(1)

Histories for Wednesday Slide Conference

12 October 1966

Case 1 - 674.65 62 - Tissue removed at necropsy from a 13-year-old male dachshund.

Case 2 - 66-630 - Tissue from a laboratory animal.

Case 3 - FDA 35510-R - Eye from experimental rabbit.

Test material?

Duration of experiment?

Bruce C. Anderson

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1LT, USAR, VC

274.6562 – Primary Adenocarcinoma of Lung

66-630 – Encephalitozoon –

FDA 35510R – Tin in cornea

Ft Detrick
[illegible]

(2)

Histories for Wednesday Conference
26 October 1966

Case 1 - AFIP 1191840 - Mass from skin, head, dog.

Case 2 - AFIP 1201196 - Raised hairless scurfy mass from the top of the head of a wild feline. This mass "appeared over a short period of time". While trying to capture this cat with a net, this mass was knocked off revealing fresh skin beneath. Coronal section of mass.

Case 3 - AFIP 1190775 - An 8-year-old standard bred gelding had been "ill" for approximately 3 weeks. The animal was treated for laminitis, showed improvement but later developed CNS "disturbances".

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1. Trichoepithelioma - very good example.
2. Notoedres cati
3. Cryptococcus neoformans

1 Del

(3)

Histories for Wednesday Slide Conference

9 November 1966

Case 1 (Fitzsimons) - Tissue from adult, female guinea pig (white, T-C strain killed because of chronic illness.

Case 2 - AFIP 1221711 - A French rabbit recently imported into this with a "social disease".

Case 3 - AFIP 1104660 - Tissue from a 3-year-old steer from Puerto Rico.

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D

1) Fitzsimons – diplococcal pneumonia
alveolar & bronchial hyperplasia

2 141 1221711 AFIP – Myxomatosis

3 15[illegible] 1184660 – Bronchiectasis

(4)

Histories for Wednesday Slide Conference
16 November 1966

213 Case #1 - #1215103 - Tissue from bovine cerebellum. What is the change and how did it arise?

214 Case #II - #X-799 - Newborn prize goat, died suddenly. Lesions in cardiac and skeletal muscle. Name disease?

215 Case #III - #66-760 - Fourteen-year-old, male, shep-collie mix which had a "textbook" case of congestive heart failure. Tissue from thoracic cavity.

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(A)

213 Bovine cerebellum
selective autolysis, esp
in granular layer
(standing time?)

214 White Muscle Disease

215 Heartbase tumor

(5)

Histories for Wednesday Slide Conference
23 November 1966

Case I - A-770-66 - Experimental animal several months after total body irradiation.

Case II - MI 4744 - Bovine slaughtered in good condition. Congested area in liver about 3/4" diameter. No other lesions seen. Morphologic diagnosis and possible etiology?

Case III - 959 - Liver from a 2-year-old female Siamese cat which had been anorectic for one week and then died. There was no fever and her physical condition was good. Necropsy revealed the abdominal cavity to be full of clear straw-colored fluid which was clotted.

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(A)

17-661 1. Malignant Lymphoma

4744 2. Stephanuriasis (Stephanurus dentatus)
Possible Chow dust & Telangiectasis

54 3. Feline Infectious Peritonitis — Ref. Veterinary Pathology June & July 196
Peritonitis & focal Hepatitis

FT [illegible]

(6)

History Wednesday Slide Conference
30 Nov 66

Case I 1205042 Tumor from the hand of a monkey.

Case II 28955 Incidental finding in a 1-year-old female Beagle.

Case III RLPZ-21905 Primary lesions were secondarily infected in this Jay-bird from the outdoor flight cage at a zoo. The non-infectious primary lesions seen bilaterally in the legs were caused by _____?

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CPT. USAR, VC

154
205042 – Yaba venom – cytoplasmic inclusion bodies
Ref: J Path [illegible] Vol 81 No1 P 1-14

155
287/55 – Chronic Thyroiditis

156
RLPZ 21405 – Muscle degeneration – ~~[illegible]~~
due to frostbite

FT Det

Histories Wednesday Slide Conference
11 January 1967

157

Case I - #8618 - An eight-week-old female chicken in good condition was slaughtered in North Carolina. There were no visible lesions except for an extremely black swollen liver. There was a low incidence of airsacculitis and leukosis in the flock. Suggest test to identify the pigment.

158

Case II - #X169 - This is an H&E section of a prescapular lymph node from an 11-year-old female Bedlington terrier which weighed 15 pounds. This animal presented with moderate enlargement of all external palpable nodes. The owner had first noticed the enlargements one week before. The animal was in excellent condition, and physical findings were otherwise normal. Hemogram results were: WBC 6, 160; segs. 56; Juv. 2; lymphs. 33; monos. 6; eosin. 3; hct. 40.5; sed, rate 9.5% in 60 minutes; platelets 116,000; plasma protein 6.25 mg.%; BUN 20 mg.%. No atypical or primitive lymphocytes were noted on smear.

159

Case III - #A-772-66. From a dog.

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8618 - Pigment melanoma

X169 - Malignant Lymphoma - ~~Reticulum~~ cell. PRESCAPULAR LYMPH NODE

772-66 - 50% say histiocytic carcinoma
50% say Reticular cell sarcoma

MAJ Pullian

FT DE

Histories
Wednesday Slide Conference
25 January 1967

Case I - 66-1 - "Mature female domestic cat, weight 6.0 kg. Had not been observed to eat, drink, urinate, or defecate in one week. (Kept in cage during this period.)"

Hyalinization of Islets of Langerhans in Pancreas

Case II - 6690-2 - Lesion removed from teat of a lactating Holstein cow. All the cows in the herd had similar lesions on the teats and udder. This disease occurred in the herd periodically during the winter.

Pseudo cow pox

Case III - 66-891 5020 - Adult female Rhesus monkey.

Giant cell pneumonia
Rwk - on 268

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160 Hydrogenation of [illegible] of [illegible]
Peroxide

161 Powder [illegible]

162 Sheet [illegible]
Ruck page 268

44

Histories for Wednesday Slide Conference
1 March 1967

Case I - 1218878

One-hundred pigs raised on concrete (must be hard to digest) in Indiana were turned out on pasture. After about a week on pasture, they began to show signs of weakness, trembling, incoordination, and sternal recumbency. Twenty-five died rather rapidly while the others survived after withdrawal from this pasture.

Grossly, lesions were identical in all pigs; these consisted of ascites, ventral abdominal edema, retroperitoneal edema especially noticeable around the kidney, hydropericardium, and hydrothorax.

Microscopically, the principal changes were in the kidneys. What are the morphologic diagnoses? What is the name of this disease seen in pigs and also reported in calves. What is the proposed etiology?

Case II - BC-15

Two slides from a dog with multiple skin tumors.

Slide A - Firm tumor about 3 cm X 1 cm X 0.5 cm in the subcutis, medial aspect of the stifle. The tumor was freely movable, being "unattached" to the overlying skin and underlying muscle fascia. It cut with relative ease and was homogenous off-white

Slide B - Firm, black, lobed tumor about 1 cm in all dimensions. It was attached to the skin by a 2-3 mm stalk. Over the lobes of tumor, the skin was thin, ulcerated, and had a few bristles of hair protruding from between lobes. The cut surface was black and bloody.

What diagnoses would you place on these tumors?

Case III - 138566

Tissue from a dog.

Bruce C. Anderson

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Results
Wednesday Slide Conference
1 March 1967

Case I - 1218878 - Pigs raised on concrete, then turned out onto pasture containing "pigweed" (Amaranthus sp.) came down with the signs given in the history. The history, clinical course, and post mortem lesions were similar to those described by Buck for perirenal edema disease. A similar syndrome was recently described in calves.

Morphologically, there was toxic degneration and necrosis of, mainly, proximal convoluted tubules and focal lymphocyte infiltration. This latter change was possibly pre-existing. Regenerative changes were occasionally present in tubules. Edema was present within subepithelial pelvic connective tissue.

References: 1. William B. Buck, et. al., Perirenal Edema in Swine: A Disease Caused by Common Weeds, JAVMA, June 15, 1966.

2. Q. E. Jeppesen, Bovine Perirenal Disease Associated with Pigweed, JAVMA, July 1, 1966.

167

Case II - BC-15 - Tumors from the skin of a dog. Both A and B were diagnosed as basal cell tumors although markedly different grossly and obviously differing in pattern microscopically.

Tumor A was classified as the ribbon type. It was composed of typical basaloid cells growing in bands and usually forming "circles" around the stroma. One wise old oncologist might have used the terminology, adenexal adnexoma, sweat gland type. No pigment was associated with the tumor.

Tumor B was the solid type of basal cell tumor. Basaloid cells were growing in "sheets" and contained significant amounts of malanin. Scattered throughout the tumor were isolated sebaceous cells. A few of the basaloid cells had some minimal cytoplasmic vacuolation suggestive of sebaceous differentiation. Some other areas were interpreted as having squamous differentiation. Many saw tonofibrils in these areas as well as in "undifferentiated" parts of the tumor.

Further discussion concerned the melanin pigment and behavior of these basal cell tumors. Assuming that these cells are incapable of malanin production (if you want to assume that), they were no doubt borrowing it from the melanocytes in the stroma. Someone mentioned that melanocytes are ectodermal and of neural crest origin. Formerly, they were labeled as mesenchymal in origin.

Behavior-wise basal cell "carcinomas," it has been stated, do not metastasize. However, reports of metastasis to regional lymph nodes are available. Also there is a case, with metastasis in a dog, buried in the AFIP files. (What a terrible place to bury a dog!) Kodachromes were shown to point out the marked difference in gross appearance.

Histories
Wednesday Slide Conference
8 March 1967

1 2

Case I - 1231765 - Tumor from shoulder area of a mouse. These tumors appear in female breeding mice at about 6 months of age usually after one or two pregnancies. About 5% of the breeding females in the colony are involved before the end of their useful breeding life (1 year).

164

Case II - 805-16 & 805-17 - Dachshund, female, 4 years, old. Euthanasia and complete autopsy because of spinal cord injury. Two slides showing <u>incidental</u> findings.

165

Case III - 66344-6 - 150 of 2,000 recently imported lambs (from Montana to Iowa) became lame. Lambs were treated with an antibiotic and an adrenal cortical steroid product with no apparent improvement. The lambs improved slowly over a four-week period.

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163 - Mammary Adenocarcinoma

164. Progesterone injection
Causing stoppage of estrus cycle in ovary
and Cystic Hyperplasia of Uterus.

Ref AVMA vol 146
AVMA vol 149 - 1966

165 Testicular Lymphogranuloma.
Vet Res J. Vol 21 P68 1960
Vet Res. J. vol 25 P943 1964

Reference: S. W. Nielsen and C. R. Cole, Cutaneous Epithelial Neoplasms of the Dog --- A Report of 153 Cases, Am. Jour. Vet. Res., November 1960, page 931.

Case III - 138566 - Tissue from a dog.

This dog was "middle aged," and was vaccinated against distemper on arrival at the kennel, date unknown. Currently, this dog was treated for a distemper-like syndrome. No CNS signs were present.

Grossly, autolysis was noted and the lung was consolidated in areas.

Diagnoses:
1. giant cell pneumonia, probably a sequel of distemper
2. lymphoid atrophy, spleen
3. cystic mucinous hyperplasia, gallbladder

Discussion centered around the apparent or real presence of distemper inclusions within giant cells or alveolar macrophages in the lung. Some felt ingested red cells or coagulated cytoplasmic protein could give the same appearance. In our sections, occasional intranuclear inclusions were seen in bronchial or bronchiolar epithelium. The contributor's kodachromes showed cytoplasmic inclusions in pancreatic acinar cells and duct cells, urinary tract epithelium, and gastric mucosa. Occasionally, these were intranuclear. Our section of gastric mucosa showed only occasional inclusions, if any.

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Histories
Wednesday Slide Conference
15 March 1967

Case I - 17031 - Female, adult, Egret. Age unknown. Duration of illness unknown.

Case II - M-2-57-66 - Six-year-old dog accidentally strangled himself while recovering from anesthesia. Grossly, several large whitish nodules were found in the lung.

Case III - P-48 - Section is from the spinal cord of a four-month-old thoroughbred colt. Probable clinical syndrome? Morphologic diagnosis? Age of the lesion?

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Additional Results
15 March 1967

Case I - #17081

In reference to the recent conference slide in an egret, we have just received comments from Doctors Emmons, Binford, and Winslow. Dr. Emmons pulled the rabbit out of the hat and came up with very interesting observations, as follows:

"There are both conidiophores and perithecia (ascocarps) of Aspergillus in one of the air sacs as well as hyphae in the tissue. Some of the perithecia contain many asci and red ascospores. The large pale lavender thick-walled birefringent cells are hulle cells which are associated with perithecia in some species of Aspergillus. The conidiophores have two rows of phialides and the conidia are rough or spinose. The ascospores have a longitudinal groove bordered by flanges. All these features are consistent with Aspergillus nidulans. I have never seen perithecia and hulle cells in avian or mammalian tissue before. Very interesting." These structures may or may not have been present in your slide.

BCA

Results
Wednesday Slide Conference
15 March 1967

17

Case I - 17081 - Female, adult Egret. Contributor's diagnosis: Tuberculosis with secondary infection by Aspergillus and bacterial cocci.

Most participants recognized the fungal hyphae within the caseous mass on H&E stain. Of significance, was the fact that they were not seen in more active areas of inflammation as evidenced with GMS stain. They were located adjacent to a space in which there was (in some slides) "foreign" material and the fruiting bodies seen when aspergillus is exposed to air. The foreign material in one slide consisted of: (1) round particles which were highly birefringent with a maltese cross effect (starchgranules) and (2) a double cell walled packet containing numerous red "football" shaped bodies. (Possibly an ascus with ascospores.)

Obvious also were the numerous bacteria scattered throughout much of the lesion.

Very prominent were the masses of foamy cells peripheral to the caseous mass of tissue. Within all of these were numerous acid-fast bacilli, giving the special stain slide an almost solid red appearance at low power.

A competent poulty pathologist commented that the response in our case was most typical of tuberculosis. With primary aspergillosis, he would expect a less chronic appearance with fewer epithelioid cells, but with prominent heterophil infiltration and hyphae involved in the active areas of inflammation.

Heart and kidney were submitted to the original contributor but were not involved.

The lung section was sent to Dr. Binford for identification of fungal elements.

17

Case II - M-2-57-66 - Six-year-old dog with whitish nodules in the lung. These turned out to be bronchogenic carcinomas. The contributor sampled various mediastinal tissues liberally including a rather irregular piece of tissue near the base of the heart and lung hilus. This turned out to be our section. Lymph node was obvious and was said to contain a few more eosinophils and neutrophils than normal. Of primary interest, was the multiloculated cystic structure containing some proteinaceous secretion, large foamy cells, and lined by ciliated epithelium. On the periphery, was some more "lymphoid" tissue which turned out to be thymus. It lacked the endothelial lined sinuses of a lymph node and in some of our slides a Hassal's corpuscle or two was present. The contributor's ace in the hole slide, of course, showed this well. The contributor also brought with him a thymus from a 6-month-old dog which on histologic section had a nice duct lined by epithelium running through or associated with it.

The diagnosis then was: Thymus duct cyst, canine.

The contributor mentioned that some studies suggest these cysts develop after birth and secrete mucin. The secretion in our case was ORO negative and PAS positive. Another comment was that this lesion should be serial sectioned in that it could be part of a teratoma of the thymus.

See attached sheet for more information.

Case III - P-48 - Spinal cord of a four-month-old colt with equine incoordination. (Wobbles)

Significant features here were: (1) bilaterally symmetrical distribution in the lateral and ventral fasciculi and (2) low number of gitter cells. The lesion was classified as Wallerian degeneration which connotes loss of myelin, Schwann cells, and axones as a result of some proximal lesion in these tracts. Many swollen axones were present. The CNS lacks Schwann cells.

In discussing the age of this lesion, one noted neuropathologist said there were lesions in here which could be under five days or over six-months-old. The presence of a few gitter cells here, and a few degenerating axones there with numerous holes may indicate the slow but progressive nature of this advanced lesion.

Consult texts for discussions on "wobblers" and Wallerian degeneration.

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Histories
Wednesday Slide Conference
5 April 1967

167

Case I - BC-30 - A Ten-year-old female beagle had a tumor removed from the mammary region. Slide A. How would you classify this tumor?

Four months later the dog again was examined. She had a 9 X 10 X 5 cm. mass in the posterior mammary region which had arisen over a 2-3 month period. A subcutaneous mass was palpable over the cranial angle of the scapula. The left popliteal lymph node was enlarged. Radiographs of the chest revealed nodules in the lungs of this dyspneic dog.

Post mortem examination revealed numerous raised, greyish nodules involving lung. Chronic interstitial nephritis was present; liver and spleen were unremarkable. Several cysts were present on the right ovary. The uterus contained "several dark swellings" in each horn. No other significant lesions were seen.

Microscopic examination of the subcutaneous mass from the shoulder, the "popliteal lymph node," and the mass in the posterior mammary region seen at the second visit revealed an histologic picture similar to that of the lung tumors. Slide B. Classify this tumor.

Could the lung tumors have come from the original surgical, Slide A? If not, where might the primary have arisen?

170

Case II - 66-1107-F8 - Tissue from a feline head. Other than gross enlargement of the entire head, the cat was asymptomatic for nine months.

171

Case III - 66-1104 - One of the three Rhesus monkeys received from Texas. All three were dyspneic. Radiographically, each animal had a large mediastinal mass. Tuberculin tests were negative.

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Results
Wednesday Slide Conference
5 April

Case I - EC 30 - AFIP 1223248 - A ten-year-old female beagle. A tumor was removed from the mammary region. Slide A - This was classified as carcinoma of the solid type, which is fast growing and usually causes the most trouble with regard to metastases in the dog.

Four months later, she had another mass in the posterior mammary region, plus smaller masses in the area of the popliteal lymph node and anterior scapular region, all on the same side, and radiographic evidence of extensive lung metastases.

Post-mortem lesions of significance were cysts on a small right ovary, dark swellings in the uterus, and, of course, the lung nodules and other subcutaneous masses.

Microscopically, the second or posterior mammary mass, the "popliteal" mass, the "scapular" mass, and the right ovarian tissue had a similar appearance to the lung tumors. Slide B - This tumor was classified as carcinoma of mammary origin by those who had one eye on the history of two tumors in the mammary region.

Others, however, felt the pattern was significantly different from the original Slide A and tended to place the primary in the ovary, probably taking into account the uterine changes which turned out to be extensive endometrial hyperplasia with areas of necrosis as well. There was a corpus luteum in the normal left ovary.

Several prominent oncologists reviewed the case. Generally, they thought all tumors had one origin. However, there was some disagreement as to whether it was ovary or mammary. There was no recognizable lymph node associated with any of the tumors, so that whether or not they were really associated with lymph nodes is obscure. The only positive statement: whatever it was it would have killed her!

Case II - 66-1107-F8 - Tissue from a feline head which was enlarging over a 9 month period.

At 3 months of age, the owner slammed its head in the car door. A swelling developed in the right occipital area over a period of 20-40 days. During the next 9 months, the head enlarged most prominently in the frontal region causing a "spreading" of the eyes and a very blunt profile. Bloody nasal discharge and complete nasal blockage developed.

Radiographically, the mass involved the nasal and nasopharyngeal area as well as frontal sinus. The frontal bone was at least partially normal but faded into spicules within the mass.

Post-mortem characteristics included easy cutting and coarsely lobulated whitish tumor tissue.

Histologically, the contributor classified this as an osteolytic osteosarcoma. A visiting oncologist, however, preferred to call this chondrosarcoma based on some of the gross description, the fact that bone spicules here were too well differentiated and the lack of undifferentiated areas of stromal cells. He felt at least this was not an obvious osteosarcoma. There was some cartilage in some sections.

Case III - Rhesus monkeys from Texas with mediastinal masses. No history is available at this time on prior treatment before reaching the U.S.A.

Grossly, a solid mass of fibrous tissue extended from the larynx down the neck. Our section was taken from the lower neck. Continuing through the thoracic inlet, the mass became cystic in the mediastinum and extended to the diaphram.

Microscopically, numerous macrophages in the fibrous mass and adjacent lymph node contained birefringent material identified as "kaolinite."

It is reasonable to assume that someone ruptured the pharynx while dosing these animals. No evidence of this could be seen either in the throat or esophagus grossly or microscopically. We at the AVIP have had several similar lesions in our recently imported monkeys.

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Histories
Wednesday Slide Conference
12 April 1967

175

Case I - #MI-12301 - Numerous nodules were found in the lungs of a slaughtered pig. What is the origin of this tumor? What histologic features support your diagnosis? Is the lesion benign or malignant? What comment would you make in regard to the inflammatory process?

176

Case II - #1232805 - Mink inoculated intracerebrally. Seven months later the animal began to have nervous signs, went progressively "downhill," and was euthanized.

Case III - #1228814 - Biopsy specimen from the right gluteal region of an old mare. Give morphologic diagnosis and general terminology applied to this lesion. Several organisms might cause this lesion in a number of different animals as reported in recent literature. What are these organisms?

Bruce C. Anderson
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Captain, VC, USAR

Results
Wednesday Slide Conference
12 April 1967

Case I - MI-12301 - Numerous nodules were found in the lungs of a slaughtered pig. Diagnosis: embryonal nephroma, primary in the kidney with metastasis to lung. Histologically, the cells were forming tubules. Bowman's capsule like structures were seen by some. It was agreed that the tumor cells were non-ciliate. The contributor attributed the inflammatory process to necrotic tumor tissue; someone else mentioned possible virus, pig pneumonia.

In slaughtered pigs, the most common tumor is embryonal nephroma with an approximate incidence of 0.1%.

Case II - Mink inoculated intracerebrally with an agent.
Diagnosis: Mink encephalopathy. Lesions were characterized as "vacuoles" in the gray matter, sometimes recognizable within neurons. Demyelination is not primarily a part of this disease. Gliosis was seen in other sections and is described in the literature.

Reference:
1. Burger & Hartsough, Transmissible Encephalopathy in Mink, NINDB Monograph No. 2, Slow, Latent, and Temperate Virus Infections, pp. 297-305.

2. Hartsough & Burger, Encephalopathy in Mink, Journal of Infectious Diseases, October, 1965, Vol. 115, pp. 387-399.

Case III - 1228814 - Biopsy specimen from the right gluteal region of an 24-year-old mare. This lesion according to early history was, "diagnosed on the basis of histopathological tissue sections and one culture by two laboratories as being coccidioidomycotic granuloma."

A second letter accompanied the biopsy specimen with the further comment that there was disagreement over the causative agent, since Helminthosporium had been cultured too. "The mare is coccidioidin negative and complement fixation negative, but horses running with her are positive and have clinical signs of coccidioidomycosis. This mare is now coughing and has diarrhea but keeps her weight up adequately."

These granulomatous lesions were given the general handle, maduromycotic mycetoma.

Fungal organisms were visible in all lesions with hematoxylin and eosin stain. They were present in giant cells and scattered singly as chlamydospores or grouped in microcolonies of hyphae and chlamydospores. Some of the hyphae and chlamydospores were pigmented. Gomori's methenamine silver stain and Gridley's fungus stain demonstrated branching septate hyphae and chlamydospores. Various stages of chlamydospore formation from hyphal cells were noted. Typical spherules of Coccidioides immitis with endospore formation were not found in our sections.

These lesions are characteristic of maduromycotic mycetoma described in several recent papers. The organism could be one of several closely related genera namely Brachycladium, Curvularia, or Helminthosporium. These are discussed in the papers referred to as follows:

Bridges, C.H., Maduromycotic Mycetoma in Animals, Curvularia geniculata as an etiologic agent. Am. Jour. Path., 33:411-427, 1957.

Bridges, C.H., and Beasley, J.N., Maduromycotic Mycetomas in Animals Brachycladium spiciferum Bainier as an Etiologic Agent. JAVMA, 137:192-201, 1960.

Hall, J.E., Multiple Maduromycotic Mycetomas in a Colt. Southwestern Vet., 18:233-235, 1965.

Bridges, C.H., Maduromycosis of Bovine Nasal Mucosa (Nasal Granuloma of Cattle). Cornell Vet., 50:468-484, 1960.

Roberts, E.D. et al, Maduromycosis of the Bovine Nasal Mucosa. JAVMA, 142:42-48, 1963.

Culture is, of course, needed to differentiate these organisms.

The only other cases of maduromycotic mycetoma in horses that we found were reported in reference 2 and 3. In one case, multiple skin nodules were caused by Bradycladium spiciferum. In the other case, Helminthosporium sp. was isolated from multiple skin nodules.

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HISTORIES

WEDNESDAY SLIDE CONFERENCE
19 APRIL 1967

17

Case I - #894 - Adult cat pancreas. Findings were incidental. What are the anatomic alterations? Can you name a cause?

Case II - 1632662 - Tissue from a rhesus monkey.

Case III - MAI-66 - Two slides - Tissue from a mature female Dasypus novemcinctus with multiple lesions on head and feet.

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DIAGNOSES
WEDNESDAY SLIDE CONFERENCE
19 APRIL 1967

Case I - #894 - Incidental findings from an adult cat.

Diagnosis: Eurytrema procyonis infection, pancreatic ducts.

Comment: Numerous adult flukes were removed from the pancreatic ducts at autopsy. A variety of anatomic alterations occurred in the pancreas: fibrous adenomatous hyperplasia, ductular dilatation and hyperplasia, and metaplasia of ductular epithelium to exocrine pancreas. The lesion was considered benign as there was no evidence of distant metastasis or direct extension to contiguous organs. No flukes were found in the biliary system and there was no evidence of reduced islet cell function.

Reference: Burrows & Lillis. J. Parasit., 46: 810-812, 1960.
Sheldon. JAVMA, Feb. 1, 1966, 251-253.

Case II - 163266-2 - Tissue from a rhesus monkey. (A little more history would have helped).

The contributor's diagnosis was tuberculosis of the spinal cord. He gave the following additional information to the group.

This monkey arrived at the laboratory on 20 September and by 17 October had had three negative TB skin tests. On 16 November, the animal had posterior paralysis which lasted an additional month. There was radiographic evidence of collapse of vertebra T-9.

Necropsy revealed disseminated tuberculosis. Paravertebral involvement extended from T-8-11 with extension to the vertebrae, most notably T-9, and involvement of spinal nerves in the area.

Sections on our slide included cuts through the pons, cerebellar peduncle, fourth ventricle, cervical cord, thoracic cord at T-5, and two sections of "mush" formerly cord at T-9. One of the latter had some recognizable nervous tissue in it, the rest being caseous material. Giant cells were present. If one could "surmise" that this was TB, one could also draw the conclusion of spinal cord involvement, even with the scant history. At the border of the caseous material was collagenous connective tissue reminiscent of dura mater.

The contributor had had other monkeys with negative TB tests which were subsequently found to be riddled with TB. We at the AFIP have had to resort to screening our newly arrived monkeys radiographically for the same reason. As stated in, Infectious Diseases of Domestic Animals, 4th. ed., Hagan and Bruner, p. 406, "When lesions of tuberculosis are extensive, the tissues are often so saturated with tuberculoprotein as to make them insensitive to tuberculin; hence in advanced cases of the disease, the tuberculin test is often falsely negative."

Case III - M-AI-66 - The tissue was from a mature female Dasypus novemcinctus, or armadillo with multiple lesions on head and feet. The thin section consisting of highly keratinized surface epithelium, an osseous layer and looser "subcutaneous" tissue was armor plating. The narrow interruptions in the bony plate correspond to joints in the armor. In the young, ossification occurs around pre-existing hair follicles which explains the holes and hair follicles we saw in the bony plate. There was also staphylococcal infection in the tissue.

The other section was easily identified. There was a lymphadenitis and not a whole lot more except some sarcocysts. In the lymph node, the only comment about the foamy macrophages was that the material is commonly seen and has been well characterized histochemically. Also, in the section, was a cavity filled with pale mucoid material, lined by cuboidal epithelium and surrounded by skeletal muscle. This "duct" leads to a structure called the salivary bladder. See references for further information on anatomy.

Comments were made concerning the problems of keeping these burrowing animals in a colony. They need a fairly warm or constant temperature and something to burrow under. (Straw may work in the absence of dirt). In response to rather mild stress they become victims of staph or strep infections. Our case was one of our early arrivals, was kept in a cool environment in a concrete run and in trying to burrow, developed the external lesions. These became secondarily infected with subcequent bacteremia and development of lesions body wide.

Diagnoses we may have come up with were:

Ostitis of the armor plate, lymphadenitis, or traumatic lesions with secondary infection due to attempted burrowing into concrete,

Oh well - The armadillo has some attributes. It can puff itself up and swim across a body of water or it can deflate, sink to the bottom and walk, taking up to ten minutes to accomplish the latter if need be. In the laboratory, it is being used in nutritional, reproductive and other studies. It usually produces 4 offspring all of the same sex.

Two excellent references with extensive bibliographies are:

Anderson, J.M. and Benirschke, K. The Armadillo, Dasypus novemcinctus, in Experimental Biology. Lab. Animal Care, Vol. 16, No. 3, June 1966, pp. 202-216.

Talmage, R.V. and Buchanan, G.D. The Rice Institute Monograph, Vol. XLI, No. 2, July 1954. (The Armadillo; A Review of its Natural History, Ecology, Anatom and Reproductive Physiology).

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Histories
Wednesday Slide Conference
26 April 1967

Case I - 66350-2 - Hereford heifer, 900 pounds was treated five times over a two-month period for severe dyspnea. The veterinarian made a correct diagnosis as borne out by the post mortem findings. What is the diagnosis and what is known about the etiology?

Case II - 1199288 - Brain from a Holstein calf. Six other calves out of 17 were found dead. The calf was prostrate with temperature of 102.2 when first admitted. It had been ill for ten days with CNS signs and transient diarrhea. It lived an additional week and was euthanized.

Case III - 32-554 - Tumor from kidney of 25.5 month old Sprague-Dawley rat maintained under standard laboratory conditions in a control group.

At necropsy, the right kidney was greatly enlarged, being 4.58 gm. while the left was 1.11 gm.
The parasite is most likely nematode found in renal pelvis (not in most sections)?

The tumor originated from _____?

What role, if any, did the parasite play?

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DIAGNOSES
WEDNESDAY SLIDE CONFERENCE
26 APRIL 1967

Case I - #66350-2 - Hereford heifer treated for severe dyspnea over a two-month period.

Diagnosis: Pulmonary adenomatosis.

Reference: Seaton, V.A. Pulmonary Adenomatosis in Iowa Cattle. Am. J. Vet. Res., 19: 600-609, 1958.

Some discussants were opposed to the term adenomatosis in this case and preferred to designate this as an interstitial pneumonitis with fetalization a secondary response.

Case II - AFIP Acc. 1199288 - Brain from a Holstein calf.

Diagnosis: Polioencephalomalacia.

Reference: Veterinary Pathology, 3rd. Ed., Smith & Jones, pp. 1113.

Case III - #32-554 - Tumor from kidney of 25-1/2-month-old Sprague-Dawley rat.

The parasite was most likely Trichosomoides crassicauda. We felt the tumor originated in transitional epithelium of the renal pelvis.

The parasite has not been shown to cause tumors although being a common inhabitant of rat urinary tract, it has been present with transitional cell tumors of the bladder.

We found no record of a transitional cell tumor of the renal pelvis of rats in a brief search. Four in one study were found in bladder of 2,000 rats but none in renal pelvis. Rosen et al in the following reference produced 10 transitional cell carcinomas in kidneys of 100 irradiated Sprague-Dawley rats. None were found in control animals.

Reference: Am. J. Path., 38(3): 359-369, March 1961.

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Histories
Wednesday Slide Conference
3 May 1967

184

Case I - P-47 - This castrated male feeder lamb was first noticed to be sick on June 15. The next day it appeared to be blind and tended to stand with its head pressed against any solid object. Its condition became progressively worse, and on June 19th it was killed and immediately necropsied.

185 No grossly detectable lesions were seen at necropsy.

Case II - AV 67-1 - Mature parakeet, age unknown was the source of this surgical specimen.

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Case III - #17222-7 - A biopsy from a growth on the peritoneal surface of a 12-year-old Holstein bull, named Alstar, from the American Breeders Service was sent to MRNL for diagnosis. This bull has about 60,000 offspring and is probably the best Holstein bull that ABS has ever had.

This animal had increasing debility for about two months and on exploratory laparotomy was performed using the left paralumbar fossa approach. Exploration of the peritoneal cavity revealed "extensive growths" on most of the palpable surface - both visceral and parietal. The growths were raised, smooth, confluent, and quite firm. There was a firm mass 20 X 10 X 10 cm. palpable in the region of the mesentery and intestines. Slight fibrinous adhesions were present between the lateral rumen and body wall. A biopsy was obtained from one of the growths. Question: What is your diagnosis?

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Results
Wednesday Slide Conference
3 May 1967

Case I - P-47 - Castrated male feeder lamb showing CNS signs. The only significant microscopic lesions were seen in the brain. These were characterized as focal and symmetrically oriented malacic lesions in the region of the basal ganglia and internal capsules. Demyelination, axon degeneration, gitter cell activity, and small areas of hemorrhage were seen. The conference section was taken at the level of the thalamus and posterior limb of internal capsule. A coronal section was submitted also and it resembled figures XV.4 (p. 616) and XXI.1 (p. 103) in Jubb and Saunders, and figure 2.14 (p. 103) in Jubb and Kennedy, Volume 2. In this case, milder malacic lesions were present in the white matter of the cerebellum and individual neurons of the substantia nigra showed cytoplasmic eosinophilia and nuclear pyknosis. At the time the animal was killed, the owner had lost five lambs from the same group in seven days, with enterotoxemia due to Clostridium perfringens, type D.

Case II - Mature male parakeet, age unknown, was the source of this surgical specimen from the abdominal cavity.

Contributor's diagnosis: Testicular tumor, probably seminoma.

In a paper by D.K. Blackmore on tumors in caged birds, Journal of Small Animal Practice, Volume 7, 1966, pp. 217-223, 39 of 168 tumors examined were testicular (28 were ovarian). Classification is not easy. Testicular and ovarian tumors were similar microscopically and often weighed more than 10 grams. Ten of the 39 testicular tumors had metastasized, most commonly to the liver, while none of the ovarian showed detectable metastasis.

Nephroblastoma was the most common tumor in this study (44 of 168).

Case III - #17222-7 - 12-year-old Holstein bull with increasing debility had extensive growths on much of the visceral and parietal surface.

Diagnoses: 1. Adenocarcinoma, primary, small intestine.
2. Adenocarcinoma, metastatic, peritoneum, mesentery, deep inguinal lymph node, spleen and skeletal muscule.

Contributor's Comments were as follows:

The gross appearance of this tumor could be confused with mesothelioma. Histologically, an adenomatous type of mesothelioma was considered, but too many features were against this diagnosis. The metastatic lesions markedly resembled the cell formations found in the Crypts of Lieberkuhn. The pseudo-rosette appearance in the metastatic tumor was actually a mimicking of the cellular arrangement in the deep crypts of Lieberkuhn.

The overall histological appearance of this tumor did not resemble any described mesothelioma to this worker's knowledge.

The area of massive involvement described at necropsy of the small intestine is highly suggestive of the site of origin.

The histological section from the small intestine does not demonstrate the point of invasion from the mucosal surface, but the serosal surface contains a wide zone of neoplastic adenomatous elements that have a close resemblance to the intestinal mucosa.

Adenocarcinoma of the bovine intestine is rare. There was only one case recognized at Denver's Federally Inspect Abattoirs in the 2 year period of 1953 and 1954 when 1,330,715 cattle were slaughtered.

Reference: Manlux, A.W., W.A. Anderson, and C.L. Davis, A Survey of Tumors Occurring in Cattle, Sheep, and Swine. Amer. J. Vet. Res., 17: 615-617, 1956.

Many people at the conference were leaning more toward pancreatic origin or bile duct origin due to the implantation aspect, although implantation or seeding of intestinal carcinoma is recognized.

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Histories
Wednesday Slide Conference
10 May 1967

Case I - #5781 - Specimen from a male 2,560 gm. M. mulatta. The monkey died six days after receiving the agent intraperitoneally.

Case II - #66-1462 - Incidental findings in a Hamadryas baboon killed as a TB reactor.

Case III - Rod - 67-2 - BALB laboratory mouse was inoculated five weeks previously with _____?

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Results

10 67

case I

1. 5781

Diagnosis Yellow Fever.

Morphology

1. Mid Zonal Necrosis.
2. Councilman like bodies.
3. Eosinophilic Intranucles Inclusion.

Other Characterestics

1. Various Nuclear Changes
   a. Pkynosis.
   b. Karryohexis.
   c. Karryolysis.

2. Little inflammatory Reaction.

Ref. 1. Smetana , H. G.: The Histopathology of experimental Yellow Fever. Virchows Arch. Path. Anat. V. 35:411-427(62)

2. Hudson, N.P.: The Pathology of Expermintal Yellow Fever In The Macacues Rhesus. 66-1462. Am. J. Path. Vol. 4 pp 395-429 (1928)

case II

2. 66-1462

Adenomyoma of extra Hepatic Biliary Tissue as good as anything else offered.

Ref: Anderson, W.A.D. Pathology 4th Ed. p 870.

Case III. Rod 47-9

Diagnosis Raucher Leukemia

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Differential

1. Raucher & Friend Agent
   A splenomegaly & hemorrhage, same time as spleen will rupture and animal either dies if he dosen't die it goes on to become Leukemia.

2. Making & Gross Agent
   Seen enlargement of the thymus as well as in the liver and spleen.
   The enlargement of the thymas occures first and isn't seen with the Raucher - Friend Agent

Results

10 67

case I

1. 5781

Diagnosis Yellow Fever.

Morphology

1. Mid Zonal Necrosis.
2. Councilman like bodies.
3. Eosinophilic Intranucles Inclusion.

Other Characterestics

1. Various Nuclear Changes
   a. Pkynosis.
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case II

2. 66-1462

Adenomyoma of extra Hepatic Biliary Tissue as good as anything else offered.

Ref: Anderson, W.A.D. Pathology 4th Ed. p 870.

Case III. Rod 67-2

Diagnosis Raucher Leukemia

Differential

1. Raucher & Friend Agent
   A splenomegaly & hemorrhage, same time as spleen will rupture and animal either dies if he dosen't die it goes on to become Leukemia.

2. Making & Gross Agent
   Seen enlargement of the thymus as well as in the liver and spleen.
   The enlargement of the thymas occures first and isn't seen with the Raucher - Friend Agent

Histories
Wednesday Slide Conference
31 May 1967

Case I (2 slides) - A767 & A768 - Natural infection in a small domestic animal.

Case II - #66176-1 - A four-week-old Leghorn chicken was given an experimental inoculation subconjunctivally. An elevation of body temperature and slight diarrhea occurred three days later. The bursa of Fabricius and spleen were markedly enlarged.

Case III - #33-243 - This brain is from a young male Rhesus monkey that was receiving an experimental drug but became ill during the experiment.

Physical examination revealed a dehydrated animal which exhibited mydriasis, frequent clonic convulsions, weakness, intermittent prostration, and marked anorexia. Several convulsions were noted during a five-day period that the animal was maintained under close observation. The animal became weaker, depressed, and prostrate and was euthanatized on the fifth day. A necropsy was performed and no gross lesions were observed.

The brain was fixed in neutral buffered formalin, processed by routine methods, and sections were stained with hematoxylin and eosin.

This is the only animal on the experiment to exhibit the above clinical signs and no histopathologic alterations were present in the brains of the other experimental animals.

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Results
Wednesday Slide Conference
31 May 1967

Case I - A767 and A768 - Natural infection in two cats. Feline Viral Rhinotracheitis in seven of eight cats at a laboratory.

Signs: Purulent conjunctivitis, mucopurulent ocular, and nasal discharge.

Gross Pathology: Purulent rhinitis; congested and consolidated lungs; ulcers on tongue; congestion of trachea with mucopurulent exudate.

Microscopic Pathology: Suppurative pneumonia (alpha streptococci isolated); focal necrosis with inclusions in trachea and turbinates; ulcerative glossitis.

The virus was isolated and distinguished as Feline Rhinotracheitis virus and was obtained from trachea turbinates and third eyelid.

Some intranuclear inclusions were present in tracheal epithelium. Some were seen by a few participants in the turbinate epithelium. Inflammatory reaction was not dramatic.

The granular material within the tracheal epithelium was discussed. Some of these structures resembled red cells but most were of variable size and much too small. They were likened to kerato-hyalin granules but no authoritative decision was made.

Case II - 66176-1 - Bursa of Fabricius from a 4-week-old chicken with experimental Gumboro disease. Edema, lymphoid depletion, and necrosis of "follicular" cells were seen.

Reference: Helmbolt, C. F. and Garner, E., "Experimentally Induced Gumboro Disease (IBA), Avian Diseases," Vol. VIII, No. 4, November 1964.

Case III - 33-243 - Calcarine cortex of brain from Rhesus monkey which was one of a group receiving an experimental drug. This animal was the only one to become ill.

The case was submitted to demonstrate a case of severe acute encephalitis. Comments of a neuropathologist favored necrotizing viral encephalitis, possibly herpetic. Inclusion bodies were numerous. Measles encephalitis was mentioned but in a human case the lesions were vessel oriented, with perivascular malacic changes.

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