

中華民國比較病理學會
九十六年度第四十次比較病理學研討會

【「轉移性病灶」或其他比較病理相關病例】



主辦單位：中華民國比較病理學會
佛教慈濟綜合醫院

時間：中華民國九十六年七月十四日（星期六）

地點：花蓮市中央路3段701號 (<http://www.tcu.edu.tw/>)

目 錄

一、	目 錄.....	2
二、	議程表.....	3
三、	中華民國比較病理學會章程.....	4
四、	病例摘要.....	9
五、	【專題演講】	
	海 龜 擱 淺 死 亡 之 病 理 研 究 及 活 體 處 理.....	11
六、	Comparative Pathology Case 273.....	24
	Comparative Pathology Case 274.....	28
	Comparative Pathology Case 275.....	31
	Comparative Pathology Case 276.....	36
	Comparative Pathology Case 277.....	39
	Comparative Pathology Case 278.....	44
	Comparative Pathology Case 279.....	50
	Comparative Pathology Case 280.....	53
七、	一~三十九次研討會病例分類表.....	56
八、	【附錄】會員資料更新服務.....	67
	入會辦法.....	68

議 程 表

時間：中華民國九十六年七月十四日（星期六）上午 08：40~下午 17：30

地點：慈濟大學 150D 講堂

時 間	議 程	
08:40~09:00	報 到	主持人
09:00~09:10	主席致詞	呂福江 理事長
09:10~10:00	【專題演講】 海龜擱淺死亡之病理研究 及活體處理	澎湖縣家畜疾病防治 所 郭仁政 所長 呂福江 理事長
10:00~10:30	Coffee Break	
10:30~11:00	病例討論 Case 273	彰化基督教醫院 鄧宗瀚 醫師 張俊梁 主任
11:00~11:30	病例討論 Case 274	國立台灣大學獸醫學研究所 陳幼岭 獸醫師
11:30~12:00	病例討論 Case 275	國立中興大學獸醫病理學研究 所 廖俊旺 博士
12:00~13:30	午 餐 (中華民國比較病理學會理監事會議)	
13:30~14:00	病例討論 Case 276	高雄醫學大學附設醫院 吳俊杰 醫師 劉振軒 教授
14:00~14:30	病例討論 Case 277	羅東博愛醫院 施洽雯 主任
14:30~15:00	病例討論 Case 278	國軍桃園總醫院病理檢驗部 張俊梁 主任
15:00~15:30	病例討論 Case 279	國立中興大學獸醫學院診斷中 心 許永祥 主任 張文發 副主任
15:30~16:00	病例討論 Case 280	花蓮慈濟醫院病理科 劉嘉鴻 醫師
16:00~16:30	綜 合 討 論	

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，即成為一般會員，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，每一會員為一權。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，即為出會。
- 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 本會以會員大會為最高權力機構。
- 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。

病 例 摘 要

Case 273：彰化基督教醫院病理科 (Three microphotographs is attached)

The 31-year-old male patient suffered from lower back pain with radiating to left calf and sole numbness for more than six months before admission. He is a factory worker with a history of palate tumor status post excision and chemotherapy in 1996 without known adverse drug reaction. Recently, pain aggravation when sitting, standing, and walking were found in recent several weeks. He went to our OPD for help where T12 compression fracture was shown in the plain film. Mild leukocytosis was also noted. MRI showed diffuse spinal metastases with pathological compression fracture. Under the impression of suspected pathologic T12 compression fracture, T11 ~ L1 posterior spinal instrumentation, T12 laminectomy were performed. Here is the section of specimen taken from T12.

Case 274：國立台灣大學獸醫學研究所 NTU 07-298D

Clinical History: A solid mass measuring 12x 6x 5 cm was noted in the right hindlimb. Amputation was performed and submitted for pathological examination.

Case 275：國立中興大學獸醫病理學研究所 CO 06-260T

Clinical history:

A male SD Rat, 8 wk-old, showed signs of emaciation and large masses were found in the subcutaneous around the neck and thoracic areas.

Case 276：高雄醫學大學附設醫院 (Three microphotographs is attached)

This 77 years old female was a case of bilateral glaucoma post operation about 6 years ago. However, she was suffered from sudden onset blurred vision of right eye since 2 weeks ago. The associated symptom includes headache and fullness sensation of right eye. She came to our hospital and an iris tumor with second glaucoma was impressed. Due to above reasons, she was admitted for surgery management.

Case 277：羅東博愛醫院病理科 LP-07-3079

A 46-year-old woman visit our OPD of general surgery with the chief complaint of

right axillary tumor. Chest X-ray shows negative. Serum levels of CEA, CA15-3, CA19-9 and CA125 were within normal ranges. Stool occult blood shows negative. Clinically, no mass was palpable in the bilateral breasts. No tumor was found in the breast by mammography and ultrasonography. Thyroid ultrasonography shows diffuse goiter. Fine needle aspiration cytology was performed on April 11, 2007..Excisional biopsy were performed on April 17, 2007.

Case 278：國軍桃園總醫院病理檢驗部 Path. no. 71090A

A 68-year-old man visited our hospital due to experiencing pain in the left elbow and shoulder, and difficulty in extending his left wrist for two months. He was robust until two months ago, he suffered from contusion injury over the left elbow and shoulder regions, and then he had received some herbal treatment, but in vain. Unfortunately, the fracture of left humerus under the x-ray examination was told at our Orthopedic Division. Thus, he was admitted further surgical treatment for his humeral fracture and painful disability of left elbow. His past and family history was non-contributory. The wide excision and open reduction with internal fixation with bone graft procedure was performed. The section slide with H&E stain (71090A) submitted showed that the open excisional specimen was taken from the fracture site of left humerus.

Case 279：國立中興大學獸醫學院診斷中心 CS 07-0412

A 7-year old , female domestic short hair cat was presented to the veterinary teaching hospital on October 2006 due to multifocal elevated pigmented masses in some area of her left eye. These pigmented masses expanded in the iris with time. Enucleation of left globe was performed on April 10, 2007 prior to the development of clinical glaucoma.

Case 280：花蓮慈濟醫院病理科 S2005-11584B

This is 50-year-old male suffered from distended headache with neck stiffness about half month ago. Symptoms most happened at night and caused insomnia. He went 奇美 medical center for thorough health survey. Under supratentorium brain CT, 2 masses in right fronto-parietal and occipital region were noted. The size measured 3x3cm and 4x3cm respectively. There was no accompanying neurological symptom. In addition to the brain masses, one tumor measure 4x4 cm in size was found in the right inguinal area. Therefore, he went to our hospital for further treatment. After admission, brain tumor biopsy and inguinal mass biopsy were performed. The slide was from the inguinal mass.

專 題 演 講

海龜擱淺死亡之病理研究及活體處理

澎湖縣家畜疾病防治所

郭仁政^{*}，吳靜芷

摘要

從 1997 到 2006 年，由澎湖群島各海域擱淺通報等途徑而送交澎湖海龜救護收容中心 130 個病例，經過適當的治療處理，成功野放的病例有 89 例(6 例人工圈養)，情況適合等候野放 9 例，仍在觀察的有 6 例，總計能達到救助目的的比率在 75.4 %。死亡數 26 例中含治療無效及無治療價值，另外收集 10 個死亡海龜屍體一併進行病理及病因之研究，總共 36 個解剖病例中，消化道的疾病佔 41.7% (15/36)，有明顯肝臟病變之比率為 13.9%(5/36)，其餘為未能確定病因及病因複雜。寄生蟲感染普遍而嚴重，估計血管內吸蟲 Blood flukes 的感染率在擱淺病龜之中高於 50%；由消化道及其他臟器刮取之組織黏膜共計檢出血液吸蟲蟲卵的病例有 18 件，比率為 50%(18/36)，組織病理切片檢出寄生蟲之比率則為 25%(9/36)，其中有 3 例蟲卵檢查並未檢出。而直接臟器的灌注收集到吸蟲蟲體有 7 例。線蟲的感染有 2 例，均是海獸胃線蟲。但未發現乳突狀纖維瘤 Fibropapilloma 病龜。疾病救助則應講求時效，意外捕獲之急救，掌握第一時間施予必要的處置，多可有效的完成治療。此類病例以困網和魚鉤傷害為代表。而內科疾病部分，因海龜之代謝生理特性，疾病的進行通常呈甚慢性疾病，至病弱漂流狀況時一般已無治療價值，但如果其體能狀況尚可，且保有相當的活力時，以傳統的注射給藥及至恢復進食後改以口服投藥或灌服藥物，是可以達到治療的目的。

關鍵字：澎湖群島，血管內吸蟲，乳突狀纖維瘤

Comparative Pathology Case 273

Contributors:

Dr. Tsung-Han Teng(鄧宗瀚), MD, Dr. Pei-Yi.Chu(朱旆億), MD, Dr. H.M.Chang(張惠媚), MD, Dr.Ren-Hung Huang(黃仁弘), MD, Dr. Hui-Ting Hsu(許惠婷), MD, Dr. Kun-Tu Yen(葉坤土), MD

Department of Pathology, Changhua Christian Hospital, Changhua (財團法人彰化基督教醫院病理科)

Clinical history: The 31-year-old male patient suffered from lower back pain with radiating to left calf and sole numbness for more than six months before admission. He is a factory worker with a history of palate tumor status post excision and chemotherapy in 1996 without known adverse drug reaction. Recently, pain aggravation when sitting, standing, and walking were found in recent several weeks. He went to our OPD for help where T12 compression fracture was shown in the plain film. Mild leukocytosis was also noted. Diffuse spinal metastases with pathological compression fracture were impressed by MRI. Under the impression of suspected pathologic T12 compression fracture, T11 ~ L1 posterior spinal instrumentation and T12 laminectomy were performed.

Diagnosis: Vertebra, T12, laminectomy, metastatic adenoid cystic carcinoma

Gross findings: Bottle A, consists of several bony fragments with few soft tissue fragments measuring up to 1.2x0.8x0.5cm in size, in fresh state. Grossly, they are whitish and elastic.

Bottle B, consists of multiple soft and bony tissue fragments measuring up to 3.8x2x1cm in size. Grossly, they are brownish to reddish and elastic to firm. Representative sections are taken and labeled as follows: A: Bottle A; B: Bottle B

Histopathological findings: it shows metastatic carcinoma composed of tumor cells arranged in solid nest infiltrating in the bony fragment.

Immunohistochemistry: CD117(+), cytokeratin(+), E-cadherin(+), Ki-67(++), progesterone receptor(±), estrogen receptor(-), Vimentin(-), CD56(-), WT(-), CD99(-), LCA(-), NSE(-), chromogranin(-).

Discussion:

Adenoid cystic carcinoma accounts for about 10 percents of all epithelial salivary neoplasm and the most frequent involved site is minor salivary gland, especially the palate (about 50%). The other common sites are listed in decreased order as follows: parotid (21%), submandibular gland (13%), and sinonasal tract (11%).

No obvious gender predominance is noted except for the female predilection appears in submandibular tumor. The peak age is about 5th-7th decades and it rarely occurs in children.

The most common initial presentation is pain or symptoms from cranial nerve lesions, particularly facial nerve palsy, which is due to neural invasion by slowly growing mass. Ulceration of overlying mucosa is also common symptom, especially at the tumor of minor salivary gland.

The tumor is firm, light-tan, well circumscribed, and usually un-encapsulated. However, they are infiltrative on microscopic examination and neural invasion is usually not distinguishable on macroscopic inspection.

Adenoid cystic carcinoma is a basaloid tumor composed of epithelial and modified myoepithelial cells arranged in variable morphologic configurations, including tubular, cribriform and solid patterns, listed in order of the frequency. In the component of myoepithelial cells, they have clear cytoplasm and hyperchromatic angular nuclei at outer layer of ductal or tubular structure with central lumina. In the component of epithelial cells, they form inner layer of duct or tubules.

The cribriform variant of adenoid cystic carcinoma comprises islands or nests of modified myoepithelial cells with microcystic or pseudocystic appearance. Basophilic mucoid or eosinophilic hyaline material is seen within the cystic space due to glycosaminoglycan and reduplicate basement membrane.

The tubular variant is visible double-layered tubular structure with inner layer of eosinophilic, duct-lining cells and outer layer of myoepithelial cells with clear cytoplasm and hyperchromatic angular nuclei.

The solid variant is sheet or nests uniform basaloid cells with large and less angular nuclei. It lacks obvious tubular or cribriform structure. Central necrosis is commonly seen.

Hyalinized or myxoid stroma within adenoid cystic carcinoma is often seen. Neural invasion are frequent character and tumor may extend over a wide area through nerves. Bone invasion may not be detected by radiological examination. Direct lymph node invasion is more frequent than lymphatic spreading.

Polymorphous low-grade adenocarcinoma, pleomorphic adenoma, epithelial-myoepithelial carcinoma, basaloid squamous carcinoma, and small cell carcinoma should be added in the list of the differential diagnosis.

Polymorphous low-grade adenocarcinoma is a malignant epithelial tumor with uniform cytological feature, histologic diversity and infiltrative growth pattern. The most location is palate, similar to adenoid cystic carcinoma. Cells of polymorphous low-grade adenocarcinoma are cuboidal to columnal with round to oval, vesicular nuclei and eosinophilic cytoplasm. Basaloid feature is seldom seen in polymorphous low-grade adenocarcinoma, and papillary or fascicular growth pattern is seldom seen in adenoid cystic carcinoma. Large pseudocystic feature with pool of glycosaminoglycan deposition does not occur in polymorphous low-grade adenocarcinoma. Concentric target-like, single file arrangement pattern around nerves, blood vessel or small duct is seen in polymorphous low-grade adenocarcinoma.

Epithelial-myoepithelial carcinoma is a malignant tumor consisted of two cell types forming duct-like structure. Like adenoid cystic carcinoma, outer layer lining cells of duct is myoepithelial cells characterized by single or multiple layer polygonal cells with well-defined cell border, clear cytoplasm, and vesicular, slightly eccentric nucleus and inner layer lining cells of duct is epithelial cells characterized by single row of cuboidal cells with dense fine granular cytoplasm and central or basal round nucleus. However, adenoid cystic carcinoma is basaloid and the clear cell of adenoid cystic carcinoma is less abundant cytoplasm and hyperchromatic angular nucleus. The clear cells of epithelial-myoepithelial carcinoma are glycogen-rich.

Basaloid squamous cell carcinoma could be like the solid variant of adenoid cystic carcinoma. Basaloid squamous cell carcinoma shows squamous differentiation and usually involves overlying mucosa. The most frequent location of basaloid squamous cell carcinoma is hypopharynx and glottic region, not palate.

Pleomorphic adenoma is an encapsulated benign tumor microscopically characterized by architectural rather than cellular pleomorphism. Epithelial and modified myoepithelial components mingle with mucoid, mycoid or chondroid appearance. It is helpful to make a differential diagnosis.

The epithelial cells of adenoid cystic carcinoma reveal positive for low-molecular weight keratin and epithelial membrane antigen (EMA). The myoepithelial cells of adenoid cystic carcinoma show positive for calponin, SMA, p63, and S100 protein. It is positive in CD117 and E-cadherin staining. The positivity for estrogen and progesterone receptor has been reported.

The 5-year and 10-year survival rates are approximate 62% and 40%, respectively. Most patients die of tumor in 10-15 years after initial diagnosis. Site,

tumor size, stage, histological pattern, bone involvement and margin status are shown to be prognostic factors. The solid type and submandibular site have worse prognosis. The lymph node involvement has been reported in 5-25% patients. The local recurrent rate is 16-85%, especially in first five years after operation. The incidence of distant metastasis ranges from 25-55% and the common metastatic sites are lung, bone, brain, and liver, in the order of frequency. The 5-years survival rate of patients with metastasis is about 20%. The treatment of choice of primary disease is wide or radical excision with or without post-operation radiotherapy. Radiotherapy is helpful in the patients with microscopic residual tumor. The response of radiotherapy with or without chemotherapy in the patients with recurrence or distant metastasis reveals less promising outcome.

Diagnostic criteria:

1. Histopathologic findings:

甲、Outer layer(myoepithelial cells): clear cytoplasm and hyperchromatic angular nuclei

乙、Inner layer(epithelial cells): forming of ducts or tubules

丙、Tubular, cribriform and solid patterns

2. Immunohistochemical stain: cytokeratin(+), CD117(+), E-cadherin(+), Ki-67(+),

References:

1. El-Naggar AK, Huvos AG: Adenoid cystic carcinoma. In: Barnes EL, Eveson JW, Reichart P, Sidransky D, eds. Pathology and Genetics of Head and Neck Tumors. Kleihues P, Sobin LH, series eds. World Health Organization Classification of Tumors. Lyon, France: IARC Press, 2005:221-222
2. Edwards PC, Bhuiya T, Kelsch RD.: C-kit expression in the salivary gland neoplasms adenoid cystic carcinoma, polymorphous low-grade adenocarcinoma, and monomorphic adenoma. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2003 May;95(5):586-93.
3. Garden AS, Weber RS, Morrison WH, et al.: The influence of positive margins and nerve invasion in adenoid cystic carcinoma of the head and neck treated with surgery and radiation. Int J Radiat Oncol Biol Phys 1995;32:619-626.
4. Hamper K, Lazar F, Dietel M, et al.: Prognostic factors for adenoid cystic carcinoma of the head and neck: a retrospective evaluation of 96 cases. J Oral Pathol Med 1990;19:101-107.
5. Juan Rosai: Rosai and Ackerman's Surgical Pathology 9th edition 892-894
6. David J. Dabbs, et al.: Diagnostic Immunohistochemistry 7th 244-245

Comparative Pathology Case 274

Contributors: Yu-Ling Chen (陳幼嶺), DVM; Chun-Ming Lin (林俊明), DVM; Chia-Da Hsu (許家達), DVM; Chen-Hsuan Liu (劉振軒), DVM, PhD

Graduate Institute of Veterinary Medicine, National Taiwan University

Clinical History: A solid mass measuring 12x 6x 5 cm was noted in the right hindlimb. Amputation was performed and submitted for pathological examination.

Diagnosis:

1. Pleomorphic rhabdomyosarcoma, with multiple granulomas associated with exogenous yellow pigment, mass in the right hindlimb.
2. Metastatic rhabdomyosarcoma, right inguinal lymph node

Gross Findings:

The amputated right hindlimb submitted contained a tumor mass measuring 12 x 6 x 5 cm in size. On cut, the mass presented as pale white, red to tan with multiple yellow granules scattered. The margin mass also showed unclear margin, and multiple necrotic, hemorrhagic areas were noted. In addition, a regional lymph node was also submitted. It was swelling and patchy in appearance.

Histopathological Findings:

Sections of the mass excised from right hindlimb contain densely cellular, multilobular, pleomorphic neoplastic cells along with multifocal necrosis. Different groups of neoplastic cells are separated by a thin of fibrous connective tissue and show very different morphologic appearances in various portion of tumor mass. In one section, most tumor cells are elongate with ample, deep eosinophilic cytoplasm and large round to oval open-faced nuclei, and a prominent single nucleolus. Mitotic figures are frequent. Some tumor cells have indistinct cytoplasmic cross-striations. Occasionally, multinucleated neoplastic cells are present; nuclei are occasionally arranged in a linear fashion. It also shows moderate degree of osteolysis and calcification. In addition, multiple foci of granulomas with or without association of amorphous yellow pigmentation are present among the tumor cells. Other areas form tumor mass are also composed of sheets pleomorphic neoplastic cells. There is prominent size and shape variation among the neoplastic cells, which are usually round to polygonal or plump, elongated. They also show deeply eosinophilic

cytoplasm with varying degrees of vacuolization. The number of mitotic figure is very high and it can be greater than 8/HPF in some areas. Multifocal to extensive necrosis, closely associated neutrophils infiltration are also observed herein. In the border of the tumor growth, it shows no distinct margin with peripheral tissue and tumor cell expanding is noted.

The inguinal lymph node submitted reveals tumor cell metastasis, chiefly in the region of subcapsular sinus. Proliferating tumor cells are usually aggregated in dense and show distinct cellular border. Sometime, individual one or two tumor cells are scattered. These tumor cells are round to polyhedral and containing larger amounts of cytoplasm. Mitotic figures are common.

Immunohistochemical stain:

Results of immunohistochemistry staining of desmin and myoglobin reveal that the tumor is myogenic.

Diagnostic Criteria:

1. In H&E sections, pleomorphic neoplastic cells with deep eosinophilic cytoplasm and large round to oval open-faced nuclei, and a prominent single nucleolus are noted. Some tumor cells have indistinct cytoplasmic cross-striations. Occasionally, multinucleated neoplastic cells are present.
2. The tumor cells in right hindlimb mass and right inguinal lymph node show Cytokeratin (-); Vimentin (+); Desmin (+); Myoglobin (+).

Discussion:

Rhabdomyosarcomas are malignant neoplasms that arise from striated skeletal muscle or a striated muscle progenitor cell. These tumors are highly invasive and tend to metastasize early and disseminate widely. Common sites of metastasis are lymph nodes, lung, heart, spleen, adrenal glands, kidneys, and skeletal muscle. Classification of rhabdomyosarcomas is also similar in humans and animals, include of embryonal, alveola and pleomorphic rhabdomyosarcoma. Pleomorphic rhabdomyosarcoma is the least commonly reported variant in humans and animals, characterized microscopically by pleomorphic myoblasts without any similarities to the embryonal or alveolar variants. These have been reported in dogs and horses. The diagnosis of rhabdomyosarcomas is often difficult on light microscopy. Distinctive features of striated muscle may not be evident microscopically (i.e., cytoplasmic cross striations on H&E and PTAH stained sections); however, if present, they are reliably diagnostic. Another feature of many tumors of myoid origin is the presence of eosinophilic granular cytoplasm, which may contain intracytoplasmic glycogen that is demonstrable on PAS staining. Immunohistochemistry is often

useful in diagnosing striated muscle neoplasms, which are typically immunoreactive for vimentin, desmin, muscle specific actin, sarcomeric actin, and myoglobin, with no immunoreactivity to cytokeratin and smooth muscle actin.

References:

- 1.Cooper BJ, Valentine VA. Tumors of Muscle. In: Meuten DJ, ed. Tumors of domestic animals. Ames, IA: Iowa State Press; 2002.
- 2.Meyerrholz DK, Caston SS, Haynes JS. Congenital fetal rhabdomyoma in a foal.Vet Pathol. 2004;41:518-520.
- 3.Brockus CW, Myers RK. Multifocal rhabdomyosarcomas within the tongue and oral cavity of a dog. Vet Pathol. 2004;41:273-274

Comparative Pathology Case 275

Slide code: CO06-260, GIVP, NCHU

Contributors:

Shi-Jan Chang (張熙展), DVM¹, Shih-Chieh Chang (張仕杰), DVM, PhD², Ko-Hwa Uei (於國華), MS³, Kung-Chi Chan (詹恭巨), PhD³, Cheng-Chung Lin (林正忠) DVM, PhD candidate¹, Shih-Ling Hsuan (宣詩玲), DVM, PhD¹, Maw-Sheng Chien (簡茂盛), DVM, PhD¹, Wei-Cheng Lee (李維誠), DVM, PhD¹, Cheng-I Liu (劉正義), DVM, PhD¹, Jiunn-Wang Liao (廖俊旺) DVM, PhD^{1,*}

1. Graduate Institute of Veterinary Pathology, National Chung Hsing University (中興大學獸醫病理學研究所)
2. Department of Veterinary Medicine and Veterinary Medical Teaching Hospital, National Chung Hsing University (中興大學獸醫系暨附設動物醫院外科腫瘤部)
3. Department of Food and Nutrition, Providence University (靜宜大學食品營養學系)

Clinical history:

A male SD Rat, 8 wk-old, showed signs of emaciation and large masses were found in the subcutaneous around the neck and thoracic areas.

Diagnosis:

Fetal rhabdomyosarcoma, pleomorphic type, neck to thoracic cavity, SD rat.

Gross findings:

Grossly, two masses had grown from the left neck into thoracic cavity. They were well circumscribed with large blood vessels supplying on the surface. The tumor mass on the neck grown involved into muscular layer, and the mass on the thoracic cavity seemed encapsulated with thin fibrous membrane. The mass on the neck area was measured 2.2 x 1.8 x 2.0 cm and the other one in thoracic mass was smaller than that of the neck's which compressed adjacent the apex of heart, but did not infiltrate. On cut surface, masses were firmness, whitish to tan with necrotic and hemorrhagic plaques.

Staining methods:

The masses were fixed in 10% neutral buffered formalin. Tissues were embedded in paraffin and sections were stained with hematoxylin and eosin (H&E) stain routinely. Additional sections were histochemically stained with Masson Trichrome (MT), phosphotungstic acid-hematoxylin (PTAH), and periodic acid Schiff (PAS) methods. Immunohistochemistry was performed on deparaffinized using antibodies of Desmin (1:4, Signet, Schaffhausen, Switzerland) and α -smooth muscle actin (SMA, Clone IA4, 1:100, Dako, CA) for 2 hours at room temperature. After that, slides were incubated in biotinylated secondary antibody (anti-mouse IgG antibody, 1:1000) for 45 min and followed by DAB substrate (Vectastain ABC kit, Dako, CA) for 30 min, and then were counterstained with Mayer's hematoxylin (Sigma, St. Louis, MO, USA) for 3 min.

Histopathological findings:

Microscopically, the mass was composed of multiple nodules of tumor cells that were incompletely encapsulated with fibrous connective tissue. At the thoracic mass, the borderlines of tumor were indistinct, with tumor cells admixed with normal skeletal muscle cells. The tumor cells consisted of large polygonal cells forming sheets and divided by thin, fibrous septa with numerous small vascular vessels. The tumor cells exhibited vary forms from spindle form to globoid with minimal to abundant eosinophilic cytoplasm. The nuclei of tumor cells were localized either centrally or peripherally with numerous large multinucleated cells. Some of multinucleated cells contained with peripheral vesicles around nuclei with prominent nucleoli. These tumor cells appeared vacuoles might be due to intracellular glycogen have been removed during processing. Mitotic figures and necrotic foci were found in the tumor masses. Striations were also presented in some tumor cells.

Histochemistry results:

Fibrous connective tissue was positive stained with MT staining on the peripheral of tumor mass but negative in the central spindle form tumor cells. The tumor cells exhibited some cross-striation in the cytoplasm using PTAH staining. Some tumor cells with peripheral vesicles located around nuclei and these vacuoles showed reddish staining by the PAS method.

Immunohistochemistry Results:

The tumor cells also expressed intense granular cytoplasmic staining for

Desmin, while α - smooth muscle actin was negative.

Discussion:

Rhabdomyosarcomas as malignant tumors of striated muscle, and were classified as embryonal, botryoid, alveolar, and pleomorphic types. The accurate classification of these tumors in human is prognostically important. The best outcomes are botryoid type and the worst with alveolar type. For the differential diagnosis, the spindle form tumor cells were negative stained with MT staining, and the encapsulated fibrous connective tissue was strong positive stained with MT on the peripheral of tumor mass, indicating that tumor cells were not came from fibroblasts. Differentiated diagnosis of cross striation in the rhabdomyosarcoma is rarely recognized. However, it could be easily demonstrated by PTAH in this case. Multinucleate giant cells are commonly observed (Cooper and Valentine, 2002). Many of the tumor cells are vacuolated and might as a result of the presence of glycogen that was removed during processing. In this case, the vacuoles showed reddish staining by the PAS method, and reconfirmed as a glycogen rich substance. The observations in this rat and those in published reports suggest that rhabdomyosarcomas in young rats are distinct entities, characterized by very low incidences and a high degree of differentiation.

Spontaneous fetal rhabdomyomas and rhabdomyosarcomas are rare in human and laboratory rats. These neoplasms occur mainly in the subcutaneous tissue in the head and neck region that same as in this case. Histologically, they are composed of primitive muscle fibers, or myotubes (Cooper and Valentine, 2002). They are two types of tumors have been classified as cardiac and extracardiac rhabdomyomas. In laboratory rats, it happen seems relate to strain and age differences. There were two reports of rabdomyosarcomas in young Sprague-Dawley rats (4 and 8 week-old) (Glaister, 1981) and one reported spontaneous rhabdomyosarcoma in a young (9 wk-old) Sprague-Dawley rat by Conner MW. in 1994. In our case here also reported a rare rhabdomyosarcoma in a young (8 wk-old) Sprague- Dawley rat. The higher incidence of rhabdomyosarcoma in older rats is in contrast to the young rats. However, only six rhabdomyosarcomas were 7,818 Fisher 344 rats (0.08%) from control groups in 79 carcinogenicity studies reported by the National Toxicology Program (Haseman et al., 1990). In a historical control data of non-neplastic and neoplastic lesions of 696 rats showed the morbidity of rhabdomyosarcoma and was 0.1% in F344/DuCrj rats (Iwata et al., 1991). The spontaneous neoplasms in control Wistar rats had shown that rhabdomyosarcoma were 0.15% in males and 0.29% in females from 10 carcinogenicity bioassays (Walsh and Poteacki, 1994).

In human, only 2% of all skeletal muscle tumors (Weis et al., 2001). Most extracardiac rhabdomyomas are located in the head and neck region (Hansen and Katenkamp, 2005), but a genital type of rhabdomyoma has been reported in the paratestis in a young adult (Davies et al., 2007). The pathogenesis of rhabdomyomas has been studied by Meikle et al. (2005). They proposed that loss of Tsc1 in the ventricular myocytes during gestation period in mouse compared with humans, and progesterone might accentuate the growth of patients rhabdomyoma. In adult rhabdomyomas, these tumors favor the head and neck regions, because they arise from the musculature of the third and fourth branchial arches. They presented were benign tumor. Cross-striation was hardly observed in the H&E staining section, but it was demonstrated by PTAH staining.

Adult rhabdomyosarcomas displayed SMA and desmin positive in the tumor cells; however, negative of α -smooth muscle actin and positive in desmin and it was recognized as a fetal rhabdomyosarcoma in this case. It has been reported that rhabdomyomas in human were positive stained with α -muscle specific actin, desmin, and myoglobin while dystrophin was expressed in the membranes. Immunohistochemistry confirms that the tumors are almost totally mature neoplasms of clone myogenic origin (Sorensen et al., 2006). However, rhabdomyoma was negative for S-100 and concerned the differential diagnosis with granular cell tumor (Hansen and Katenkamp, 2005). Finally, the differential diagnosis of rhabdomyosarcoma should be considered in the neck and thoracic areas in young animals.

Diagnostic criteria:

3. Histopathologic findings: The tumor cells varied from spindleform to varied globoid with minimal to abundant eosinophilic cytoplasm. The nuclei of tumor cells were localized either centrally or peripherally with numerous large in size and multinucleated cells. Striations were present in some tumor cells.
4. Special staining: The tumor cells exhibited some cross-striation in the cytoplasm using PTAH staining. Some tumor cells with peripheral vesicles located around nuclei and the vacuoles showed reddish staining by the PAS method. The tumor cells also expressed intense granular cytoplasmic staining for Desmin while α -smooth muscle actin was negative.

Acknowledgments

The authors would like to thank Hue-Ying Chiou (邱慧英), DVM, MS and Mrs. Sheu-Jeng Wang (王 真), Division of Animal Medicine, Animal Technology Institute Taiwan for providing technical assistance.

References:

1. Conner MW. Spontaneous rhabdomyosarcoma in a young Sprague- Dawley rat. Vet Pathol 31: 252-254, 1994
2. Cooper BJ, Valentine BA: 6. Tumors of muscle, In: Donald J. Meuten. Tumors in Domestic Animals, Fourth edition. Iowa State Press, pp. 340-357, 2002
3. Davies B, Noh P, Smaldone MC, Ranganathan S, Docimo SG: Paratesticular rhabdomyoma in a young adult: case study and review of the literature. J Pediatr Surg 42, E5–E7, 2007
4. Glaister JR: Rhabdomyosarcoma in a young rat. Lab Anim 15: 145-146, 1981.
5. Hanseman JK, Arnold J, Eustis SL: Tumor incidences in Fisher 344 rats: NTP historical data. In: Pathology of the Fisher rats, ed., Boorman GA, Eustis SL, Elwell MR, Montgomery CA, and MacKenzie WF, pp. 555-564. Academic Press, San Diego, 1990.
6. Hansen T, Katenkamp D: Rhabdomyoma of the head and neck: morphology and differential diagnosis. Virch Arch, 447: 849–854, 2005.
7. Iwata H, Hirouchi Y, Koike Y, Yamakawa S, Kobayashi K, Yamamoto T, Kobayashi K, Inoue H, Enomoto M: Historical control data of non-neoplastic and neoplastic lesions in F344/DuCrj rats. J Toxicol Pathol 4: 1-24, 1991.
8. Karnak I, Alehan D, Ekinci S. Case report: Cardiac rhabdomyoma as an unusual mediastinal mass in a newborn. Pediatr Surg Int 2007
9. Meikle L, McMullen JR, Sherwood MC, Lader AS, Walker V, Chan JA, Kwiatkowski DJ: A mouse model of cardiac rhabdomyoma generated by loss of Tsc1 in ventricular myocytes. Human Mol Gene, 14: 429–435, 2005.
10. Minato Y, Takada H, Yamanaka H, Wada I, Takeshita M, Okanjwa A: Spontaneous Rhabdomyosarcoma in a Young Rat. Jpn J Vet Sci 45: 837-842, 1983
11. Sørensen BK, Godballe C, Østergaard B, Kroghdahl A: Adult extracardiac rhabdomyoma: light to immunohistochemical studies of two cases in the parapharyngeal space. Head Neck 28: 275-279, 2006.
12. Tageldin MH, Elamin MAG: Observations on a Spontaneous Rhabdomyosarcoma in a rat (*Rattus norvegicus*). Lab Anim 15: 355-357, 1981
13. Walsh KM, Poteracki J: Spontaneous neoplasms in control Wistar rats. Fund Appl Toxicol 22: 65-72, 1994.

Comparative Pathology Case 276

Contributors:

Chun-Chieh Wu (吳俊杰), MD; Sheng-Lan Wang(王勝嵐), MD

Department of Pathology, Kaohsiung Medical University Hospital (高雄醫學大學附設醫院病理科)

Clinical History: This 77 years old female was a case of bilateral glaucoma post operation about 6 years ago. However, she was suffered from sudden onset blurred vision of right eye since 2 weeks ago. The associated symptom includes headache and fullness sensation of right eye. She came to our hospital and an iris tumor with second glaucoma was impressed. Due to above reasons, she was admitted for surgery management.

Diagnosis: Adenocarcinoma, metastatic, iris, eye

Gross Findings: The specimen submitted from iris consists of 1 tissue fragment in 1 bottle, measuring 0.3 x 0.2 x 0.1 cm. in size, fixed in formalin. Grossly, it is grayish and elastic.

The specimen submitted form CT-guided biopsy of lung consist of 5 tissue fragments in 2 bottles measuring up to 1.0 x 0.1 x 0.1 cm in size, fixed in formalin. Grossly, they are grayish and elastic.

Histopathological findings:

Microscopically, it shows aggregated papillary structures lined by cuboidal cells with hobnail appearance and exhibiting pleomorphism, hyperchromatism and increased mitotic rate (1-2/HPF). Histopathologically, it is compatible with carcinoma.

The specimen from CT-guided biopsy of lung show infiltrating cancer cells arranged in distorted glandular or bronchioloalveolar pattern. These cancer cells are hyperchromatic, pleomorphic and occasionally have hobnail appearance.

Immunohistochemistry:

Iris tumor: The immunohistochemical study demonstrates: CK(+), TTF-1(+), HMB-45(-).

Lung mass: The immunohistochemical study demonstrates: TTF-1(+), thyroglobulin(-).

Discussion: In our case, histology of the iris nodules, which had an unusual clinical

appearance for granulomas, demonstrated malignant cells of possible pulmonary origin. In Shields' retrospective study of 40 patients with iris metastatic tumors, breast (40%) and lung (28%) carcinomas are the most common causes of iris metastases. When the iris metastasis was made, 32% of patients had no history of primary cancer. On subsequent examination, 46% of these patients were found to have lung cancer. In a serial case report of 6 Chinese uveal metastases patients, lung cancer is the most primary tumor and followed by hepatic carcinoma.

Metastatic cancer to the iris is by hematogenous routes. The diagnosis of iris metastasis was based on the previous history of cancer, other systemic metastasis, and the clinical features of the iris lesion. Iris metastasis is characterized by a friable, yellowish-gray nodule that liberates tumor cells into the anterior chamber, which can simulate an inflammatory process and lead to secondary glaucoma. The iris metastases originated from skin melanoma were brown, and lung carcinoid tumor and renal cell carcinoma, which were orange.

The main complications of patients with iris metastases were blurred vision, ocular pain, redness, visible iris nodules and photophobia. Secondary glaucoma was present in about 40% of patients. The mechanism of increased intraocular pressure appeared to be involvement of the anterior chamber angle by solid tumor or loose seeding of tumor cells or bleeding in the anterior chamber, causing obstruction of aqueous outflow. Other ocular findings included irregular pupil and hyperemia.

The treatment of iris metastasis depends on several factors. If patients have widespread systemic metastasis and the affected eye is relatively asymptomatic, immediate treatment is not necessary. Chemotherapy seems to be helpful in local tumor control. External beam radiation and plaque brachytherapy have been the most acceptable methods. Local removal for some solitary metastasis mass by iridectomy may be an option.

This case illustrates that iris metastasis can be the sign of lung carcinoma or other malignancy. When a patient presents with decrease vision, ocular pain or discomfort, characteristic iris nodules, iris metastasis should be considered and the patient should received serial systemic survey for primary cancer or metastatic disease.

Diagnostic criteria:

papillary structures lined by cuboidal cells with hobnail appearance and exhibiting pleomorphism, hyperchromatism.

The immunohistochemical study demonstrates: CK(+), TTF-1(+), HMB-45(-).

Reference:

1. Shields J. Survey of 520 uveal metastases. *Ophthalmology* 1997; 104: 1265-67.
2. RF Sui. Metastatic tumor to the iris and ciliary body as an initial sign of lung cancer: a case report. *Chinese Medical Journal* 2005; 118(13): 1131-3.
3. H. Nida Sen, Chi-Chao Chan, et al. Occult primary carcinoma metastatic to the iris. *Acta Ophthalmol. Scand.* 2004; 82: 746–747.

Comparative Pathology Case 277

Contributors: Chia-Wen Shih (施洽雯), Chu-The Chen (陳朱德)

Department of Pathology, Lotung Pohai Hospital.(羅東博愛醫院病理科)

Clinical History: A 46-year-old woman visit our OPD of general surgery with the chief complaint of right axillary tumor. Chest X-ray shows negative. Serum levels of CEA, CA15-3, CA19-9 and CA125 were within normal ranges. Stool occult blood shows negative. Clinically, no mass was palpable in the bilateral breasts. No tumor was found in the bilateral breasts by mammography, ultrasonography and MRI. Thyroid ultrasonography shows diffuse goiter. Fine needle aspiration cytology was performed on April 11 , 2007.. Excisional biopsy were performed on April 17 , 2007.

Diagnosis: Axillary lymph node metastasis from an occult breast cancer.

Gross Findings: The specimen submitted consisted of a large fatty tissue measuring 10.0 x 5.0 x 5.0 cm with two tumor nodules measuring 3.5 x 2.5 x 2.0 and 2.1 x 1.5 x 1.0 cm. The tumor nodules were grayish-brown in color and elastic firm in consistency.

Cytologic Findings: Clusters and individual neoplastic epithelial cells are noted. The neoplastic epithelial cells show irregular in size and shape with median-sized and hyperchromatic nuclei, distinct nucleoli and moderate amount of cytoplasm.

Histopathologic Findings: The tumor nodules show lymph nodes with nests of neoplastic epithelial cells. The neoplastic epithelial cells are irregular in size and shape with median-sized and hyperchromatic nuclei, frequent mitoses, inconspicuous or distinct nuclei and moderate amount or scanty cytoplasm. No significant ductal structure nor glandular structure is noted. Some of the tumor nests show central necrosis.

Immunohistochemical Study: Immunohistochemical stain was performed by PAP (peroxidase-anti-peroxidase) method and eight makers were used. The metastatic neoplastic epithelial cells were positive for GCDFP-15, ER, PR CK7 and CEA , but were negative for CK20, Her-2 and TTF-1.

Discussion: A carcinoma found in the axillary lymph node may be caused by primary carcinoma of heterotopic epithelial tissue or by metastatic neoplasm. Carcinomas arising in the heterotopic epithelial tissue should accompany the pre-existing non-neoplastic component and the ectopic tissue. In our case, no heterotopic epithelial tissue was noted in the axillary lymph nodes.

Occult breast cancer is defined as carcinoma in an axillary lymph node with histology compatible with a breast carcinoma but with no evidence of a primary tumor in the breast. In 1907, Halsted first described two patients with “extensive carcinomatous involvement of the axilla” due to occult breast cancer. Occult breast cancer is uncommon and accounting for about 0.3~1% of all breast cancer cases. Aside from breast cancer, many other carcinomas have been shown to metastasize to axillary lymph nodes. The most common of these include lung, thyroid, stomach, colorectum and pancreas. Once a diagnosis of metastatic carcinoma on an axillary lymph node has been made in a female patient, there is a tendency to subject the patient to an exhaustive investigation. However, most of these additional tests failed to identify the primary carcinoma. Kemeny et al. reported that further diagnostic work-up was unnecessary. A thorough history, physical examination, screening blood work and chest x-ray are sufficient for locating other potential primary sites of carcinoma.

ER/PR are not specific for breast carcinoma, however, ER/PR analysis should be performed for two reasons. Positive findings are suggestive of breast cancer and these occur in approximately 50% of females. Negative ER/PR do not exclude the diagnosis of breast cancer. It is important to remember that other malignancies (e.g. colon, ovary, endometrium, kidney and melanoma) may demonstrate detectable ER/PR activity. ER/PR are absent in ductal carcinoma of salivary glands. The second reason for obtaining ER/PR studies on the initial biopsy is that a primary tumor may never be identified or, if found, may be so small as to render ER/PR assay impracticable. Tumor marker studies such as CEA can also contribute to a more reliable diagnosis. CEA especially the clone CD66e typically reacts strongly and diffusely with ductal carcinoma of breast. Immunohistochemical stains for CEA, ER and PR are recommended for the diagnosis of breast cancer. CEA and ER are not specific for breast carcinoma, but their positivity unequivocally supports the diagnosis of metastatic breast cancer.

GCDFF-15 is originally described by Pearlman and colleagues and Haagensen and associates. Which is found in breast, acinar structures of salivary glands, apocrine glands and sweat glands of skin. It has been reported that GCDFF-15 is specific and sensitive for breast carcinoma with more than 90% and 50 % respectively. Salivary

gland carcinomas and skin adnexal carcinomas also show positive staining for GCDFP-15.

There have been reported that primary breast carcinoma could not be identified in some radical mastectomy specimens. A primary breast carcinoma will be not found in the specimen in one-third of the cases in the western literature and 16.3% in Japan. Occult breast cancer demonstrated an 8–20% incidence of *in situ* cancer as the primary lesion and this is in contrast to the reported 1% incidence of axillary metastases in series of non-palpable *in situ* carcinoma of the breast. Kyokane et al. reported that the primary tumors of non-palpable breast cancer presenting as an axillary mass were smaller than 5 mm in 19 of 62 cases, and 9 of 72 cases were intraductal carcinoma with or without minimal invasion. Little has been reported on spontaneous regression of the tumor of breast cancer.

It is controversial for the treatment of occult breast cancer. Traditionally, the first choice of treatment for these patients was radical or modified radical mastectomy. Most groups have shown long-term survival with mastectomy to be at least comparable with that for node-positive palpable breast cancer, even when no primary is found in the mastectomy specimen. Recent studies have suggested that there was no statistically significant difference in outcome between mastectomy and breast conservative treatment such as partial resection and/or radiation and/or chemotherapy. In recent years, radiation treatment has been an alternative to mastectomy.

The overall 10 year survival for patients with occult breast cancer is 50–71%. Survival has not been shown to be dependent on whether the primary cancer is found in the mastectomy specimen. Both the nodal and ER status have been shown to be the major prognostic variables. In the absence of good prospective randomized data, it is reasonable to treat these patients similarly to other patients with node-positive and palpable breast cancer, with adjuvant chemo-endocrine therapy.

Diagnostic criteria:

1. Carcinoma in an axillary lymph node with histology compatible with a breast carcinoma but with no evidence of a primary tumor.
2. The immunohistochemical stain shows positive for GCDFP-15, ER, PR CK7 and CEA , but negative for CK20 and TTF-1.

References:

1. Halsted WS. The result of radical operations for the cure of carcinoma of the breast.
Ann Surg 1907; 46:1–19.
2. Owen HW, Dockerty MB, Gray HK. Occult carcinoma of the breast. *Surg Gynecol Obstet* 1954; 98:302–8.
3. Baron PL, Moore MP, Kinne DW, Candela FC, Osborne MP, Petrek JA. Occult breast cancer preserving with axillary metastases: updated management. *Arch Surg* 1990; 125:210–4.
4. Kyokane T, Akashi-Tanaka S, Matsui T, Fukutomi T. Clinicopathological characteristics of non-palpable breast cancer presenting as an axillary mass. *Breast Cancer* 1995; 2:105–12.
5. Edlow CW, Carter D. Heterotopic epithelium in axillary lymph nodes: report of a case and review of the literature. *Am J Clin Pathol* 1973; 59:666–73.
6. Copeland EM, McBride CM. Axillary metastases from unknown primary sites. *Ann Surg* 1973; 178:25–7.
7. Kemeny MM, Rivera DE, Terz JJ, Benfield JR. Occult primary adenocarcinoma with axillary metastases. *Am J Surg* 1986; 152:43–7.
8. Iglehart JD, Ferguson BJ, Shinleton WW, Sabiston DC, Silva JS, Fetter BF, et al. An ultrastructural analysis of breast carcinoma presenting as isolated axillary adenopathy. *Ann Surg* 1982; 196:8–13
9. Bhatia SK, Saclarides TJ, Witt TR, Bonomi PD, Anderson KM, Economou SG. Hormone receptor studies in axillary metastases from occult breast cancers. *Cancer* 1987; 59:1170–2.
10. Grunfest S, Steiger E, Sebek B. Metastatic axillary adenopathy: use of estrogen receptor protein as an aid in diagnosis. *Arch Surg* 1978; 113:1108–9.
11. Haupt HM, Rosen PP, Kinne DW. Breast carcinoma presenting with axillary lymph node metastases: an analysis of specific histopathologic features. *Am J Surg Pathol* 1985; 9:165–75.

-
12. Patel J, Nemoto T, Rosner D, Dao TL, Pickren JW. Axillary lymph node metastasis from an occult breast cancer. *Cancer* 1981; 47:2923–7.
 13. Rosen PP. Axillary lymph node metastases in patients with occult noninvasive breast carcinoma. *Cancer* 1980; 46:1298–306.
 14. Ozzello L, Sanpitak P. Epithelial stromal junction of intraductal carcinoma of the breast. *Cancer* 1970; 26:1186–98.
 15. Ellerbroek N, Holmes F, Singietary E, Evans H, Oswald M, McNeese M. Treatment of patients with isolated axillary nodal metastases from an occult primary carcinoma consistent with breast origin. *Cancer* 1990; 66:1461–7.
 16. Vilcoq JR, Calle R, Ferme F, Veith F. Conservative treatment of axillary adenopathy due to probable subclinical breast cancer. *Arch Surg* 1982; 117:1136–8.

Comparative Pathology Case 278

Contributors:

Junn-Liang Chang (張俊梁), MD, PhD¹; Sheng-Tsai Hung (洪生財), MD²
; Lai-Fa Sheu (許來發)³, MD, PhD; Huan-Chu Lo (羅煥鉅)⁴ MD.

- ¹Department of Pathology and Laboratory of Medicine, ²Department of Orthopedic Surgery, ³Division of diagnostic Radiology, Taoyuan Armed Forces General Hospital, Lontang Township, Taoyuan County (國軍桃園總醫院 ¹病理檢驗部, ²骨科, ⁴放射科)
3. Department of Pathology, Tri-Service General Hospital, Taipei (三軍總醫院 病理部)

Clinical history: A 68-year-old man visited our hospital due to experiencing pain in the left elbow and shoulder, and difficulty in extending his left wrist for two months. He was robust until two months ago, he suffered from contusion injury over the left elbow and shoulder regions, and then he had received some herbal treatment, but in vain. Unfortunately, the fracture of left humerus under the x-ray examination was told at our Orthopedic Division. Thus, he was admitted further surgical treatment for his humeral fracture and painful disability of left elbow. His past and family history was non-contributory. In admission, physical examination, local tenderness and swelling with deformity over the left elbow region noticed. Tenderness over the left lateral supracondylar region with limitation of movement found. The X-ray plan film of left humerus revealed fracture. In laboratory, the serum level of alpha-fetoprotein was 90.07 mg/dl, C-RP was 0.224 mg/dl, CEA was 1.6 ng/ml, and CPK level was 90 U/L, HBS-Ag was 138 S/N, anti-HBS Ab was non-reactive, and the others were no significant results. Abdominal sonography displayed mid to moderate fatty liver. CT scan of abdomen without IV contrast demonstrated a suspected low density focus about 5 cm in diameter of segment 6 of liver, and a highly suspected metastatic nodule with 1.7 cm in diameter of spleen found. The whole body bone scan showed that demonstrated increased TC-99m MDP uptake in the left humerus and lateral portion of right ribs. The imaging study displayed highly suspicious of bony metastasis from a primary tumor of the liver. The motor nerve conduction study (NCS) revealed reduced compound motor action potential amplitude (CMAP) for the left radial nerve and the sensory NCS indicated a mildly prolonged distal latency in the left median nerve. Subsequently, the wide excision and open reduction with internal fixation

with bone graft procedure was performed. The section slide with H&E stain (71090A) submitted showed that the open excisional specimen was taken from the fracture site of left humerus.

Diagnosis: Hepatocellular carcinoma (HCC) with bony metastasis of left humerus. (Suggestive of multiple metastases, humeral, ribs and spleen?)

Gross findings : The specimen submitted consisted of six small pieces of soft tissue fragments and bony fragments with brown in color and soft to firm and hard in consistency. They measured up to 4 by 1 by 0.5 cm in the largest one fragment.

Histopathological findings: Microscopic examination showed that the excisional biopsied humeral mass revealed a metastatic carcinoma composed of closely packed glands, tubular-acinar pattern focally, a typical trabecular and sinusoid patterns of growth. These tumor cells showed hyperchromatism, nuclear atypicity with vacuolated cytoplasm, and focal bile-like production by tumor cells. In addition, there also present marked bony destruction and peripheral soft tissue invasion.

Immunohistochemical analysis: These tumor cells showed that demonstrated positive immunoreactivity for pan-CK, CK18, AFP, and CEA stain. However, tumor cells were negative for PSA, HMB45, S-100 protein, TTF1 and CLA stains. There were also variable positive staining for PAS and negative for mucin stain.

Discussion: HCC is a common cancer in China and in other Asian countries or in South Africa areas. Carcinogenesis of HCC is a multi-factors, multi-steps and complexes process, which is associated with a background of chronic and persistent infection of hepatitis B virus (HBV) and hepatitis C virus (HCV). Bone metastasis is an unusual complication of HCC. Bone metastases of HCC) are although rare. HCC should always be considered in the differential diagnosis of bone metastases. HCC metastasizing to bones and soft tissues of extremities is an unusual occurrence. In the previous study showed that the most common sites for bone metastases were the vertebrae followed by the femur, pelvis, ribs, skull and humerus in that order. Determination of the primary site of a metastatic adenocarcinoma relies on a combination of clinical, radiological, and pathological features. Most adenocarcinomas do not have specific histological characteristics.

Patients with extrahepatic metastases had more advanced intrahepatic tumors at the first diagnosis of HCC, 73.8% of the patients with extrahepatic metastases had tumors of intrahepatic tumor stage T3 or T4 according to the TNM classification,

while only 28.5% of the patients without extrahepatic metastases had tumors of T3 or T4. Vascular invasion was also investigated at the first diagnosis of HCC more frequently in the patients with extrahepatic metastasis. The frequent metastatic sites were lungs (37%-70%), bone (38.5%), and lymph node (23%-45%). Other metastatic locations were the adrenal gland, peritoneum, skin, brain and muscle. Extrahepatic spread to bones with primary HCC is rarely encountered with an incidence of bone metastases of 2%-13%. Osteolytic bone lesion, a characteristic finding could be due to metastatic HCC. Osteolytic bone lesions are frequently encountered in the ribs, spine, femur, pelvis and humerus.

Immunohistochemical analysis with the use of antibodies directed against specific cytokeratin (CK) types and tissue-specific antigens may suggest a primary site. In this case, the tumor cells expressed neither markers of prostatic origin (prostate-specific antigen, prostatic acid phosphatase) nor those of lung origin (thyroid transcription factor 1, TTF1), two of the more common primary sites of bony metastases in men. When tumor cells expressed neither CK 7 nor CK20, a profile often (but not exclusively) associated with prostate, kidney, or liver tumors. Alpha-fetoprotein (AFP) is a relative specific but rather insensitive marker for hepatocellular differentiation being present in only one quarter of cases. Because no specific primary site was found, this tumor would seem to belong in the 10 percent of bony metastases classified as "adenocarcinoma of unknown primary."

When the possibility of HCC was raised, immunohistochemistry (IHC) for the strongly relatively hepatocyte-specific Hep Par 1 antigen and carcinoembryonic antigen (CEA) were detected. Both tests were positive, and the CEA pattern was typical of HCC. HCC have been also investigated defined by the use of antibodies that recognize only CK 8 and 18. Thus, by communicating and integrating the clinical and pathological features of the tumor, the oncologist and pathologist were able to render a specific diagnosis of metastatic HCC.

Immunohistochemical markers have variable specificity and sensitivity, and the pathologist must order and interpret these tests with caution. Web sites containing immunohistochemical profiles of a variety of tumor types serve as a useful resource for those evaluating a tumor of unknown origin. Nevertheless, the limitations of IHC sometimes frustrate the pathologist's attempts to assign a primary site. In this case, the clinical history and radiologic features alerted the oncologist to the possibility of metastatic HCC, a rare tumor that does not typically give rise to bony metastasis and that thus would not likely have been considered by the pathologist who originally reviewed the biopsy specimen.

Previous reports of unsuspected or occult metastatic HCC in patients with osteolytic lesions diagnosed by fine needle aspiration cytology are described. There are also very few reports of bone metastases of HCC in bones of upper and lower

limbs. Similarly, metastases of HCC to soft tissues and especially to soft tissues of upper and lower extremities are extremely rare, and again may represent the first manifestation of primary disease.

Although some advances have been achieved in the diagnosis and treatment of HCC, the long-term outcome for patients with HCC is still very poor. The prognosis for HCC depends mainly on the clinicopathological characteristic regarding invasive and metastatic features.

Treatment modalities have included surgical resection, trans-hepatic arterial embolization or chemoembolization (TACE), radiation, systemic and local chemotherapy, and hepatectomy followed by transplantation. Systemic chemotherapy has been studied extensively in patients with HCC and has not improved survival. The overall median survival of untreated HCC is about 4 months and the overall 5-year survival rate in the US is only 3%. The presence of bone metastases in HCC at presentation is extremely rare. The major causes of death are hepatic failure, infection and gastrointestinal bleeding. More frequently, bone lesions are observed after successful treatment of the primary liver tumor. Both surgery and radiotherapy are used as palliative treatment in bone metastases of HCC. Reports have suggested that patients with HCC with bone metastases do well and show long survival after hepatectomy and radiotherapy of bone metastases.

In present case of both bone and soft tissue metastases with unknown primary, systematic pathologic analysis especially the use of a comprehensive IHC panel is essential to allow determination of site of primary, and especially in tumors such as HCC which only rarely metastasize to these sites. The use of IHC in detection of known primary is well evident in both the unusual cases described above.

Diagnostic criteria:

Histopathological findings: The metastatic lesion demonstrated the typically characteristics of histopathological features of HCC morphologically and clinical findings.

Special staining: Immunohistochemical study showed positive immunoreactivity for pan-CK, CK18, and AFP stains. Metastatic HCC revealed positive immunostaining with polyclonal CEA stain in the tumor cells.

Tumor cells revealed negative immunostaining for PSA, HMB45, S-100 protein, and TTF1 stains.

Based on the histological and immunohistochemical findings, a diagnosis of metastatic HCC was made with recommendation for clinical follow-up information of the primary liver lesion and serum alpha-fetoprotein (AFP) level estimation.

References:

1. Chu P, Wu E, Weiss LM. Cytokeratin 7 and cytokeratin 20 expression in epithelial neoplasms: a survey of 435 cases. *Mod Pathol*, 13:962-972, 2000.
2. A free immunoquery database is made available as a Website. *Int J Surg Pathol*, 8:4-4, 2000.
3. Gattuso P, Reyes CV. Hepatocellular carcinoma with bone metastasis. *J Surg Oncol*, 39:33-34, 1988.
4. Kakar S, Muir T, Murphy LM, Lloyd RV, Burgart LJ. Immunoreactivity of Hep Par 1 in hepatic and extrahepatic tumors and its correlation with albumin in situ hybridization in hepatocellular carcinoma. *Am J Clin Pathol*, 119: 361-366, 2003.
5. Wieczorek TJ, Pinkus JL, Glickman JN, Pinkus GS. Comparison of thyroid transcription factor-1 and hepatocyte antigen immunohistochemical analysis in the differential diagnosis of hepatocellular carcinoma, metastatic denocarcinoma, renal cell carcinoma, and adrenal cortical carcinoma. *Am J Clin Pathol*, 118:911-921, 2003.
6. Llovet JM, Real MI, Montana X, et al. Arterial embolisation or chemoembolisation versus symptomatic treatment in patients with unresectable hepatocellular carcinoma: a randomised controlled trial. *Lancet*, 359:1734-1739, 2002.
7. Lo CM, Ngan H, Tso WK, et al. Randomized controlled trial of transarterial lipiodol chemoembolization for unresectable hepatocellular carcinoma. *Hepatology*, 35:1164-1171, 2002.
8. Schwartz JD, Hasserjian RP, Zhu AX. Case 13-2006: a man with a bone mass and lesions in the liver. *N Engl J Med*, 355: 422-423, 2006.
9. Uka K, Aikata H, Takaki S, Shirakawa H, Jeong SC, Yamashina K, Hiramatsu A, Kodama H, Takahashi S, Chayama K. Clinical features and prognosis of patients with extrahepatic metastases from hepatocellular carcinoma. *J Gastroenterol Hepatol*, 20:1781-7, 2005.
10. Melichar B, Voboril Z, Toupková M, Dvůrák J. Hepatocellular carcinoma presenting with bone metastasis. *J Exp Clin Cancer Res*, 21:433-6, 2002.
11. Zaidi AA, Vesole DH. Multiple myeloma: An old disease with new hope for the future. *CA Cancer J Clin*, 51:273-285, 2001.

-
12. Kuhlman JE, Fishman EK, Leichner PK, Magid D, Order SE, Siegelman SS. Skeletal metastasis from hepatoma frequency, distribution and radiographic features. *Radiology*, 160:175-178, 1986.
 13. Robinson DL, Davaiah KA, Lawton RL. Hepatocellular carcinoma presenting as bone pain. *J Surg Oncol*, 31:100-103, 1986.
 14. Kyle RA, Rajkumar SV. Multiple myeloma. *N Engl J Med*, 351:1860-1873, 2004.
 15. Katyal S, Oliver JH, Peterson MS, Ferris JV, Carr BS, Baron RL. Extrahepatic metastases of hepatocellular carcinoma. *Radiology*, 216:698-703, 2000.
 16. Dinesh Chandra Doval, Komal Bhatia, Ashok Kumar Vaid, Kumar Prabhash, Amarnath Jena and Digant Hazarika: Bone metastases from primary hepatocellular carcinoma simulating multiple myeloma *Hepatobiliary Pancreat Dis Int*, 4:308-310, 2005.
 17. Yao DF, Dong ZZ , Yao M: Specific molecular markers in hepatocellular carcinoma, *Hepatobiliary Pancreat Dis Int*, 6: 241-247, 2007.
 18. Zubair Ahmad, Aziz-un-Nisa, Zeeshanuddin and Najamul Sahar Azad: Unusual metastases of hepatocellular carcinoma (HCC) to bone and soft tissues of lower limb, *JCPSP*, 17: 222- 223, 2007.

Comparative Pathology Case 279

Contributors: Woon-Fa Chang (張文發), DVM, MS¹; I-Ping Chan (詹益萍), DVM, MS²; Li-Chun Chen (陳俐君), DVM, MS¹; Maw-Sheng Chien (簡茂盛), DVM, PhD¹.

¹Animal Disease Diagnostic Center, College of Veterinary Medicine, National Chung Hsing University(中興大學獸醫學院動物疾病診斷中心)

²Veterinary Teaching Hospital, National Chung Hsing University(中興大學獸醫教學醫院)

Clinical history: A 7-year old , female domestic shorthair cat was presented to the veterinary teaching hospital on October 2006 due to multifocal elevated pigmented masses in some area of her left eye. These pigmented masses expanded in the iris with time. Enucleation of left globe was performed on April 10, 2007 prior to the development of clinical glaucoma.

Diagnosis: Feline diffuse iris melanoma.

Gross findings:

Grossly, the left globe was submitted, there were expanded, irregular, sometimes pigmented nodular masses that slightly distorted the prolife of the iris.

Histopathological findings:

Microscopically, there is distortion of the iris profile due to the invasion of neoplastic cells; these neoplastic cells also extend into the ciliary body stroma. The most common tumor cells are pleomorphic round cells with variable amounts of cytoplasmic pigmentation. Cytomegalic and karyomegalic neoplastic cells are common, intranuclear pseudoinclusions caused by cytoplasmic invagination into the nucleus are often observed. Neoplastic spindle cells are the second most common cell type. These neoplastic round cells arrange irregularly, contain abundant cytoplasm and enlarged nucleus. Their transformed nuclei are in round or oval shape, with distinct nucleoli. Some nuclei contain several eosinophilic pseudonclusions. More than 1~2 mitotic figures per high power (HP) field are evident. Pigmented, large, round cells are occasionally seen.

Immunohistochemical results:

Scattered dark cytoplasmic granules in some neoplastic cells are noted by DOPA reaction. Tyrosinase enzyme is one of the enzymes which allows melanocytes to produce the brown pigment melanin from the amino acid tyrosine. The presence of tyrosinase could be demonstrated by the DOPA reaction.

Discussion:

Tumors of melanin-synthesizing cells occur through all vertebrate and have been reported in amphibians, reptiles, fish and birds. The term melanoma often denotes malignancy ("carcinoma" and "sarcoma" are avoided because of the uncertainty concerning the derivation of the tumor cell).

A melanoblast is the cell which serves as the precursor of the melanocyte, the mature, melanin-synthesizing cell which contains a specialized organelle, the melanosome. A melanophage is a phagocytic cell which has engulfed previously formed melanin; melanophage is unable to synthesize melanin itself.

Melanocytes are normally found in various ocular structures, in addition to the skin, they may also be present in the meninges, adrenal gland, and in the intima of the heart and blood vessels in some species.

Melanocytic tumors are quite rare in the cat and sheep. Tumor surveys indicate they comprise less than 1 percent of all feline tumors. They are less frequently observed in cattle and goats which melanocytic tumor are relatively common in the dog, horse and certain breeds of swine.

Why normal melanocytes become neoplastic is not known although in man there is a correlation of dermal injury such as sunburn with the incidence of malignant melanoma. Recently, a soluble growth factor has been identified in cultures of malignant melanomas grown in vitro that cause normal melanocytes to proliferate.

Melanoma of the eye in human is about one twentieth as common as melanoma of the skin. Most human intraocular melanomas arise in the melanocytes of the uvea (iris, ciliary body and choroid), but they can also originate in the pigmented epithelium of the retina. Unlike the cutaneous type, ocular melanomas are composed of two distinctive cell types, spindle and epitheloid. Lesions composed predominantly of spindle cells are of low aggressiveness, do not tend to metastasize, and permit about 75 % survival at 15-year. In contrast, epitheloid melanomas permit only about 35 % survival at 15 years despite early enucleation, owing to late metastasis.

Malignant melanoma is the commonest primary intraocular neoplasm of animals, most cases have been found in dogs and cats. Intraocular tumor is rare in horses despite the frequency of cutaneous melanomas in that species. Malignant melanomas of animals arise most often in the anterior uveal tract, especially in the iris and are infrequent in the choroid. This is in contrast to human beings, in whom

the choroid is the most common site for involvement.

Diffuse iris melanoma occurs in older cats, and is the most common melanocytic ocular tumor of cats, and represents a proliferation of melanocytes throughout the iridal stroma, with subsequent invasion of the ciliary body and sclera.

In the feline diffuse iris melanoma, cats with melanoma confined to the iris survive at same rate as controls; cats with extensive tumors at the time of enucleation have lowest survival rates. Diffuse iris melanoma is prone to metastasis, usually to liver or lung, with a latent period of a few months to two years. Eventual enucleation is necessary as this tumor results in chronic uveitis and glaucoma.

Differential diagnosis:

Diffuse iris melanoma should be differentiated with age-related pigmentary change, hyperpigmentation of the iris secondary to chronic uveitis and iris nevi.

Reference :

1. Dubielzig PP. Tumors of the eye. In Meuten DJ (ed.) Tumors in Domestic Animals. Iowa State Press, Ames, PP 739-745, 2002.
2. Kalishman JB et al. A matched observational study of survival in cats with enucleation due to diffuse iris melanoma. Vet Ophthalmol 1:25-29, 1998
3. Patnaik AK, Mooney 5. Feline melanoma: A comparative study of ocular, oral and dermal neoplasm. Vet Pathol 25:105-112, 1998
4. Peiffer RL, Ciliary body epithelial tumours in the dog and cat a report of thirteen cases. J Small Anim Pract 24:347-370, 1983

Comparative Pathology Case 280

Contributors: Jia-Hung Liou (劉嘉鴻), Yung-Hsiang Hsu (許永祥)

Department of Pathology, Hualien Tzu Chi General Hospital

Clinical history:

This is 50-year-old male suffered from distended headache with neck stiffness about half month ago. Symptoms most happened at night and caused insomnia. He went 奇美 medical center for thorough health survey. After supratentorium brain CT survey, 2 masses in right fronto-parietal and occipital region were noted. The size measured 3x3cm and 4x3cm respectively. There was no accompanying neurologic symptom. In addition to the brain masses, one tumor measure 4x4 cm in size was found in the right inguinal area. Therefore, he went to our hospital for further treatment. After admission, brain tumor biopsy and inguinal mass biopsy were performed. The slide is from the inguinal mass.

Diagnosis:

Metastatic malignant melanoma in the brain and inguinal lymph node.

Gross findings:

The submitted inguinal mass measures 5x4x4 cm in size. The cut section of the mass shows mottled gray-blackish cut surface with focal necrotic area.

Histopathological findings:

Microscopically, it shows a lymph node infiltrated by round to oval tumor cells and scattered bizarre multinucleated giant cells. The tumor cells mainly in solid sheet or pseudopapillary pattern of growth with marked tumor necrosis. Focal pigment deposition is evident. The normal lymph node architecture is nearly total effacement and extracapsular tumor invasion is also found.

Immunohistochemistry:

The tumor cells are positive for S-100, HMB-45 and negative for CK and CLA stains.

Discussion:

Melanoma occasionally occurs as apparent metastasis to lymph nodes or visera without a detectable or known primary lesion. Such melanomas of unknown primary site (MUP) are estimated to comprise between 3.7 % and 6% of all incident

melanomas. Contemporary criteria of the diagnosis include (1) metastatic melanoma confirmed clinically, histologically, and immunohistochemically (2) the absence of a previous cutaneous tumor, pigmented or not, destroyed or excised without histologic examination; and (3) exclusion of unusual primary sites, including urogenital, otolaryngologic, or ophthalmologic sites. Several studies revealed that MUP patients with lymph node metastasis survived significantly longer than patients diagnosed with lymph node metastasis concurrent with a known cutaneous primary melanoma. Several possible etiologies of MUP have been offered, including the following (1) an antecedent, unrecognized, spontaneously regressed primary melanoma; (2) a previously excised melanoma that was misdiagnosed either clinically or pathologically; (3) a concurrent, unrecognized melanoma; and (4) the de novo malignant transformation of an aberrant melanocyte within a lymph node. The first of these possibilities remains a plausible explanation for MUP. In keeping with this explanation, it has been suggested that the immunologic response that results in primary tumor regression somehow may contribute to the more favorable outcomes seen in patients with MUP. The improved outcomes associated with MUP also support the premise that MUP may represent a primary process originating from an aberrant melanocyte within a lymph node (locally advanced disease) rather than a regionally metastatic process.

Metastatic melanoma should be considered in the differential diagnosis of all patients who present with a malignancy of unknown origin, particularly when lymph nodes are the primary presenting site. Fine-needle aspiration or core biopsy of the lymph node lesion usually is adequate for tissue diagnosis, but immunohistochemical studies (i.e., immunoreactive for HMB-45 and S-100) may be obtained in the event of equivocal findings. Current recommendations for the evaluation of these patients include a review of previous skin biopsy specimen, full skin evaluation, and brain imaging and CT imaging of the chest /abdomen and pelvis to rule out distant metastatic disease. Patients who have metastatic melanoma in a regional lymph node in the absence of a known primary site should undergo completion lymph node dissection with adjuvant treatment.

Diagnostic criteria:

1. Histopathologic findings: Epithelioid, spindle shaped, or extremely bizarre tumor cells with pseudoglandular, pseudopapillary, or trabecular growth pattern.
Melanin pigment can be abundant, scanty, or absent (amelanotic melanoma).
2. Immunohistochemical stain: S-100 (+), HMB-45 (+), Melan-A (+), MiTF-1 (+)

References:

1. Janice N, Yan Xing, Lei Feng, et al. Metastatic melanoma to lymph nodes in

patients with unknown primary sites. *Cancer*. 2006; 106: 2012-20

2. Anbari KK, Schuchter LM, Bucky LP, et al. Melanoma of unknown primary site: presentation, treatment, and prognosis— A single institution study. *Cancer*. 1997; 79:1816-

1. 1821.

中華民國比較病理學會
第一次至第三十九次比較病理學研討會病例分類一覽表

分 類	病 例 編 號	診 斷	動 物 別	提 供 單 位
腫 瘤	1.	Myxoma	Dog	美國紐約動物醫學中心
	2.	Chordoma	Ferret	美國紐約動物醫學中心
	3.	Ependymoblastoma	Human	長庚紀念醫院
	8.	Synovial sarcoma	Pigeon	美國紐約動物醫學中心
	18.	Malignant lymphoma	Human	長庚紀念醫院
	19.	Malignant lymphoma	Wistar rat	國家實驗動物繁殖及研究中心
	24.	Metastatic thyroid carcinoma	Human	省立新竹醫院
	25.	Chordoma	Human	新光吳火獅紀念醫院
	34.	Interstitial cell tumor	Dog	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, BALB/cBYJ mouse	Mouse	國家實驗動物繁殖及研究中心
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-Merriit 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
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 <i>Streptococcus</i> spp. infection	Swine	國家實驗動物繁殖及研究中心
	140	Coliform septicemia of newborn calf	Calf	屏東縣家畜疾病防治所
	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 <i>Leptospira</i> 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
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	台灣大學獸醫學系

		bears	
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, severe, with epidermal pustules, ballooning degeneration, proliferation, and eosinophilic intracytoplasmic inclusion bodies, Saanen goat. 2. Haired skin: Dermatitis, proliferative, lymphoplasmacytic, subacute, diffuse, severe, with marked epidermal pustules, ballooning degeneration, acanthosis, hyperkeratosis, and eosinophilic intracytoplasmic inclusion bodies.	Goat	台灣動物科技研究所
	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
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 lung infection with abscess DM, NIDDM.	Human	林口長庚紀念醫院
	105. Mucormycosis	Human	花蓮佛教慈濟綜合醫

		Diabetes mellitus		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
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 Angiostrongylus cantonensis	Human	台北榮民總醫院病理檢驗部
	156	Parastrongylus cantonensis infection	Formosan gem-faced civet	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	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
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
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
	151	Osteodystrophia fibrosa	Goat	台灣養豬科學研究所 & 台東縣家畜疾病防治所
	80.	1.Glomerular sclerosis and hyalinosis, segmental, focal, chronic, moderate 2.Benign hypertension	SHR rat	國防醫學院 & 國家實驗動物繁殖及研究中心
	83.	Phagolysosome-overload nephropathy	SD rats	實驗動物繁殖中心
	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 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	Chicken	國立屏東科技大學獸

	deficiency)		醫學系
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 lipidosi (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

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

402 台中市南區國光路 250 號

中興大學獸醫學院動物疾病診斷中心 張文發秘書長 收

Tel: (04) 22840894

Fax: (04) 22852186

e-mail address: boovet@mail.vm.nchu.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：
402 台中市南區國光路 250 號中興大學獸醫學院動物疾病診斷中心張文發秘書長收
電話：04-22840894、傳真 04-22852186。