosis, especially out of proportion to the severity of glomerular and vascular disease. CTIN is a common pattern of several diseases, so CTIN can't be used to diagnose as lithium nephrotoxicity. The renal cysts, which originate from distal tubule and collecting duct, are highly characteristic of lithium-induced chronic kidney disease. Those renal cysts (1~2mm) pattern can be differentiated to other cystic kidney disease. Our patient's histopathologic picture of the kidney is correlated to above findings, including CTIN and tubular cysts. Markowitz et al found the potential glomerular toxicity of lithium. In their study, global glomerulosclerosis was found in 24 of 24 biopsies (100%), and focal segmental glomerulosclerosis was found in 12 of 24 biopsies (50%). In our patient, global glomerulosclerosis and segmental glomerulosclerosis were also observed. Therefore, this finding suggests that lithium nephrotoxicity can induce renal insufficiency and even end stage renal disease.

Anemia is common among patients with chronic kidney disease, which is due to reduced erythropoietin production (a presumed reflection of the reduction in functioning renal mass). The erythropoietin is synthesized by interstitial peritubular fibroblasts localized in the deep cortex and superficial outer medulla. If kidney interstitial tissue is injured, the erythropoietin production will decrease. The anemia of chronic kidney disease generally develops when the patient has stage 3 or more chronic kidney disease. In our patient, Hb: 6.0 showed severe anemia. It is not surprising that the severity of anemia was higher than our estimation. The major lesion of lithium nephropathy was at interstitial tissue of the kidney rather than glomerulus. Therefore, the anemia of lithium-induced chronic kidney disease develops earlier and is more severe than the anemia of other chronic kidney diseases.

Patients with established chronic kidney disease are hard to have beneficial effects of interrupting lithium therapy. Claire Presne et al found that the probability of renal function improvement is higher when estimated creatinine clearance is above 40 mL/min at lithium discontinuation than when it is lower. Markowitz et al found that the prognosis of the renal disease is better when serum creatinine is above 2.5 mg/dl than when it is below 2.5 mg/dl. In order to prevent the progression of lithium-induced chronic kidney disease, we should regular follow up renal function (serum creatinine and GFR).

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CASE HISTORY:

Signalment: 12-year-old, female mongrel dog.

Clinical history:

A 12-yr-old, female mongrel dog, the owner has noted this dog has a mass on the hindlimb. Mass was removed by surgery and sent to ADDC of NCHU for pathological examination on April 19, 2012.

Gross findings:

This mass was found on the hindlimb and was measured as 7 × 8 × 5 cm in size with white to gray in color. This mass appeared as well-encapsulated with multiple lobules in the cut area. The palpation was firmness.

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CASE RESULT:

Histopathological finding:

Microscopical examination revealed that the location of the tumor was in the subcutis with connective tissue encapsulation. Some regions presented focal necrosis and lymphocytic infiltration. Most of the tumor cells were spindle shape with eosinophilic cytoplasm in the densely cellular areas which arranged in interlacing bundles and fascicles and some of areas displayed storiform, or concentric growth. Areas of concentric or whorled growth were often centred eosinophilia hyalinized material, which were suspicious as collagen. The whorled pattern of growth had elongated to fusiform nuclei, whereas cells in the areas of less cellularity were characterized by greater nuclear pleomorphism, karyomegaly and multiple nucleoli. Mitotic figures were few.

Histochemistry Examination:

The Masson's trichrome staining was used to differentiate between collagen and smooth muscle in tumor. Results revealed that the eosinophilic hyalinized regions were positively stained and considered collagenous material in the concentric whorl but not the tumor cell.

Immunohistochemistry Examination:

For immunohistochemistry, deparaffinized sections were heated in retrieval solution and treated with hydrogen peroxide. Sections were then incubated with antibodies against Vimentin (1: 400), Desmin (1: 200), S-100 (1: 400), CD99 (1: 200), neuron-specific enolase (1: 400), and Neurofilament (1: 200) (Leica Novocastra, Newcastle, UK), followed by peroxidase-conjugated antibodies. After exposure to an appropriate chromogen, the slides were counterstained with hematoxylin.

A semi-quantitative scoring system was used to assess the number of cells positively labeled by each marker: (-) absence of labeling, (+) <25% of cells labeled, (++) 25-50% of cells labeled, (+++) 50-75% of cells labeled, (++++> 75% of cells labeled⁶.

Results revealed that the tumor cells were positively stained with Vimentin (++++), NSE (++) and Neurofilament (++) markers. Other markers were negative (-) reactions in the tumor cells.

Differential Diagnosis:

1. Fibrosarcoma

2. Leiomyosarcoma
3. Rhabdomyosarcoma
4. Synovial sarcoma
5. Hemangioperiectoma

Diagnosis: Malignant peripheral nerve sheath tumor (MPNST), subcutis, canine.

Diagnostic criteria :

1. Histopathology: granulomatous inflammation with numerous foamy macrophages
2. Acid fast stain: positive
3. Wound culture: Non-tuberculosis mycobacteria
4. PCR of Avin mycobacteria: positive (NTUH)

Discussion:

Peripheral nerve sheath tumors (PNST) are spindle cell tumors that arise from nerve sheaths. Peripheral nerves consist of nerve sheaths and their invested axons lying both within and outside the craniospinal dura. The Schwann cells coat surrounding axons lies within a circumferential layer of perineurial cells, the only other intrinsic cell of peripheral nerve. In turn, the perineurial coat lies within epineurium, soft tissue (consisting of fibroblasts), collagen fibers, and small blood vessels.² Peripheral nerve sheath tumors represent a heterogeneous group of lesions are classified into schwannoma, neurofibroma, perineuriomas, malignant peripheral nerve sheath tumour.¹⁴

In human, MPNST represents 5-10% of all soft tissue sarcomas. It occurs sporadically or in association with neurofibromatosis type 1 (NF1; von Recklinghausen disease).^{1, 5} It arises de novo or as malignant transformation of a pre-existing neurofibroma. It affects predominantly in adults in a wide age range with no gender predilection. More commonly, it is encountered in the somatic soft tissues of the extremities, but may also be seen in the retroperitoneum.¹

Peripheral nervous system tumors are relatively common in human beings, but they occur infrequently in domestic animals, with most cases recorded in cows and dogs.^{3, 6} Malignant peripheral nervous system tumors of the nervous system are most commonly seen in dogs. MPNST in animals most frequently occurs in the peripheral nerves, cranial nerves and spinal roots. They may occur at other sites.¹⁴

Spindle cell tumor may be a type of connective tissue cancer, in which the cells are spindle-shaped when examined under a microscope. Spindle-cell sarcomas include fibrosarcoma, leiomyosarcoma, rhabdomyosarcoma, synovial sarcoma, peripheral nerve sheath tumor, etc. Histological diagnosis of spindle cell tumors is fraught with the greatest diagnostic difficulty. Distinction between these types of sarcoma may require immunohistochemical testing or ultrastructural examination.¹³

In veterinary medicine, immunohistochemical detection of S-100, vimentin and glial

fibrillary acidic protein (GFAP) has not been able to distinguish conclusively between subsets of such spindle cell tumors.⁶ A total of 36 cases of canine peripheral nerve sheath tumors (PNSTs) was investigated in Taiwan. Previous results revealed that the expression of vimentin (100%), laminin (93.3%), S-100 (87.8%), nerve growth factor receptor (NGFR, 84.8%), neurofilament (51.58%), neuron-specific enolase (NSE, 30.3%), α -SMA (α -smooth muscle actin, 6.1%), and desmin (3.0%) were characterized in PNSTs, respectively. However, PNSTs failed to demonstrate expression of cytokeratin, factor VIII, and GFAP.¹⁶ In addition, we also applied Desmin and CD99 to rule out skeletal muscle and fibroblast original tumor, respectively. Neither Desmin nor CD99 were negative in tumor cells.

In this case, the histological feature was coincidence description in the most literatures. Tumor cells displayed storiform and concentric growth, which resembles the Antoni A schwannoma pattern.^{5, 6, 11, 12, 14} Two major immunohistochemical markers, vimentin and S-100, were applied to confirm our diagnosis. The tumor cells presented strong expression of vimentin with mesenchymal origin,⁶ but the reaction of S-100 was negative. However, less than 50% of canine peripheral nerve sheath tumor being reacts positively to S-100. The S-100, laminin and collagen IV immunohistochemical expression may be used to help confirm the diagnosis of schwannoma.⁶ Otherwise, NSE and neurofilament have been widely used to demonstrate the neuroectodermal origin of neoplastic cells.⁶ Finally, we used these two nerve markers, NSE and neurofilament, to ensure that our case was peripheral nerve sheath tumor in a dog.

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CASE HISTORY:

Signalment: 61-year-old woman

Clinical history:

She complained gingival discomfort over left maxillary 2nd molar area since 2008 Nov. After extraction the teeth, the symptoms persistent, then gingival biopsy and wide excision were performed. She denied betel nut chewing, cigarette smoking, alcoholic consumption in the past history.

She found induration over left neck during 2009 Apr. The imagine study shows contrast enhancing lymph node (13mm) over left level IB region. Metastasis is suspected. Neck dissection and CCRT were performed and complete course in 2009 Jun.

Unfortunately, low back pain occurred in 2009 Oct. Bone metastasis over L1-L2 was impressed. Operation and radiotherapy were performed. Spinal cord tumor compression recurred.

Lab results:

RBC: 4.41 x 10⁶ (4-5 x 10⁶/ul), Hb: 13.2 (12-16 g/dl), Hct: 40.9 (36-46%), WBC: 8510 (4000-11000/ul), Plt: 17.8 x 10⁴ (15-40 x10⁴/dl), Lymphocyte: 24.6 (20-45%), Neutrophil: 69.8 (40-75%), Monocyte: 4.8 (2-10%), Eosinophil: 0.4 (1-6%), Basophil: 0.4 (0-1%), BUN: 14 (6-22mg/dl), Cr: 0.7 (0.5-1.3mg/dl), AST: 15 (13-38IU/l), ALT: 9 (3-37IU/l), Na: 141 (138-146mmol/l), K: 3.8 (3.0-5.0mmol/l).

Gross findings:

The first specimen received, consists of multiple fragments of grayish tan formalin fixed tissue, aggregating 2.0 x 2.0 x 0.5 cm in greatest diameter.

Chen, Shih-Chung (陳世忠) MD.; Lai, Ming-Tsung (賴銘淙) MD. Ph D.

Department of Pathology, School of Medicine, Chung Shan Medical University and Hospital (中山醫學大學醫學系病理學科暨附設醫院病理科)

CASE RESULT:

Histopathological finding:

1. Microscopic examination of the first specimen revealed spindle cell proliferation in the lamina propria with a fascicular pattern of growth accompanied by clusters of lymphocytes in the peripheral portion. The tumor cells were pleomorphic, and with bizarre hyperchromatic nuclei and occasional mitoses. No melanin pigment is seen.
2. Microscopic examination of the second specimen revealed diffuse or papillary like arrangement of epithelioid tumor cells with prominent nucleoli, eosinophilic cytoplasm and frequent mitosis. Melanin pigments in tumor cells are identified.

Immunohistochemistry examination:

The tumor cells showed S-100 (+), vimentin (+), chromogranin (+), CK (-), NFP(-), actin (-), CD68 (-), desmin (-), HMB45 (-/+) by immunohistochemical studies.

Differential diagnosis:

1. Malignant peripheral nerve sheath tumor
2. Malignant melanoma
3. Malignant fibrous histiocytoma
4. Angiosarcoma
5. Leiomyosarcoma
6. Rhabdomyosarcoma

Diagnosis: Desmoplastic malignant melanoma (mimic malignant peripheral nerve sheath tumor)

Discussion:

Primary mucosal melanomas are rare and aggressive malignancies. The natural history of melanoma in situ within the oral cavity is not known for certain, but it is considered to evolve into invasive melanoma over time. If diagnosis of melanoma is early, during melanoma in situ stage, it is potentially curable.

Intraoral malignant melanomas are easy to diagnose clinically, as they are pigmented and have an irregular shape and outline. These lesions are usually asymptomatic and come into notice when

there is an ulceration of the overlying epithelium and/ or hemorrhage. About 10% of cases are amelanotic.

It is important to be careful for any pigmented lesion within the oral cavity, especially for those at high-risk sites such as the palate and the maxillary gingiva. Practitioners in these fields must maintain a low threshold for performing biopsies of suggestive lesions in these occult anatomic locations.

Reference:

1. Surgical pathology, Rosai and Ackerman's, tenth edition, p251~255
2. Diagnostic surgical pathology of the head and neck, Douglas R. Gnepp
3. Felice Femiano, Alessandro Lanza, Curzio Buonaiuto, Fernando Gombos, Federica Di Spirito, Nicola Cirillo. Oral malignant melanoma: a review of the literature. J Oral Pathol Med (2008) 37: 383-388.
4. Anghileri M. Miceli R. Fiore M. et al: Malignant peripheral nerve sheath tumors: prognostic factors and survival in a series of patients treated at a single institution. Cancer (2006)107: 1065-1074,
5. Kilpattick SE, White WL, Browne JD. Desmoplastic malignant melanoma of the oral mucosa---an underrecognized diagnostic pitfall. Cancer (1996); 78: 383-389

中華民國比較病理學會章程

第一章 總則

- 第一條 本會定名為中華民國比較病理學會，英文名稱為 **Chinese Society of Comparative Pathology (CSCP)** (以下簡稱本會)。
- 第二條 本會依內政部人民團體法設立，為非營利目的之社會團體，以結合人類醫學與動物醫學資源，提倡比較病理學之研究與發展，交換研究教學心得，聯絡會員友誼及促進國際間比較醫學之交流為宗旨。
- 第三條 本會以全國行政區域為組織區域，會址設於主管機關所在地區，並得報經主管機關核准設主分支機構。前項分支機構組織簡則由理事會擬訂，報請主管機關核准後行之。會址及分支機構之地址於設置及變更時應報請主管機關核備。
- 第四條 本會之任務如左：
一、 提倡比較病理學之研究與發展。
二、 舉辦學術演講會、研討會及相關訓練課程。
三、 建立國內比較醫學相關資料庫。
四、 發行比較病理學相關刊物。
五、 促進國內、外比較醫學之交流。
六、 其他有關比較病理學術發展之事項。
- 第五條 本會之主管機關為內政部。目的事業主管機關依章程所訂之宗旨與任務，主要為行政院衛生署及農業委員會，其目的事業應受各該事業主管機關之指導與監督。

第二章 會員

- 第六條 本會會員申請資格如下：
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它相關科系肄業者(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展有特殊貢獻，經理事會提名並經會員大會通過者。
前項一、二、三項會員申請時應填具入會申請書，經一般會員二人

之推薦，經理事會通過，並繳納會費。學生會員身份改變成一般會員時，得再補繳一般會員入會費之差額後，即成爲一般會員，榮譽會員免繳入會費與常年會費。

- 第七條 一般會員有表決權、選舉權、被選舉與罷免權，每一會員爲一權。贊助會員、學生會員與榮譽會員無前項權利。
- 第八條 會員有遵守本會章程、決議及繳納會費之義務。
- 第九條 會員有違反法令、章程或不遵守會員大會決議時，得經理事會決議，予以警告或停權處分，其危害團體情節重大者，得經會員大會決議予以除名。
- 第十條 會員喪失會員資格或經會員大會決議除名者，即爲出會。
- 第十一條 會員得以書面敘明理由向本會聲明退會。但入會費與當年所應繳納的常年會費不得申請退費。

第三章 組織及職員

- 第十二條 本會以會員大會爲最高權力機構。
- 第十三條 會員大會之職權如下：
一、 訂定與變更章程。
二、 選舉及罷免理事、監事。
三、 議決入會費、常年會費、事業費及會員捐款之方式。
四、 議決年度工作計畫、報告、預算及決算。
五、 議決會員之除名處置。
六、 議決財產之處分。
七、 議決本會之解散。
八、 議決與會員權利義務有關之其他重大事項。
前項第八款重大事項之範圍由理事會訂定之。
- 第十四條 本會置理事十五人，監事五人，由會員選舉之，分別成立理事會、監事會。
選舉前項理事、監事時，依計票情形得同時選出候補理事五人，候補監事一人，遇理事或監事出缺時，分別依序遞補之。
本屆理事會得提出下屆理事及監事候選人參考名單。
- 第十五條 理事會之職權如下：
一、 審定會員之資格。
二、 選舉及罷免常務理事及理事長。
三、 議決理事、常務理事及理事長之辭職。
四、 聘免工作人員。
五、 擬訂年度工作計畫、報告、預算及決算。

六、 其他應執行事項。

- 第十六條 理監事置常務理事五人，由理事互選之，並由理事就常務理事中選舉一人為理事長。
理事長對內綜理監督會議，對外代表本會，並擔任會員大會、理事會主席。
理事長因事不能執行職務時，應指定常務理事一人代理之，未指定或不能指定時，由常務理事互推一人代理之。
理事長或常務理事出缺時，應於一個月內補選之。
- 第十七條 監事會之職權如左：
一、監察理事會工作之執行。
二、審核年度決算。
三、選舉及罷免常務監事。
四、議決監事及常務監事之辭職。
五、其他應監察事項。
- 第十八條 監事會置常務監事一人，由監事互選之，監察日常會務，並擔任監事會主席。
常務監事因事不能執行職務時，應指定監事一人代理之，未指定或不能指定時，由監事互推一人代理之。監事會主席（常務監事）出缺時，應於一個月內補選之。
- 第十九條 理事、監事均為無給職，任期三年，連選得連任。理事長之連任以一次為限。
- 第二十條 理事、監事有下列情事之一者，應即解任：
一、喪失會員資格。
二、因故辭職經理事會或監事會決議通過者。
三、被罷免或撤免者。
四、受停權處分期間逾任期二分之一者。
- 第二十一條 本會置祕書長一人，承理事長之命處理本會事務，令置其他工作人員若干人，由理事長提名經理事會通過後聘免之，並報主管機關備查。但祕書長之解聘應先報主管機關核備。
前項工作人員不得由選任之職員（理監事）擔任。
工作人員權責及分層負責事項由理事會令另定之。
- 第二十二條 本會得設各種委員會、小組或其它內部作業組織，其組織簡則由理事會擬定，報經主機關核備後施行，變更時亦同。
- 第二十三條 本會得由理事會聘請無給顧問若干人，其聘期與理事、監事之任期同。

第四章 會議

- 第二十四條 會員大會分定期會議與臨時會議兩種，由理事長召集，召集時除緊急事故之臨時會議外應於十五日前以書面通知之。定期會議每年召開一次，臨時會議於理事會過半數認為必要，或經會員五分之一以上之請，或監事會半數函請召集時召開之。
- 第二十五條 會員不能親自出席會員大會時，得以書面委託其他會員代理，每一會員以代理一人為限。
- 第二十六條 會員大會之決議，以出席人數過半之同意行之。但章程之訂定與變更、會員之除名、理事及監事之罷免、財產之處置、本會之解散及其他與會權利義務有關之重大事項應有出席人數三分之二以上同意。但本會如果辦理法人登記後，章程之變更應以出席人數四分之三以上之同或全體會員三分之二以上書面之同意行之。
- 第二十七條 理事會及監事會至少每六個月各舉行會議一次，必要時得召開聯席會議或臨時會議。
- 前項會議召集時除臨時會議外。應於七日以前以書面通知，會議之決議各以理事、監事過半數之出席，出席人較多數之同意行之。
- 第二十八條 理事應出席理事會議，監事應出席監事會議，不得委託出席；理事、監事連續二次無故缺席理事會、監事會者，視同辭職。

第五章 經費及會計

- 第二十九條 本會經費來源如下：
- 一、入會費：一般會員新台幣壹仟元，學生會員壹佰元，贊助會員伍仟元，於入會時繳納。
 - 二、常年會費：一般會員新台幣五百元，學生會員壹佰元。
 - 三、事業費。
 - 四、會員捐款。
 - 五、委託收益。
 - 六、基金及其孳息。
 - 七、其他收入。
- 第三十條 本會會計年度以國曆年為準，自每年一月一日起至十二月三十一日止。
- 第三十一條 本會每年於會計年度開始前二個月由理事會編造年度工作計劃、收支預算表、員工待遇表，提會員大會通過（會員大會因故未能如期召開者，先提理監事聯席會議通過），於會計年度開始前報主管機關核備，並於會計年度終了後二個月內由理事會編造年度工作報

告、收支決算表、現金出納表、資產負債表、財產目錄及基金收支表，送監事會審核後，造具審核意見書送還理事會，提會員大會通過，於三月底前報主管機關核備（會員大會未能如期召開者，需先報主管機關備查）。

第三十二條 本會解散後，剩餘財產歸屬所在地之地方自治團體或主管機關指定之機關團體所有。

第三十三條 本章程未規定事項，悉依有關法令規定辦理。

第三十四條 本章程經大會通過，報經主管機關核備後施行，變更時亦同。

第三十五條 本章程經本會民國八十五年二月四日第一屆第一次會員大會通過，並報經內政部 85 年 3 月 14 日台(85)內社字第 8507009 號函准予備查。

中華民國比較病理學會第六屆理監事名單簡歷冊

職別	姓名	性別	出生年月日	學歷	經歷	現任本職	電話	傳真
理事長	施洽雯	男	46/08/30	國防醫學院病理研究所	中山醫學院病理科副教授	羅東博愛醫院病理科主任	039-543131-2716	039-551543
常務理事	呂福江	男	37/11/21	美國漢尼門大學病理學博士	國防醫學院病理學研究所所長	耕莘醫院病理部主任	02-22193391 ext65236 0968-666741	02-2193506
常務理事	許永祥	男	48/10/30	國立台大醫學院病理研究所碩士	台大醫院病理科住院醫師	慈濟醫院病理科主任	03-8565301-2197	03-8574265
常務理事	張俊梁	男	45/5/6	國防醫學院醫學科學研究所博士	國防醫學院兼任助理教授	國軍桃園總醫院病理檢驗部主任	02-2303-2209 03-4799595 0966008531	02-2303-5192
常務理事	廖俊旺	男		國立台灣大學獸醫學研究所博士	農業藥物毒物試驗所應用毒理組副研究員	中興大學獸醫病理學研究所教授	04-22840894 ext406	04-22862073
理事	劉振軒	男	42/10/9	美國加州大學戴維斯校區比較病理學博士	台灣養豬科學研究所主任	國立台灣大學獸醫專業學院院長	02-33663760	02-23633289
理事	祝志平	男	46/02/25	台大病理研究所碩士	台北醫學院講師	林新醫院病理科主任	039-544106ext6113 0913-379889	039-572916
理事	李進成	男	49/06/06	英國倫敦大學神經病理博士	長庚醫院內科醫師	新光吳火獅紀念醫院病理檢驗科醫師	02-28389306	02-28389306
理事	陳三多	男	40/08/11	比利時魯汶大學博士	中興大學獸醫系教授	中興大學獸醫病理研究所教授	04-22853552	04-22853552
理事	張文發	男				國立中興大學獸醫學院 動物疾病診斷中心副主任		
理事	張聰洲	男	41/11/29	國立中興大學獸研所碩士班	國立屏東技術學院助教	國立屏東科技大學副教授	06-2333529	08-7740295
理事	賴銘淙	男	47/10/14	清華大學生命科學院博士	華濟醫院病理科主任	彰濱秀傳紀念醫院病理科主任	04-3250487	
理事	蔡睦宗	男	49/10/25	國立台灣大學獸醫學系公共衛生組碩士	台灣養豬科學研究所比較醫學系約聘技術員	屏東縣家畜疾病防治所技士	08-7224109	08-7224432
理事	陳憲全	男	25/5/18	日本麻布大學獸醫學研究科博士	US Veterinary Medical Officer, USDA/AFIS Philadelphia District Guloff Station, Elisabethtown, PA, USA	玉樹生技病理顧問有限公司首席獸醫病理學家/台灣動物科技研究所顧問	02-27832557 037-585875	037-585850
理事	朱旒億	男		國立台灣大學醫學系		彰化基督教醫院病理科	05-5512383	
常務監事	江蓉華	男		國防醫學院醫學士	國軍花蓮總醫院病理部主任	耕莘醫院組織病理科主任		
監事	林永和	男	46/02/24	台大病理研究所	台北醫學院病理科講師	台北醫學院病理科講師	02-27361661ext641	02-23770054
監事	梁鍾鼎	男	51/01/25	台灣大學獸醫學研究所博士班	國家實驗動物中心副研究員	國家實驗動物中心首席獸醫師	02-2789-5569	02-27895588
監事	阮正雄	男	30/05/28	日本國立岡山大學 大學院 醫齒藥總合研究科 博士	1. 台北市立婦幼綜合醫院病理科主任及婦產科主治醫師 2. 台北醫學大學副教授兼細胞學中心主任 3. 高雄市防癌篩檢中心細胞學主任	童綜合醫院婦產科及病理科主治醫師	0939-665921 02-2362-2656	02-23622656 04-26581919 轉4320 (辦公室)

How-To Access Comparative Pathology Virtual Slides

Hosted at the Web Library in NTU Vet Med Digital Pathology Lab

(中華民國比較病理學會數位式組織切片影像資料庫)

Comparative Pathology glass slides are now digitalized and accessible to all participants through the internet and a web browser (see below for detail instruction).

1. Please make sure that your web browser (e.g. Internet Explorer, Firefox or Safari) is equipped with "flash player." If not, it can be added from <http://www.adobe.com/products/flashplayer/> for free.
2. Please go to the NTU Vet Med Digital Pathology Lab web site at <http://140.112.96.83:82/CSCP/> with your web browser.
3. A pop-up window appears to ask for "User name" and "Password." Enter "guest " for both boxes.
4. Choose a Comparative Pathology meeting (e.g. 52nd CSCP)
5. Pick any case you'd like to read (e.g. case365-372)

中華民國比較病理學會
第一次至第五十三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.	Ependyoblastoma	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	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	中興大學獸醫學系
	43.	Phyllodes tumor	Human	台中榮民總醫院
	44.	Canine oral papilloma	Dog	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
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	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	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,	Mouse	國家實驗動物繁殖及研究中心

	BALB/cBYJ mouse		
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	中興大學獸醫學系
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	臺灣大學獸醫學系
137	Canine Glioblastoma Multiforme in Cerebellopontine Angle	Dog	中興大學獸醫病理研究所
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	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	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	中興大學獸醫學院
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-Merrit 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	台灣大學獸醫學系
217	Mucosal associated lymphoid tissue (MALT) lymphoma, small intestine	Cat	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 , bilateral	Human	羅東聖母醫院病理科
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
231	Malignant melanoma, metastasis to intra-abdominal cavity	Human	財團法人天主教耕莘醫院病理科
232	Vaccine-associated rhabdomyosarcoma	Cat	台灣大學獸醫學系
233	1. Pleura: fibrous plaque, 2. Lung: adenocarcinoma, 3. Brain: metastatic adenocarcinoma	Human	高雄醫學大學附設中和醫院病理科
235	1. Neurofibromatosis, type I 2. Malignant peripheral nerve sheath tumor (MPNST)	Human	花蓮慈濟醫院病理科
239	Glioblastoma multiforme	Human	羅東聖母醫院
240	Pineoblastoma	Wistar rat	綠色四季
241	Chordoid meningioma	Human	高醫病理科
243	Infiltrating lobular carcinoma of left breast with meningeal carcinomatosis and brain metastasis	Human	花蓮慈濟醫院病理科
245	Microcystic Meningioma.	Human	耕莘醫院病理科
247	Well-differentiated fetal adenocarcinoma without lymph node metastasis	Human	新光吳火獅紀念醫院
249	Adenocarcinoma of lung.	Human	羅東聖母醫院
252	Renal cell carcinoma	Canine	國立台灣大學獸醫學系獸醫學研究所
253	Clear cell variant of squamous cell carcinoma, lung	Human	高雄醫學大學附設中和醫院病理科
256	Metastatic adrenal cortical carcinoma	Human	耕莘醫院病理科
258	Hashimoto's thyroiditis with diffuse large B cell lymphoma and papillary carcinoma	Human	高雄醫學大學附設中和醫院病理科
262	Medullar thyroid carcinoma	Canine	臺灣大學獸醫學系

264	Merkel cell carcinoma	Human	羅東博愛醫院
266	Cholangiocarcinoma	Human	耕莘醫院病理科
268	Sarcomatoid carcinoma of renal pelvis	Human	花蓮慈濟醫院病理科
269	Mammary Carcinoma	Canine	中興大學獸醫學系
270	Metastatic prostatic adenocarcinoma	Human	耕莘醫院病理科
271	Malignant canine peripheral nerve sheath tumors	Canine	臺灣大學獸醫學系
272	Sarcomatoid carcinoma, lung	Human	羅東聖母醫院
273	Vertebra, T12, laminectomy, metastatic adenoid cystic carcinoma	Human	彰化基督教醫院
274	rhabdomyosarcoma	Canine	臺灣大學獸醫學系
275	Fetal rhabdomyosarcoma	SD Rat	中興大學獸醫學系
276	Adenocarcinoma, metastatic, iris, eye	Human	高雄醫學大學
277	Axillary lymph node metastasis from an occult breast cancer	Human	羅東博愛醫院
278	Hepatocellular carcinoma	Human	國軍桃園總醫院
279	Feline diffuse iris melanoma	Feline	中興大學獸醫學系
280	Metastatic malignant melanoma in the brain and inguinal lymph node	Human	花蓮慈濟醫院病理科
281	Tonsil Angiosarcoma	Human	羅東博愛醫院
282	Malignant mixed mullerian tumor	Human	耕莘醫院病理科
283	Renal cell tumor	Rat	中興大學獸醫學系
284	Multiple Myeloma	Human	花蓮慈濟醫院病理科
285	Myopericytoma	Human	新光吳火獅紀念醫院
287	Extramedullary plasmacytoma with amyloidosis	Canine	臺灣大學獸醫學系
288	Metastatic follicular carcinoma	Human	羅東聖母醫院病理科
289	Primitive neuroectodermal tumor (PNET), T-spine.	Human	羅東博愛醫院病理科
292	Hemangioendothelioma of bone	Human	花蓮慈濟醫院病理科
293	Malignant tumor with perivascular epithelioid differentiation, favored malignant PEComa	Human	彰化基督教醫院
297	Mucin-producing cholangiocarcinoma	Human	基隆長庚醫院
300	Cutaneous epitheliotropic lymphoma	Canine	臺灣大學獸醫專業學院
301	Cholangiocarcinoma	Felis Lynx	臺灣大學獸醫專業學院
302	Lymphoma	Canine	臺灣大學獸醫專業學院

303	Solitary fibrous tumor	Human	彰化基督教醫院
304	Multiple sarcoma	Canine	臺灣大學獸醫專業學院
306	Malignant solitary fibrous tumor of pleura	Human	佛教慈濟綜合醫院暨慈濟大學
307	Ectopic thymic carcinoma	Human	彰濱秀傳紀念醫院病理科
308	Medullary carcinoma of the right lobe of thyroid	Human	彰化基督教醫院病理科
309	Thyroid carcinosarcoma with cartilage and osteoid formation	Canine	臺灣大學獸醫專業學院
312	Lymphocytic leukemia/lymphoma	Koala	臺灣大學獸醫專業學院
313	Neuroendocrine carcinoma of liver	Human	佛教慈濟綜合醫院暨慈濟大學
314	Parachordoma	Human	羅東博愛醫院病理科
315	Carcinoma expleomorphic adenoma, submandibular gland	Human	天主教耕莘醫院病理科
316	Melanoma, tongue	Canine	國立臺灣大學獸醫專業學院
317	Renal cell carcinoma, papillary type	Canine	國立臺灣大學獸醫專業學院
323	Metastatic papillary serous cystadenocarcinoma, abdomen	Human	國軍桃園總醫院
324	Malignant gastrointestinal stromal tumor	Human	天主教耕莘醫院
329	Sclerosing stromal tumor	Human	彰化基督教醫院
330	Pheochromocytoma	Human	天主教耕莘醫院
334	Metastatic infiltrating ductal carcinoma, liver	Human	佛教慈濟綜合醫院
335	Adenoid cystic carcinoma, grade II, Rt breast	Human	天主教耕莘醫院
336	Malignant lymphoma, diffuse, large B-cell, right neck	Human	林新醫院
337	Pulmonary carcinoma, multicentric	Dog	國立臺灣大學獸醫專業學院
338	Malignant melanoma, multiple organs metastasis	Rabbit	國立中興大學獸醫學院
340	Mucinous-producing urothelial-type adenocarcinoma of prostate	Human	天主教耕莘醫院
342	Plexiform fibromyxoma	Human	彰化基督教醫院

343	Malignant epithelioid trophoblastic tumor	Human	佛教慈濟綜合醫院
344	Epithelioid sarcoma	Human	林新醫院
346	Transmissible venereal tumor	Dog	國立臺灣大學獸醫專業學院
347	Ewing's sarcoma (PNET/ES tumor)	Human	天主教耕莘醫院病理科
348	Malignant peripheral nerve sheath tumor, epithelioid type	Human	林新醫院病理科
349	Low grade fibromyxoid sarcoma	Human	高醫大附設中和紀念醫院病理科
351	Orbital embryonal rhabdomyosarcoma	Dog	Gifu University, Japan (岐阜大学)
354	Granular cell tumor	Dog	國立臺灣大學獸醫專業學院
356	Malignant neoplasm of unknown origin, cerebrum	Dog	國立臺灣大學獸醫專業學院
357	Small cell Carcinoma, Urinary bladder	Human	天主教耕莘醫院
364	Perivascular epithelioid cell tumor, in favor of lymphangiomyomatosis	Human	高醫大附設中和紀念醫院病理科
365	Angiosarcoma, skin (mastectomy)	Human	天主教耕莘醫院病理科
366	Rhabdomyoma (Purkinjeoma), heart	Swine	屏東縣家畜疾病防治所
368	Langerhans cell sarcoma, lung	Human	高醫大附設中和紀念醫院病理科
369	Biliary cystadenocarcinoma, liver	Camel	國立屏東科技大學獸醫教學醫院病理科
371	Malignant melanoma, nasal cavity	Human	羅東博愛醫院病理科
373	Malignant giant cell tumor of tendon sheath	Human	天主教耕莘醫院病理科
376	Malignant mesothelioma of tunica vaginalis	Golden hamster	中興大學獸醫病理生物學研究所
377	Perivascular Epithelioid Cell Tumor (PEComa) of the uterus	Human	彰化基督教醫院病理部
378	Medullary carcinoma	Human	高雄醫學大學病理部
389	Mantle cell lymphoma involving ascending colon, cecum, ileum, appendix and regional lymph nodes with hemorrhagic necrosis	Human	奇美醫院病理部

	in the colon and leukemic change.		
390	Pulmonary Squamous Cells Carcinoma of a Canine	Dog	國立屏東科技大學獸醫教學醫院病理科
391	Squamous cell carcinoma, lymphoepithelioma-like type	Human	高醫附設醫院病理科
393	Malignant peripheral nerve sheath tumor (MPNST), subcutis, canine.	Dog	中興大學獸醫學系
394	Desmoplastic malignant melanoma (mimic malignant peripheral nerve sheath tumor)	Human	中山醫學大學醫學系病理學科暨附設醫院病理科
細菌	6. Tuberculosis	Monkey	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	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 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
	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	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	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	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	中興大學獸醫學院
173	Ureteropyelitis and cystitis	Pig	中國化學製藥公司
254	Pulmonary actinomycosis.	Human	耕莘醫院病理科
259	Tuberculous peritonitis	Human	彰化基督教醫院病理科
260	Septicemic salmonellosis	Piglet	屏東科技大學獸醫系
261	Leptospirosis	Human	慈濟醫院病理科
267	Mycobacteriosis	Soft turtles	屏東科技大學獸醫系
290	<i>Staphylococcus</i> spp. infection	Formosa Macaque	中興大學獸醫病理學研究所
291	Leptospirosis	Dog	台灣大學獸醫學系
296	Leptospirosis	Human	花蓮慈濟醫院
305	Cryptococcus and Tuberculosis	Human	彰濱秀傳紀念醫院
319	Placentitis, <i>Coxiella burnetii</i>	Goat	台灣動物科技研究所
321	Pneumonia, <i>Buirkholderia pseudomallei</i>	Goat	屏東縣家畜疾病防治所
339	Mycoplasmosis	Rat	國家實驗動物中心
352	<i>Chromobacterium violaceum</i> Septicemia	Gibbon	Bogor Agricultural University, Indonesia
353	Salmonellosis	Pig	國立中興大學獸醫學

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367	Melioidosis (<i>Burkholderia pseudomallei</i>), lung	Human	花蓮慈濟醫院
370	Suppurative bronchopneumonia (<i>Bordetellae trematum</i>) with <i>Trichosomoides crassicauda</i> infestation	Rat	國立中興大學獸醫學院
374	Pulmonary coccidiomycosis	Human	彰化基督教醫院
375	Paratuberculosis in <i>Macaca cyclopis</i>	<i>Macaca cyclopis</i>	國立屏東科技大學獸醫學院
379	Bovine Johne's disease (BJD) or paratuberculosis of cattle	Dairy cow	屏東縣家畜疾病防治所
380	NTB, <i>Mycobacterium abscessus</i>	Human	佛教慈濟綜合醫院暨慈濟大學病理科
382	Leptospirosis	Pig	國立屏東科技大學獸醫學院
384	<i>Neisseria</i> Infected Pneumonitis	Cat	中興大學獸醫學系
385	<i>Mycobacteria</i> avian complex dacryocystitis	Human	花蓮佛教慈濟綜合醫院
387	Swine Erysipelas	Pig	屏東縣家畜疾病防治所
病毒	21. Newcastle disease	Chickens	台灣大學獸醫學系
	22. Herpesvirus infection	Goldfish	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	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	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
138	1.Aspergillus spp. encephalitis and myocarditis 2.Demyelinating canine distemper encephalitis	Dog	台灣大學獸醫學系
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	台灣大學獸醫學系
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	台灣大學獸醫學系
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.	Goat	台灣動物科技研究所

	2. Haired skin: Dermatitis, proliferative, lymphoplasmacytic, subacute, diffuse, sever, with marked epidermal pustules, ballooning degeneration, acanthosis, hyperkeratosis, and eosinophilic intracytoplasmic inclusion bodies.		
238	Hydranencephaly	Cattle	國立屏東科技大學獸醫學系
248	Porcine Cytomegalovirus (PCMV) infection	Swine	國立屏東科技大學獸醫學系
250	Porcine respiratory disease complex (PRDC) and polyserositis, caused by co-infection with pseudorabies (PR) virus, porcine circovirus type 2 (PCV 2), porcine reproductive and respiratory syndrome (PRRS) virus and <i>Salmonella typhimurium</i> .	Swine	屏東縣家畜疾病防所
255	Vaccine-induced canine distemper	gray foxes	國立台灣大學獸醫學系
265	Bronchointerstitial pneumonia (PCV II infection)	Swine	台灣大學獸醫學系
295	Feline infectious peritonitis (FIP)	Cat	中興大學獸醫病理所
362	Canine distemper virus infection combined pulmonary dirofilariasis	Dog	國家實驗研究院
381	Polyomavirus infection of urinary tract	Human	羅東博愛醫院
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	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	Human	林口長庚紀念醫院

	lung infection with abscess DM, NIDDM.			
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.Aspergillus spp. encephalitis and myocarditis 2.Demyelinating canine distemper encephalitis	Dog	台灣大學獸醫學系	
298	Systemic Candidiasis	Tortoise	中興大學獸醫學院	
318	Alfatoxicosis in dogs	Canine	國立臺灣大學獸醫專業學院	
322	Allergic fungal sinusitis	Human	羅東博愛醫院	
326	Meningoencephalitis, Aspergillus flavus	Cat	國立臺灣大學獸醫專業學院	
331	Histoplasmosis	Human	花蓮慈濟醫院病理科	
332	Pulmonary Blastomycosis	Rat	中興大學獸醫學院	
355	Encephalitozoonosis	Rabbit	國立中興大學獸醫學院	
356	Eosinophilic granuloma with fungal infection, Skin	Cat	國立臺灣大學獸醫專業學院	
386	Dermatophytic pseudomycetoma	Cat	台灣動物科技研究所	
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	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
	141	Eosinophilic meningitis caused by <i>Angiostrongylus cantonensis</i>	Human	台北榮民總醫院病理檢驗部
	156	<i>Parastrongylus cantonensis</i> infection	Formosan gem-faced civet	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
	202	Colnorchiasis	Human	高雄醫學院附設醫院
	203	Trichuriasis	Human	彰化基督教醫院
	204	<i>Psoroptes cuniculi</i> 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	<i>Capillaries philippinesis</i>	Human	和信治癌中心醫院
	207	Adenocarcinoma with schistosomiasis	Human	花蓮佛教慈濟綜合醫院
	286	Etiology- consistent with <i>Spironucleus (Hexamita) muris</i>	Rat	國家實驗動物繁殖及研究中心
	327	Dermatitis, mange infestation	Serow	中興大學獸醫學院
	328	<i>Trichosomoides crassicauda</i> , urinary bladder	Rat	國家實驗動物中心
	362	Canine distemper virus infection combined pulmonary dirofilariasis	Dog	國家實驗研究院
	370	Suppurative bronchopneumonia (<i>Bordetellae trematum</i>) with <i>Trichosomoides crassicauda</i> infestation	Rat	國立中興大學獸醫學院
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.	<i>Pneumocystis carinii</i> pneumonia	Human	台北病理中心
	57.	Cecal coccidiosis	Chicken	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
	242	Neosporosis	Cow	國立屏東科技大學獸醫學系
	263	Intestinal amebiasis	Human	彰化基督教醫院病理科

	320	Cutaneous leishmaniasis	Human	佛教慈濟綜合醫院
	325	Myocarditis/encephalitis, Toxoplasma gondii	Wallaby	國立臺灣大學獸醫專業學院
立克次體	229	Necrotizing inflammation due to scrub typhus	Human	佛教慈濟醫院病理科
	251	Scrub typhus with diffuse alveolar damage in bilateral lungs.	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
	359	Eosinophilic granuloma with fungal infection, Skin	Cat	國立臺灣大學獸醫專業學院
	360	Septa panniculitis with lymphocytic vasculitis	Human	慈濟綜合醫院暨慈濟大學
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	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
	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	中興大學獸醫學系
	91.	Hypervitaminosis D	Orange-rumped agoutis	台灣大學獸醫學系
	118.	Cystic endometrial 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
151	Osteodystrophia fibrosa	Goat	台灣養豬科學研究所 & 台東縣家畜疾病防治所
159	Hypertrophic cardiomyopathy	Pig	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	台灣大學獸醫學系
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, dog	Dog	台灣大學獸醫所
230	Hemochromatosis, liver, bird	Bird	台灣大學獸醫學系
234	Congenital hyperplastic goiter	Holstein calves	屏東縣家畜疾病防治所
236	Hepatic lipidosis (fatty liver)	Rats	中興大學獸醫學病理學研究所
237	Arteriovenous malformation (AVM) of cerebrum	Human	耕莘醫院病理科
244	Organophosphate induced delayed neurotoxicity in hens	Hens	中興大學獸醫學病理學研究所
257	Severe lung fibrosis after chemotherapy in a child with Ataxia-Telangiectasia	Human	慈濟醫院病理科
294	Arteriovenous malformation of the left hindlimb	Dog	台灣大學獸醫學系
299	Polioencephalomalacia	Goat kid	屏東家畜疾病防治所
310	Hyperplastic goiter	Piglet	屏東家畜疾病防治所
311	Melamine and cyanuric acid contaminated pet food induced nephrotoxicity	Rat	中興大學獸醫學病理學研究所

318	Alfatoxicosis	Canine	國立臺灣大學獸醫專業學院
333	Lordosis, C6 to C11	Penguin	國立臺灣大學獸醫專業學院
341	Pulmonary placental transmogrification	Human	羅東博愛醫院
345	Acute carbofuran intoxication	Jacana	國立中興大學獸醫學院
350	Malakoplakia, liver	Human	慈濟綜合醫院暨慈濟大學
351	Eosinophilic granuloma, Right suboccipital epidural mass	Human	羅東博愛醫院病理科
359	Eosinophilic granuloma with fungal infection, Skin	Cat	國立臺灣大學獸醫專業學院
360	Septa panniculitis with lymphocytic vasculitis	Human	慈濟綜合醫院暨慈濟大學
361	Hepatotoxicity of SMA-AgNPs	Mouse	國立中興大學獸醫病理生物學研究所
363	Hypertrophy osteopathy	Cat	國立臺灣大學獸醫專業學院
372	Snake bite suspected, skin and spleen	Monkey (red guenon)	國立臺灣大學獸醫專業學院
383	Langerhans cell histiocytosis	Human	聖馬爾定醫院病理科
388	Canine protothecosis	Dog	國立臺灣大學獸醫專業學院
392	Lithium nephrotoxicity	Human	佛教慈濟綜合醫院暨慈濟大學病理科

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
10617 臺北市大安區羅斯福路四段 1 號
國立臺灣大學獸醫系三館 106 室 鄭謙仁秘書長 收
Tel: (02) 33663868
Fax: (02) 23621965
e-mail address: crjeng@ntu.edu.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：一般會員新台幣一仟元，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、入會費及常年會費繳交方式：以銀行轉帳或匯款（006 合作金庫銀行、帳號：

0190-717-052017、戶名：中華民國比較病理學會）；並請填妥入會申請表連同銀行轉帳交易明細表或匯款單以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：116 臺北市羅斯福路四段一號 國立臺灣大學獸醫專業學院三館 106、電話：02-33663858、傳真 02-23682423。

中華民國比較病理學會入會申請及會員卡

會籍電腦編號 _____

姓名	中文		性別	男 <input type="checkbox"/>	出生	民國	年	月	日	出生地	省	
	英文		女 <input type="checkbox"/>	身分證字號							縣市	
			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 其他: _____							
	(2)				研究 興趣	(1)						
	(3)					(2)						
	(4)					(3)						
主要 經歷	機關名稱			職務		起			止			
						年	月	年	月			
						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		