

FINDINGS OF PATHOLOGICAL ANATOMY IN MAMMALS FROM THE "FUNDAÇÃO PARQUE ZOOLOGICO DE SÃO PAULO" 1971

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ABSTRACT: In 1971, from a total of 2066 animals of the ZOO, 674 of which Mammals, 101 were received for post mortem examination. Forty seven cases were selected from the total of animals that were examined, comprising 27 acclimatized animals and 20 under quarantine. Tissue fragments were collected and fixed in a neutral 15% formaldehyde solution, or in Bouin's fluid. Paraffin tissue sections, 5 μ in size, were submitted to staining methods for histological examination. Material collected concerned the following orders: Primates, Carnivora, Artiodactyla, Perissodactyla, Marsupialia, Rodentia and Edentata. Among the examined animals, the highest incidence of alterations was seen at the level of the circulatory tract. Following, were disturbances of the digestive tract, respiratory and urinary tract. At times, alterations of the genital tract and some cases of traumatism, were observed. A fact to be noted is the finding of neoplasia represented by one case of renal adenocarcinoma.

KEYWORDS: Captivity animals, Pathology.

INTRODUCTION

Practical experience concerning animals maintained in captivity at are assembled in the papers of T-W-Fiennes (1966, 1966 and 1968), who studied main diseases that took place in Regent's Park, London; Hime (1976), and Keymer (1976) with similar studies at the same Zoo.

Practical experience concerning animals maintained in captivity at the "Fundação Parque Zoológico de São Paulo" (ZOO) is reported in the publications of Matera et al. (1968), who described five cases of infection caused by *Dioctophyma renale* in *Chrysocyon brachyurus*, Saliba et al.

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(1968), who described a case of sporotrichosis in a chimpanzee, Matera et al. (1967) with the description of three cases of rabies in *Pteronura brasiliensis*, Simon et al. (1975), who reported a case of infection by *Yersinia* spp. in *Callicebus moloch hoffmansii*, and Costallat, L.F. et al. (1978) with two cases of mycobacteriosis in monkeys.

In 1971 from a total of 2066 animals of the Zoo, 674 of which Mammals, 101 were received for post mortem examination. The following is an account of the more interesting cases, comprising 27 acclimatized animals, and 20 under quarantine.

MATERIAL AND METHODS

Material of the following animal orders, families, genera and species was collected.

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| 1. Marsupialia, Phalangeridae | <i>Tricosurus vulpecula</i> |
| Didelphidae | <i>Marmosa murina</i> |
| Macropodidae | <i>Thylogale stigmatica</i> |
| 2. Endentata, Myrmecophagidae | <i>Tamandua tetradactyla</i> |
| | <i>Myrmecophaga tridactyla</i> |
| 3. Rodentia, Chinchillidae | <i>Chinchilla laniger</i> |
| Capromidae | <i>Myocastor coypus</i> |
| 4. Perissodactyla, Tapiridae | <i>Tapirus terrestris</i> |
| Rhinocerotidae | <i>Diceros bicornis</i> |
| 5. Artiodactyla, Cervidae | <i>Mazama simplicicornis</i> |
| | <i>Ozotocerus bezoarticus</i> |
| | <i>Blastocerus dichotomus</i> |
| | <i>Tayassu tajacu</i> |
| Tayassuidae | <i>Bubalus bubalis</i> |
| Bovidae | <i>Ovis aries</i> |
| | <i>Ovis musimon</i> |
| | <i>Antilope cervicapra</i> |
| 6. Carnívora, Felidae | <i>Felis yaguaroundi</i> |
| Procyonidae | <i>Procyon lotor</i> |
| Canidae | <i>Chrysocyon brachyurus</i> |
| Mustelidae | <i>Pteronura brasiliensis</i> |
| Otariidae | <i>Zolophus californianus</i> |
| 7. Primata, Callithricidae | <i>Callithrix penicillata</i> |
| | <i>Callithrix</i> spp. |
| | <i>Saguinus niger</i> |
| | <i>Saguinus bicolor</i> |
| | <i>Cacajao melanocephalus</i> |
| Cebidae | <i>Alouatta guariba</i> |
| | <i>Saimiri sciureus</i> |

Tissue fragments were collected and fixed in a neutral 15% formal dehyde solution, or in Bouin's fluid.

Paraffin tissue sections, 5 μ in size, were submitted to the following staining methods for histological examination: Regaud's Ferric Hematoxilin, Congo Red, Perlz's Blue, Wilder Foot, and Mallory's trichromic method.

The ZOO's record number for each specimen, appears in brackets.

RESULTS

1. *Trichosurus vulpecula* (3572)

Female, unknown age, received from Frankfurt in December, 1971; died one day after arrival at the ZOO.

Main disease: Cachexia

Morbid anatomic findings: cachexia

Histopathological findings: hyaline degeneration of the myocardial fibers; hemosiderosis, and toxic dystrophia of the liver; necrosis and calcification of the renal tubuli.

2. *Marmosa murina* (1931)

Male, unknown age, captured in the forest of the ZOO, where it remained for two years, never presenting any organic alteration.

Main disease: endocarditis, and myocarditis.

Morbid anatomic findings: endocarditis, and myocarditis.

Histopathological findings: chronic interstitial myocarditis, hemorrhage; pulmonary edema and congestion; hepatic hemosiderosis; chronic interstitial nephritis.

3. *Chironectes minimus* (3698)

Male, unknown age, proceeding from the vicinity of the "Guarapiranga Dam" — São Paulo. After 21 days in captivity a lesion on the tail was observed, treatment had no satisfactory results, developing posterior necrosis. The animal died a month and a half later. Main disease: purulent necrotic dermatitis on the tail.

Histological findings: necrotic purulent dermatitis, hyaline degeneration and calcification of the myocardial fibers; passive congestion, hemorrhage, necrosis and calcification of the smooth muscle fibers of the bladder's wall; necrosis and calcification of the renal tubuli; cardiac liver.

4. *Thylogale stigmatica* (3578)

Female, unknown age (adult) from Frankfurt. Died after parturition.

Main disease: ulcerous thrombo-endocarditis of the mitral valve. Morbid anatomic findings: ulcerative-thrombo endocarditis of the mitral valve; passive hepatic congestion; passive congestion of the spleen, passive renal congestion.

Histological findings: chronic interstitial myocarditis, ulcerative thrombo-endocarditis; focal necrosis and chronic hepatic congestion.

5. *Thylogale stigmatica* (3579)

Female, unknown age (adult), proceeding from Frankfurt, stayed at the ZOO for two years without any apparent signs or symptoms. Death took place during Winter.

Main disease: purulent pneumonia.

Morbid anatomic findings: purulent pneumonia; cystitis hepatitis and vicarious hypertrophy of the left kidney.

Histopathological findings: purulent pneumonia; chronic interstitial hepatitis; chronic cystitis, necrosis of central follicle of spleen.

6. *Thylogale stigmatica* (3576)

Female (adult) from Frankfurt. Death after parturition.

Main disease: chronic myocarditis, bronchopneumonia.

Morbid anatomic findings: chronic myocarditis, bronchopneumonia.

7. *Thylogale stigmatica* (3577)

Male, unknown age, proceeding from Frankfurt. After 16 days of quarantine, it was found dead.

Main disease: intestinal intussusception.

Morbid anatomic findings: intestinal intussusception.

8. *Tamandua tetradactyla* (3680)

Female, unknown age, proceeding from "Serra do Mar" — São Paulo. It died after 12 days of captivity, showing apathy, slow movements, nasal discharge, T-36°C.

Main disease: hypoproteinemia.

Morbid anatomic findings: pulmonary edema; anasarca; ascitis; hydropericardium.

9. *Myrmecophaga tridactyla* (3742)

Male, unknown age, from Itai-São Paulo.

Parasitological examination: large amount of *Ancylostoma* sp ova.

Main disease: verrucous thrombo-endocarditis of the bicuspidal and mitral valves.

Morbid anatomic findings: thrombo-endocarditis of the bicuspidal and mitral valves; peptic ulcer of the stomach and duodenum; passive renal congestion.

Histopathological findings: splenic and adrenal amyloidosis — fig. 1, 2; peptic ulcer of the stomach and duodenum.

10. *Chinchilla laniger* (390)

Male, from the North of Chile, staying for five years at the ZOO.

Main disease: purulent pneumonia.

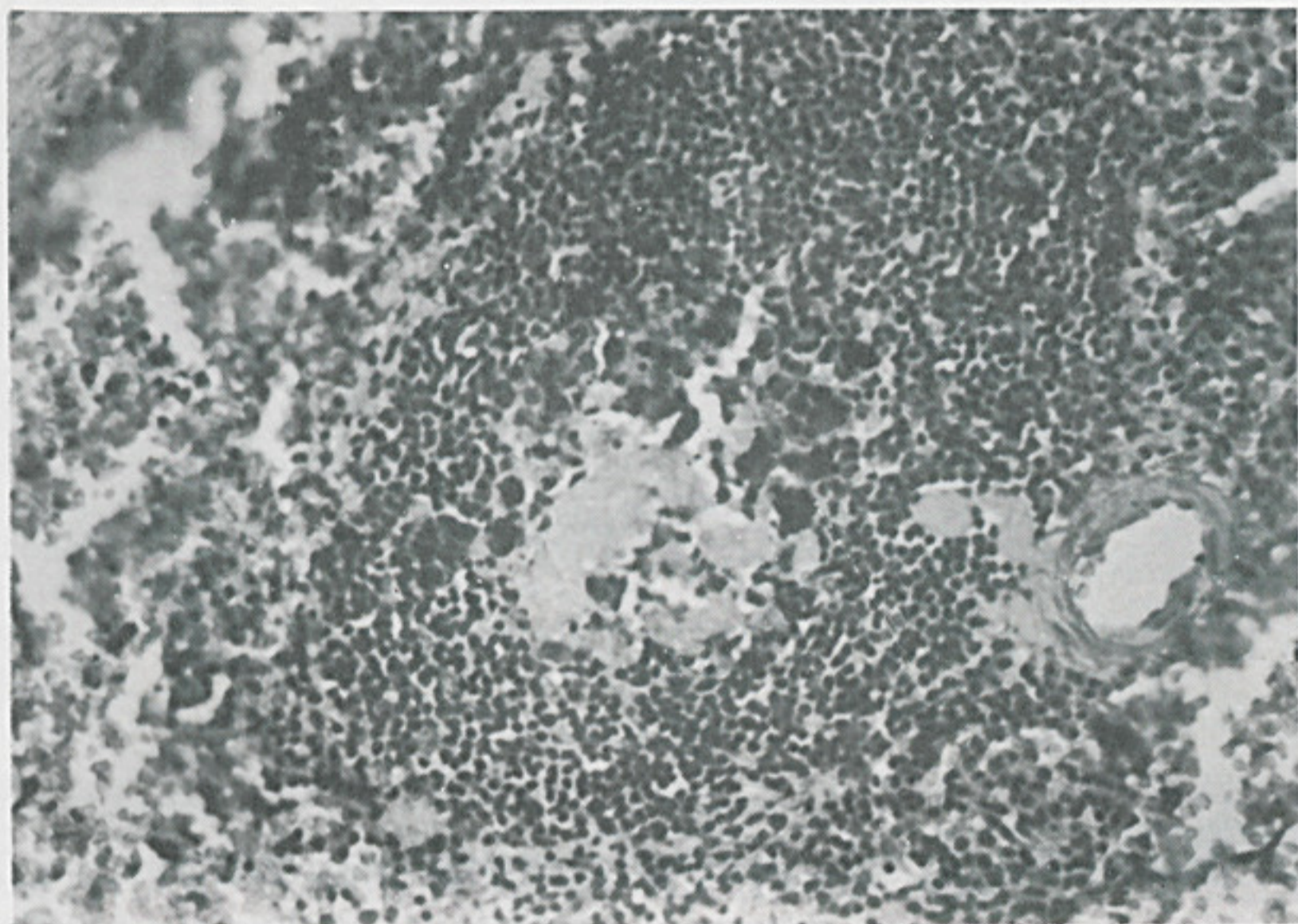


Fig. 1 — Thin section of the spleen of *Myrmecophaga tridactyla* demonstrating amyloid infiltration in the follicles. HE staining; magnification about 160 x.

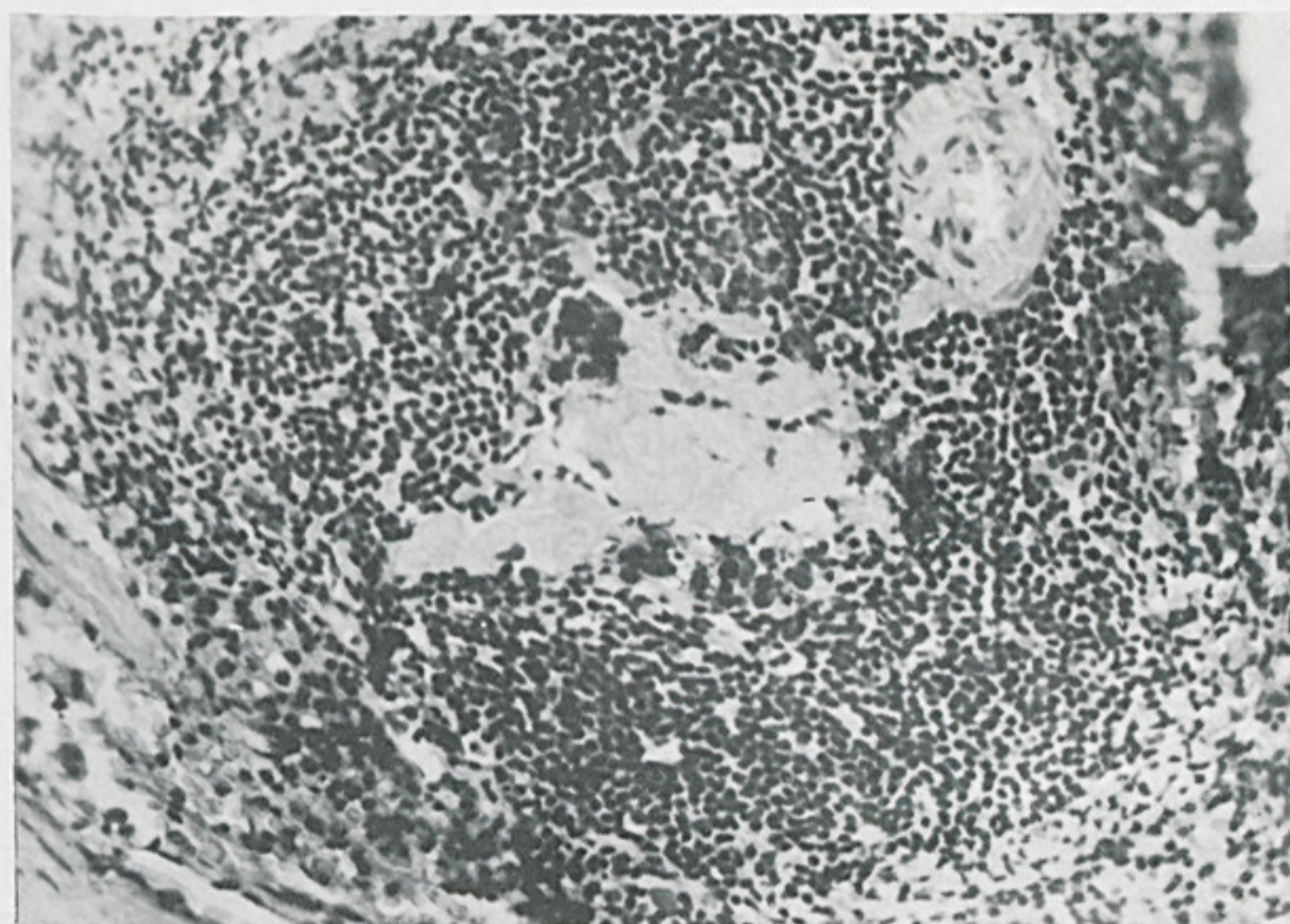


Fig. 2 — Details of fig. 1. HE staining; magnification about 400 x.

Morbid anatomic findings: purulent pneumonia.

Histopathological findings: purulent pneumonia — fig. 3.

11. *Chinchilla laniger* (3671)

Female, lived for several years with its previous owner, before being donated to the ZOO, where it remained for two months.

Main disease: myocarditis and verrucous thrombo-endocarditis of the mitral valve.

Morbid anatomic findings: chronic interstitial myocarditis; chronic pericarditis; verrucous thrombo-endocarditis of the mitral valve.

Histopathological findings: chronic interstitial myocarditis; chronic pericarditis; verrucous thrombo-endocarditis; pulmonary edema and emphysema; serous glomerulitis.

12. *Chinchilla laniger* (3674)

Female, lived for many years with its owner, and was then donated to the ZOO, where it stayed for two months.

Main disease: toxic dystrophia of the liver.

Morbid anatomic findings: toxic dystrophia of the liver; gastroenteritis.

Histopathological findings: necrosis and steatosis of the liver; passive congestion and pulmonary hemorrhage; hyaline degeneration of the myocardic fibers; hemorrhagic enteritis.

13. *Chinchilla laniger* (3672)

Male, lived for many years with its previous owner, and was then donated to the ZOO, where it stayed for two months.

Main disease: verrucous thrombo-endocarditis of the mitral valve, and focal myocarditis.

Morbid anatomic findings: chronic myocarditis, and chronic verrucous thrombo-endocarditis.

14. *Myocastor coypus* (2150)

Male, born at the ZOO, two years old. It was found dead in its cage after presenting inappetency and apathy.

Main disease: acute glomerulonephritis; serosas with ecchymosis and suffusions.

Histopathological findings: acute glomerulonephritis — fig. 4.

15. *Myocastor coypus* (3167)

Male, captured in Santo Amaro — São Paulo, estimated age one year. Stayed at the ZOO for one year. It was found dead without prior signs or symptoms.

Main disease: pericarditis and chronic fibrinous peritonitis.

Morbid anatomic findings: pericarditis and chronic fibrinous peritonitis.

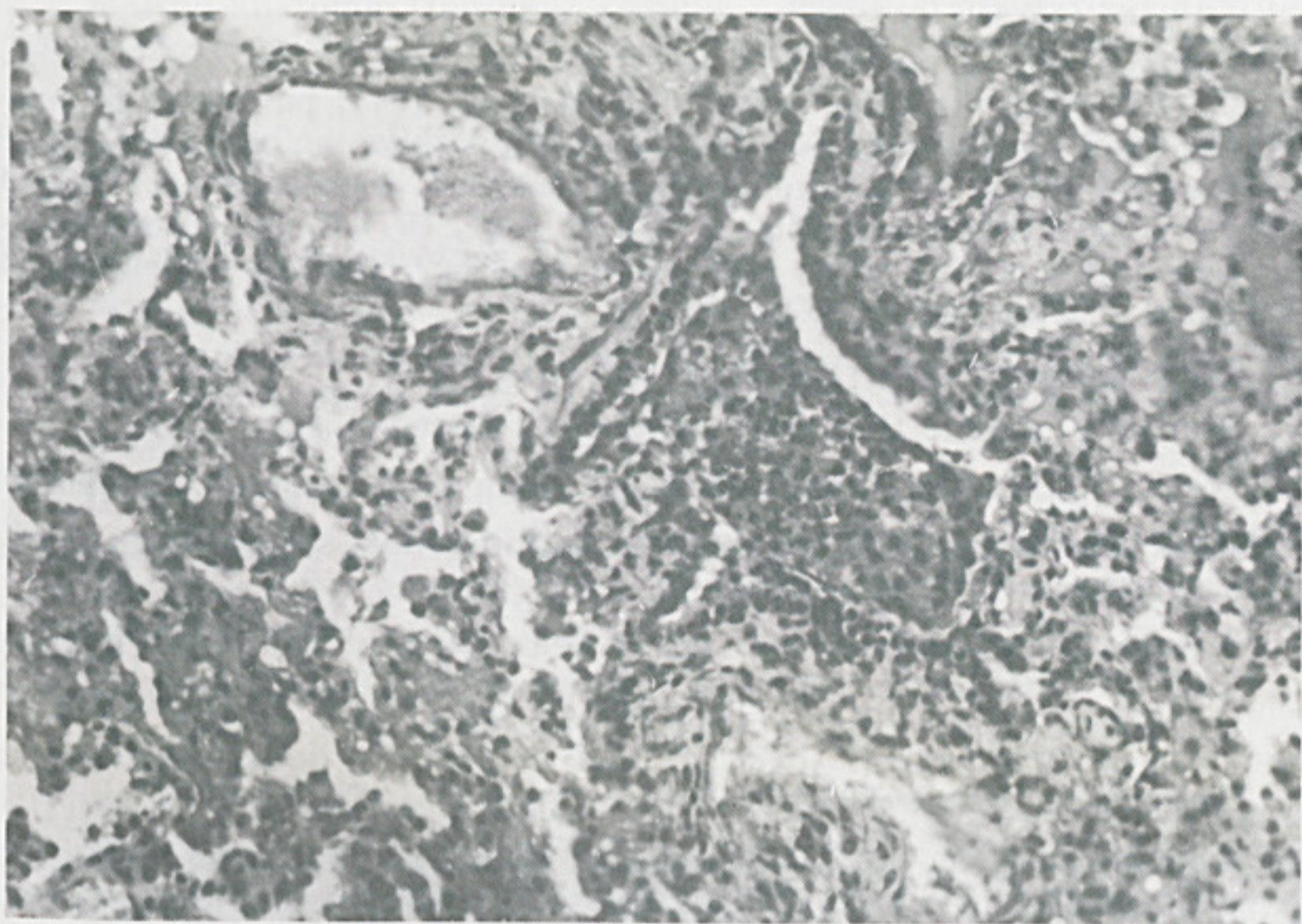


Fig. 3 — Thin lung section of *Chinchilla laniger*, presenting bronchioles and alveoli filled with pus. HE staining; magnification about 160 x.

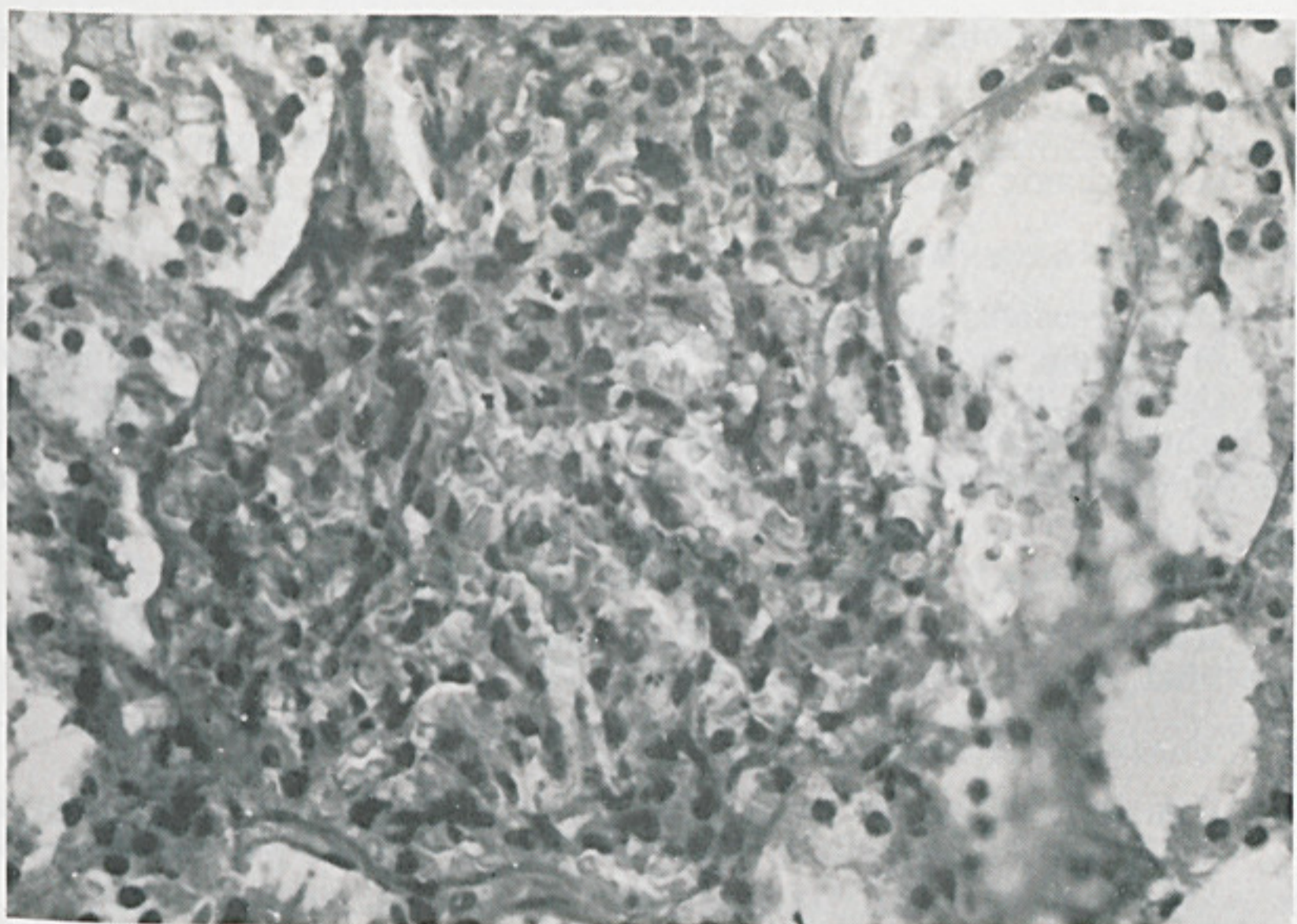


Fig. 4 — Thin kidney section of *Myocastor coypus*, indicating Malpigi's vesicles with glomerulonephritis. HE staining; magnification about 400 x.

16. *Tapirus terrestris* (332)

Female, approximately five years old, received at the ZOO on May 9, 1971 from Goiania, Brazil. On May 15, 1971, parasitologic examination showed ova and larvae of *Strongylus* sp. and the animal was submitted to antihelminthic treatment. On June 16, 1971 it gave birth to a young female. On July 21, 1971 it presented dysentery and was medicated, with no satisfactory results and death took place on August 24, 1971.

Main disease: catarrhal gastroenteritis.

Morbid anatomic findings: catarrhal gastroenteritis.

Note: Within the intestines, a great amount of sand was found. This incidence caused the removal of this animal species from sandy enclosures.

Histopathological findings: toxic dystrophia of the liver; hyaline and vacuolar degeneration of the myocardic fibers; catarrhal gastroenteritis, glomerular and interstitial renal hemorrhage.

17. *Tapirus terrestris* (3745)

Female, born at the ZOO on June 16, 1971. Presented dysentery on August 2, 1971; intense treatment did not show any improvement. The animal was sacrificed on the 28th of September of the same year, presenting dehydration and cachexia.

Main disease: catarrhal hemorrhagic gastroenteritis.

Morbid anatomic findings: catarrhal hemorrhagic gastroenteritis; toxic dystrophia of the liver.

Histopathological findings: toxic dystrophia of the liver; catarrhal hemorrhagic gastroenteritis.

18. *Diceros bicornis* (642)

Male, received at the ZOO on the 3rd of September, 1971, born in Angola, proceeding from Portugal. Early in the morning of October 20, 1971, the animal presented symptoms of severe colics which probable started early in the morning. The animal was immediately medicated with no satisfactory results, dying soon after.

Main disease: intestinal volvulus (jejunum and ileus).

Morbid anatomic findings: fibrino hemmorhagic peritonitis; intestinal volvulus.

19. *Mazama simplicirconis* (3867)

Female, received on August 29, 1971, presenting diffuse skin injuries, some of them with fistulous foccus. It died on September 3, 1971.

Main disease: chronic interstitial myocarditis, and thrombo-endocarditis of the valves.

Morbid anatomic findings: chronic interstitial myocarditis; cardiac liver; passive congestion, and pulmonary edema; purulent dermatitis.

Histopathological findings: cardiac liver; chronic myocarditis, and chronic endocarditis.

20. *Mazama simplicicornis* (3749)

Female, estimated age several months. Arrived on 19th June 1971, extremely emaciated, inappetent during a couple of days. After medication, and special food, however, died on June 26, 1971, still rejecting food.

Main disease: verminosis.

Morbid anatomic findings: cachexia; secondary anemia; anasarca.

Note: numerous exemplaries of trichostrongylidae were found in the intestines.

21. *Mazama simplicicornis* (3044)

Female, adult, arrived on July 18, 1970. It gave birth to one young on April 8, 1971 and died on April 23 of the same year.

Main disease: ulceropolypous endocarditis.

Morbid anatomic findings: ulceropolypous endocarditis, pulmonary hemorrhage and hepatic cirrhosis.

Histopathological findings: pigmentary hepatic cirrhosis — fig. 5; chronic perisplenitis; ulceropolypous thrombo-endocarditis.

22. *Ozotocerus bezoarticus* (3889)

Female, unknown age, proceeding from Minas Gerais. Arrived on September 15, 1971, under the effect of a tranquilizer, extremely weak. Died on September 28, 1971.

Main disease: hepatic cirrhosis, ascitis; hydrothorax; hydroperitoneum.

Histopathological findings: biliary cirrhosis.

23. *Ozotocerus bezoarticus* (3879)

Female, estimated age two months, proceeding from Mato Grosso.

Arrived on September 10, 1971, presenting intense dysentery, still in lactation stage. Medicated, however, died on September 16, 1971.

Main disease: verminosis.

Morbid anatomic findings: secondary anemia; ascitis; anasarca.

Note: Numerous exemplaries of trichostrongylidae were observed in the intestines.

24. *Ozotocerus bezoarticus* (588)

Female, adult, arrived on 28th of September 1968. On May 30, 1971, it presented respiratory problems, treatment was initiated, however, it died on July 2, 1971.

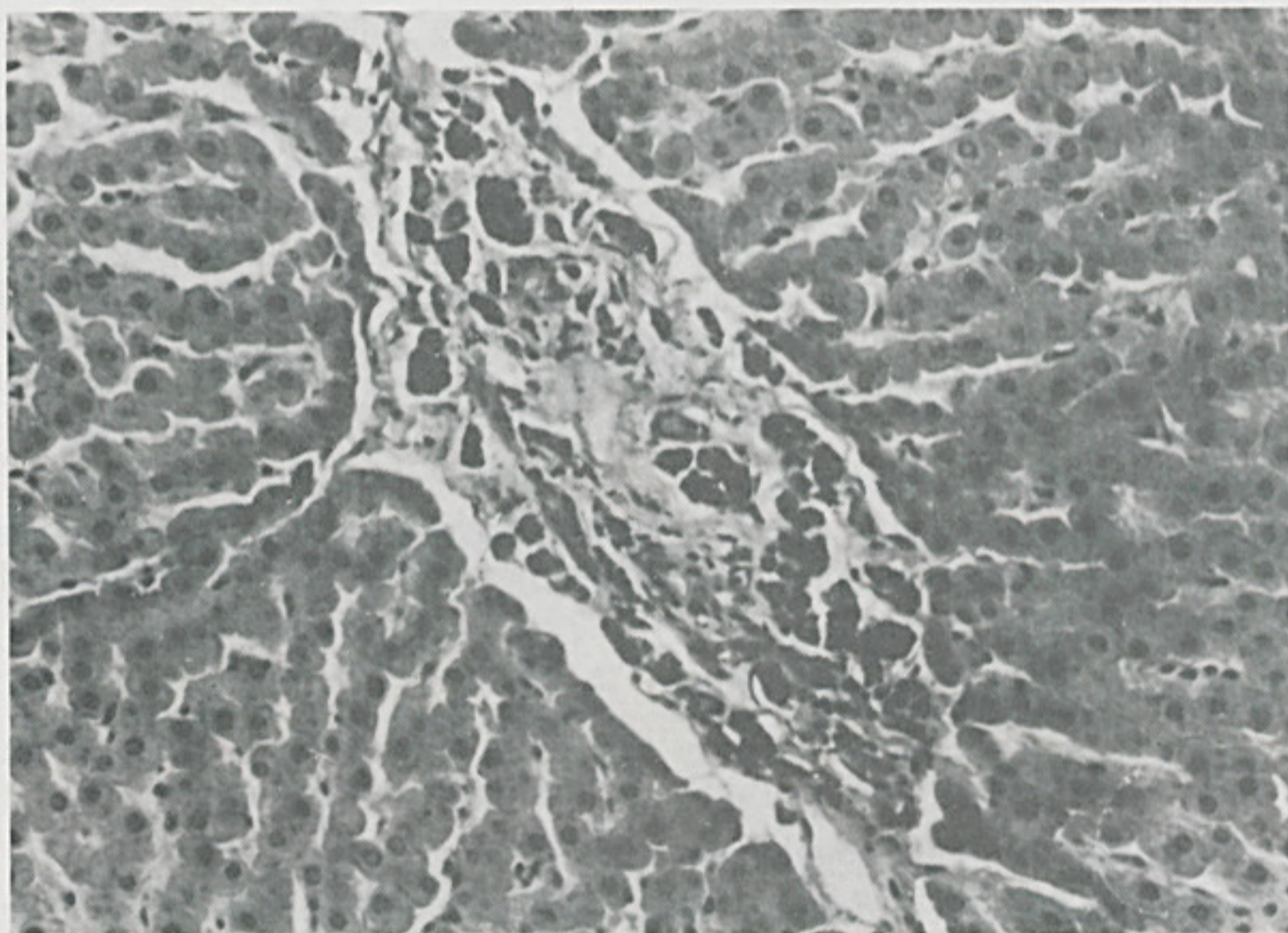


Fig. 5 — Thin liver section of *Mazama simplicicornis*, indicating intense connective proliferation in the portal space, and macrophages congested with hemosiderin. HE staining; magnification about 400 x.

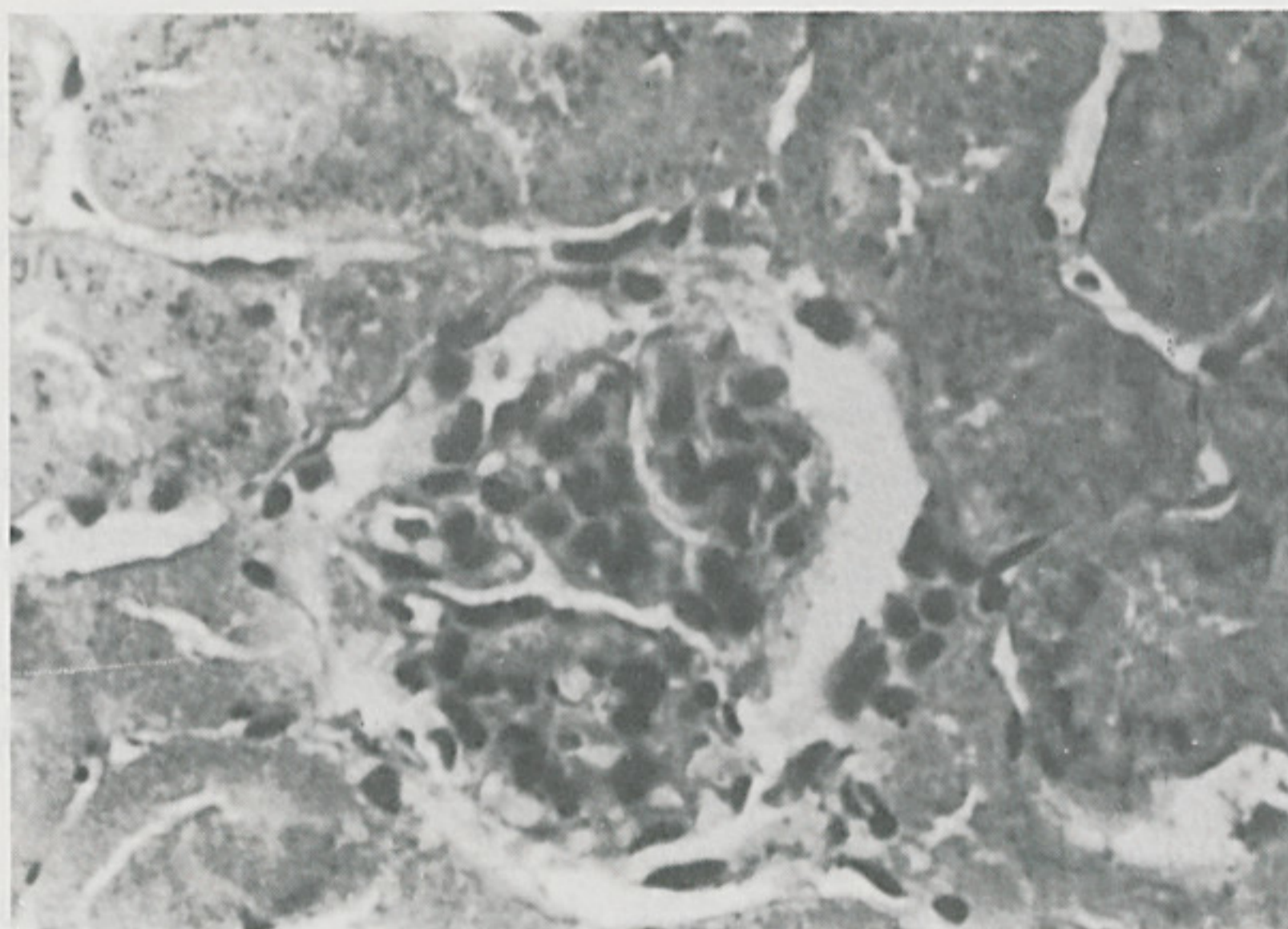


Fig. 6 — Thin kidney section of *Mazama simplicicornis* presenting hemosiderin infiltration in the proximal distorted tubuli. HE staining; magnification about 400 x.

Main disease: purulent bronchopneumonia.

Morbid anatomic findings: purulent fibrinous pleurisy.

Histopathological findings: fibrinous pneumonia. — figs. 7, 8.

25. *Blastocerus dichotomus* (2997)

Female, estimated age two years, arrived on July 8, 1970, from Presidente Epitácio — São Paulo. On October 6, 1971, presented cachexia, dry and bristly fur, anemic mucosa, body temperature 36°C. It died on October 21, 1971.

Main disease: inanition.

Morbid anatomic findings: hydrothorax; ascitis; hydroperitoneum.

26. *Tayassu tajacu* (297)

Male, adult, proceeding from Brasilia on June 21, 1958; it died on October 18, 1971.

Main disease: serofibrinous pericarditis; serous hepatitis; pulmonary edema.

27. *Bubalus bubalis* (190)

Male, six years and eight months old, born at the ZOO on September 9, 1965. Up to May 21, 1971, it showed only small injuries, and endoparasites, when on this date, the animal presented intense apathy, and a brownish urine. Examination of the urine revealed an increased level of glucose and a sediment without erythrocytes. On May 26, 1971, in spite of the intense treatment, it died.

Main disease: traumatic pericarditis; hypertrophy of the left and right heart.

Morbid anatomic findings: traumatic pericarditis.

Histopathological findings: fibrinous pericarditis; renal hemosiderosis; hepatic hemosiderosis.

28. *Ovis aries* (2074)

Female, born at the ZOO, five years and six months old. It brought forth one young on June 14, 1969, and on the 24th of February 1971, it suffered traumatism while pregnant.

Main disease: endometritis, and purulent placentitis.

Morbid anatomic findings: endometritis and purulent placentitis.

29. *Ovis aries* (308)

Female, born at the ZOO, five years and six months old. It brought forth one young on June 14, 1969, and on the 24th of February 1971, it presented myiasis of the basis of horns, and was medicated. It died on March 14, 1971, without disclosing symptoms.

Main disease: ulceropolypous thrombo-endocarditis.

Morbid anatomic findings: chronic myocarditis and chronic endocarditis; ascitis.

Histopathological findings: chronic myocarditis and endocarditis.

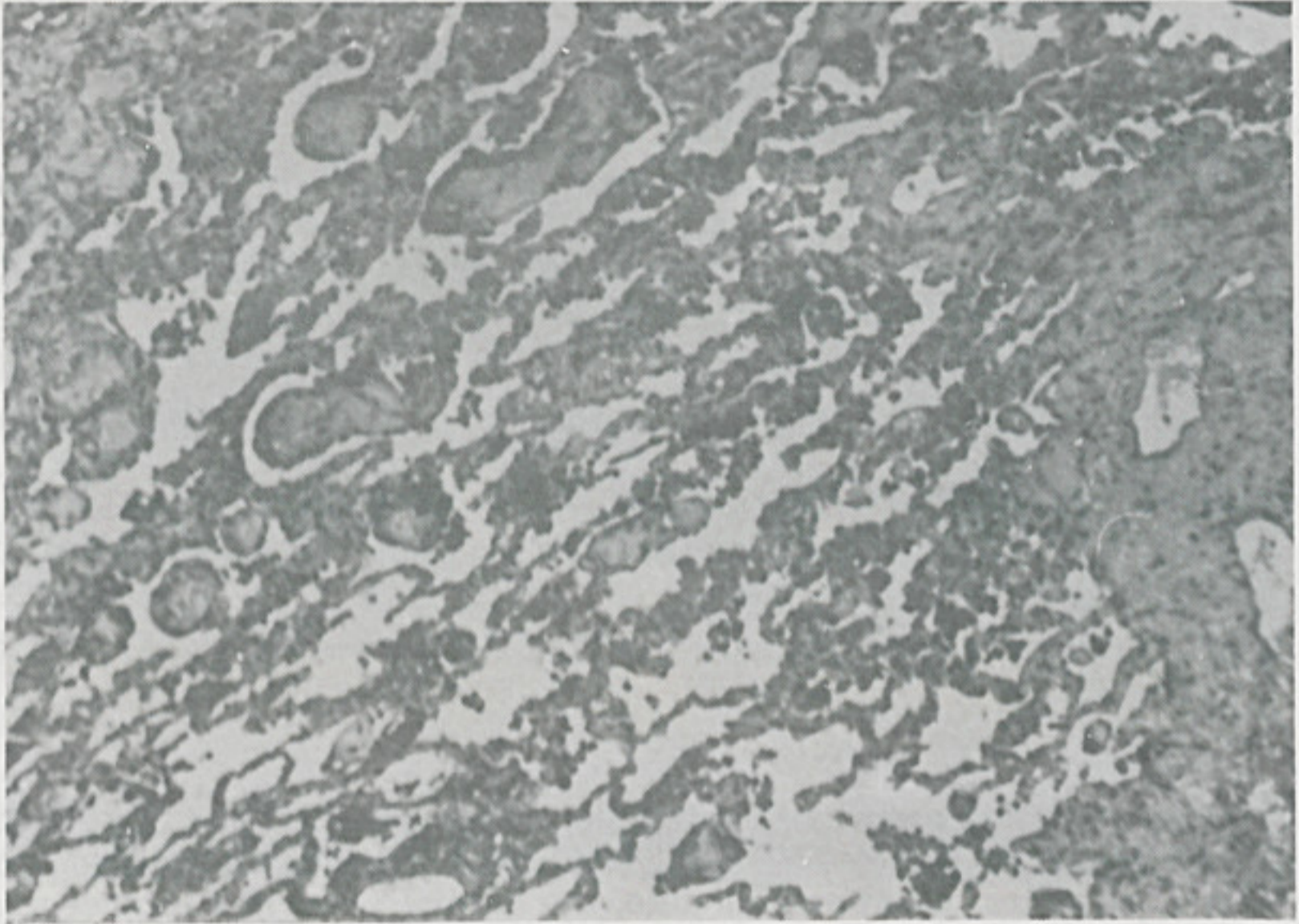


Fig. 7 — Thin lung section of *Ozotocerus bezoarticus* with fibrinous pneumonia, presenting exudative alveoli with carnification. HE staining; magnification about 160 x.

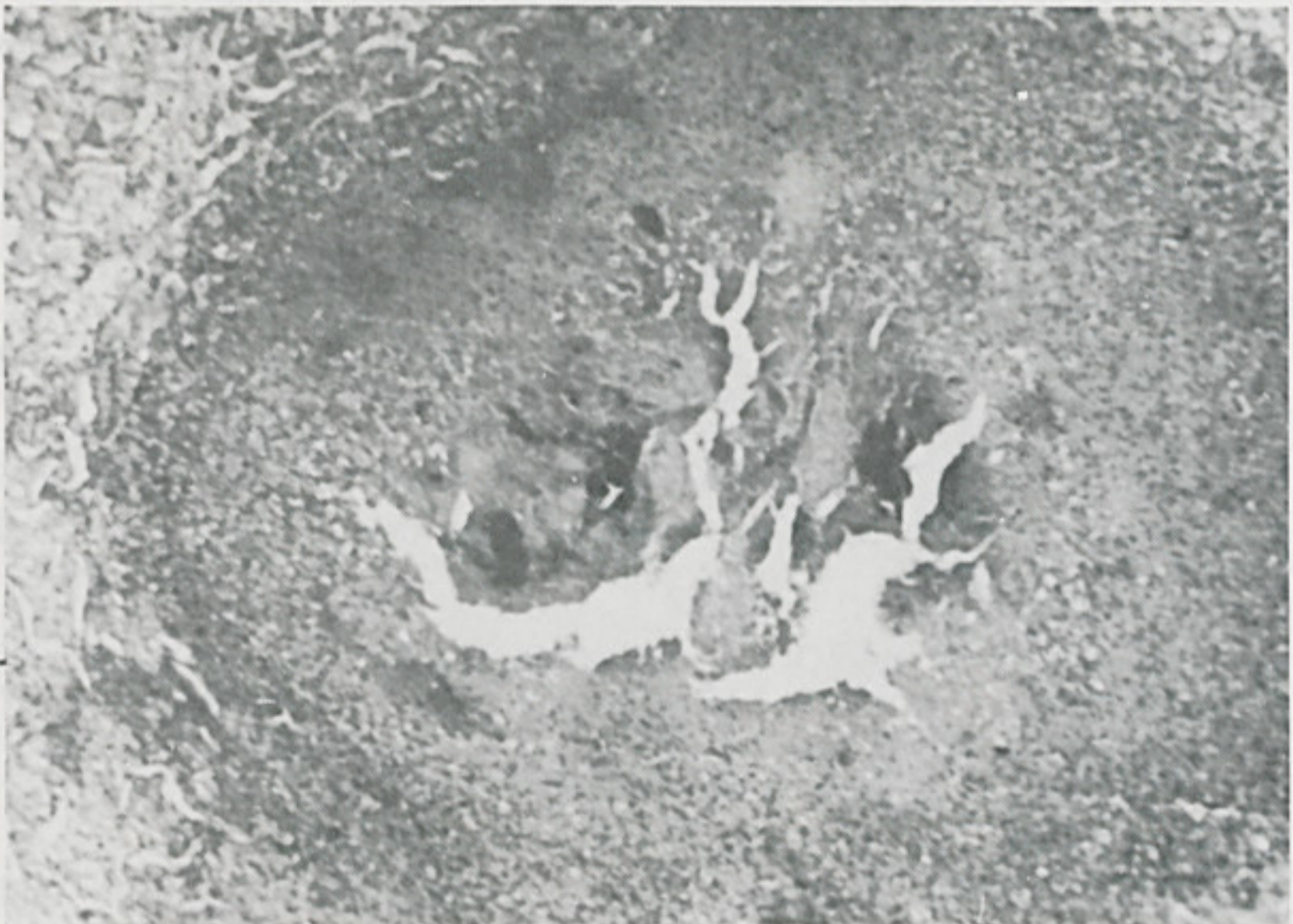


Fig. 8 — Thin lung section with fibrinous pneumonia, showing extensive necrotic area, and dystrophic calcification. HE staining; magnification about 400 x.

30. *Ovis musimom* (1444)

Female, born at the ZOO on August 19, 1971, two years and six months old.

Main disease: chronic myocarditis and chronic endocarditis.

Morbid anatomic findings: chronic myocarditis, chronic endocarditis.

Histopathological findings: chronic myocarditis and chronic endocarditis.

31. *Ovis musimom* (3845)

Female, two months and a half old. Born at the ZOO on August 19, 1971. Since it lost its mother, it was bottlefed, and on October 15, 1971, it presented dysentery.

Parasitological examination: Strongylidae.

Main disease: Helminthic pneumonia.

Morbid anatomic findings: helminthic pneumonia; ascitis; hydrothorax; hydropericardium; secondary anemia; catarrhal hemorrhagic enteritis. Within the intestines, numerous exemplaries of Strongylidae were observed.

32. *Ovis musimom* (411)

Female, four years and three months old. Born at the ZOO on August 12, 1967. On October 15, 1971, it presented dysentery.

Examination of the faeces revealed numerous ova of Strongylidae.

After medication, however, it died on November 13, 1971.

Main disease: purulent necrotic pneumonia.

Morbid anatomic findings: purulent necrotic pneumonia; ascitis; hydrothorax; hydropericardium; hepatic toxic dystrophia.

33. *Antilope cervicapra* (548)

Male, arrived at the ZOO on January 17, 1963, over 8 years of age.

On August 6, 1971, it suddenly fell down trembling with groaning respiratory sounds, and died 10 minutes after.

Main disease: myocardial infarction.

Morbid anatomic findings: myocardial infarction; mesenteric hemorrhage.

Histopathological findings: myocardial infarction; chronic interstitial nephritis; hepatic toxic dystrophia.

34. *Felis yaguaroundi* (3734)

Male, arrived at the ZOO on June 10, 1971. On the 20th of September, 1971, it died after presenting apathy and inappetence.

Main disease: purulent pneumonia.

Morbid anatomic findings: purulent pneumonia.

35. *Procyon lotor* (750)

Male, arrived at the ZOO on the 28th of August, 1964. It became apathic, inappetent on April 25, 1971, and died on the same day.

Main disease: renal neoplasia; gastroenteritis; toxic hepatic dystrophia.

Morbid anatomic findings: renal neoplasia; gastroenteritis; toxic hepatic dystrophia.

Histopathological findings: renal adenocarcinoma — fig. 9, 10, 11; Hemorrhagic catarrhal gastroenteritis; toxic hepatic dystrophia.

Renal metaplastic ossification — fig. 12, 13.

36. *Chrysocyon brachiurus* (3820)

Male, five months old, arrived at the ZOO on August 9, 1971, in an advanced state of cachexia. On August 9, of the same year, it presented bloody faeces, and died on August 11, 1971.

Main disease: cachexia.

Morbid anatomic findings: ascitis; hemopericardium; rachitism.

Histopathological findings: necrosis of the central lobe of the liver; necrotic nephrosis; pulmonary edema and hemorrhage.

37. *Pteronura brasiliensis* (196)

Female, 10 years old, arrived at the ZOO on October 28, 1964, from Aquidauana — Mato Grosso. During its stay in the ZOO, presented only injuries by fighting. On May 22, 1971, it rejected food, did not swim, and on May 23, of the same year, it died.

Main disease: calculous pyelonephritis; fibrinous pericarditis; ulcerous thrombo-endocarditis of the tricuspid and mitral valves; purulent cystitis; hemorrhagic catarrhal gastroenteritis.

Histopathological findings: pyelonephritis; fibrinous pericarditis; ulcerous thrombo-endocarditis; purulent cystitis; catarrhal gastroenteritis.

38. *Zalophus californianus* (2202)

Male, unknown age, arrived at the ZOO on September 10, 1969. On September, 1969, it presented skin injuries caused by fungi.

On March 17, 1970, it presented bilateral keratitis of the eyes, and on April 4, 1970, a cutaneous abscess was observed. It received constant treatment for keratitis and skin lesions up to February 25, 1971. On March 23, 1971, it became inappetent and died on June 21, 1971.

Main disease: internal hemorrhage by rupture of a vessel of the heart basis.

Morbid anatomic findings: internal hemorrhage.

Histopathological findings: chronic myocarditis; interstitial nephritis.

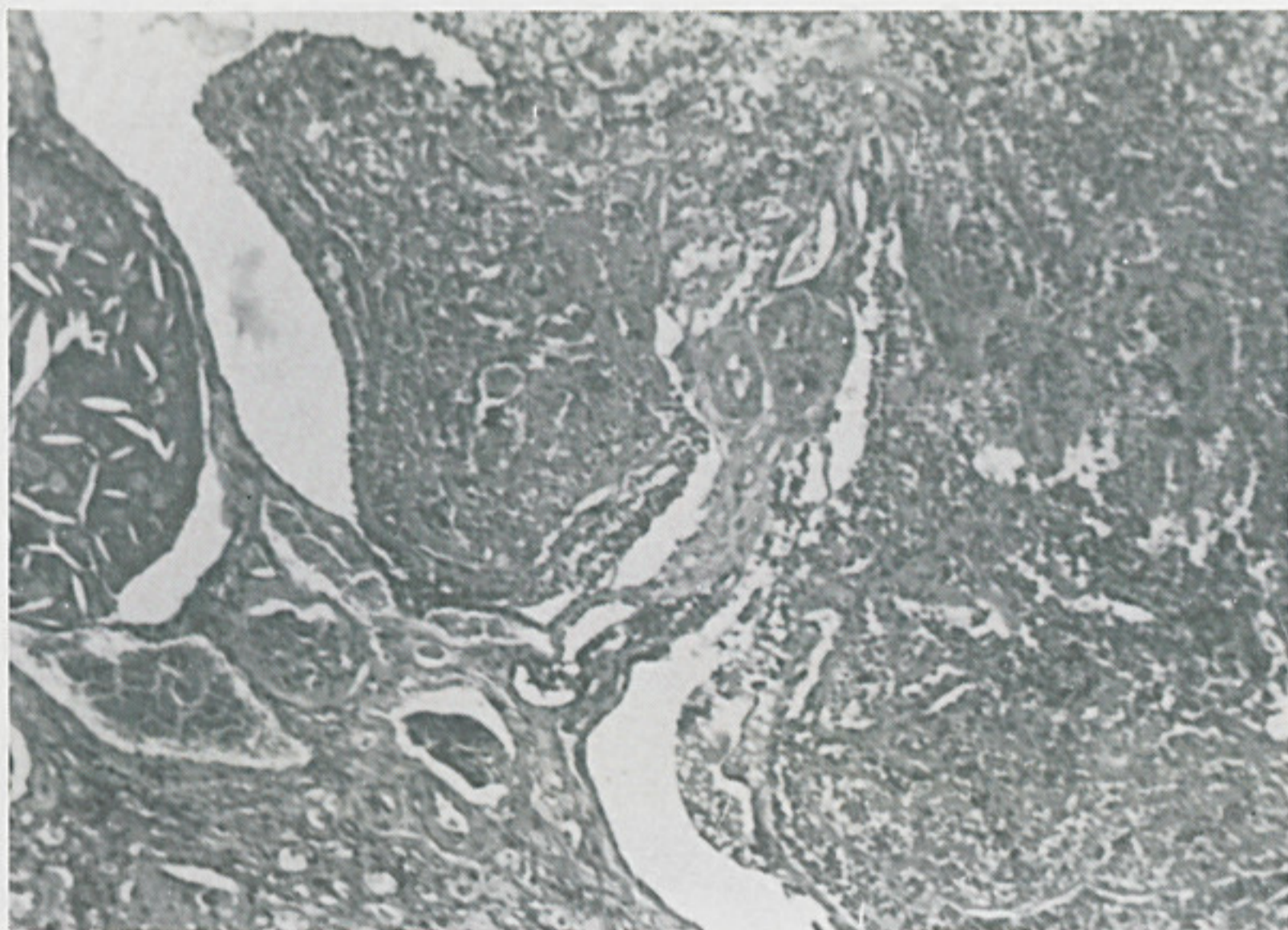


Fig. 9 — Thin kidney section of *Procyon lotor* presenting renal adenocarcinoma. HE staining; magnification about 160 x.

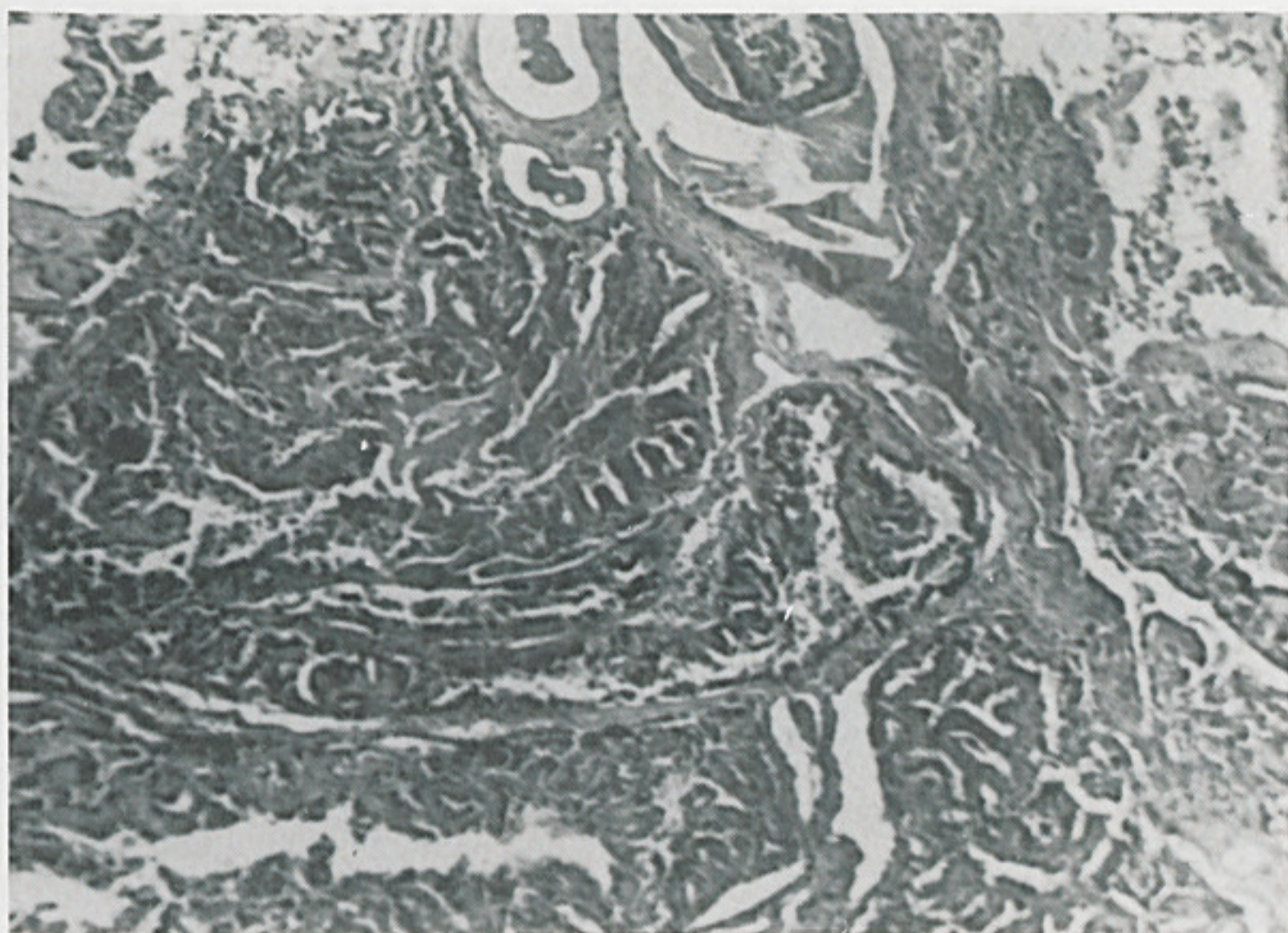


Fig. 10 — Details of fig. 9 showing papillar structures of the neoplasm. HE staining; magnification about 250 x.

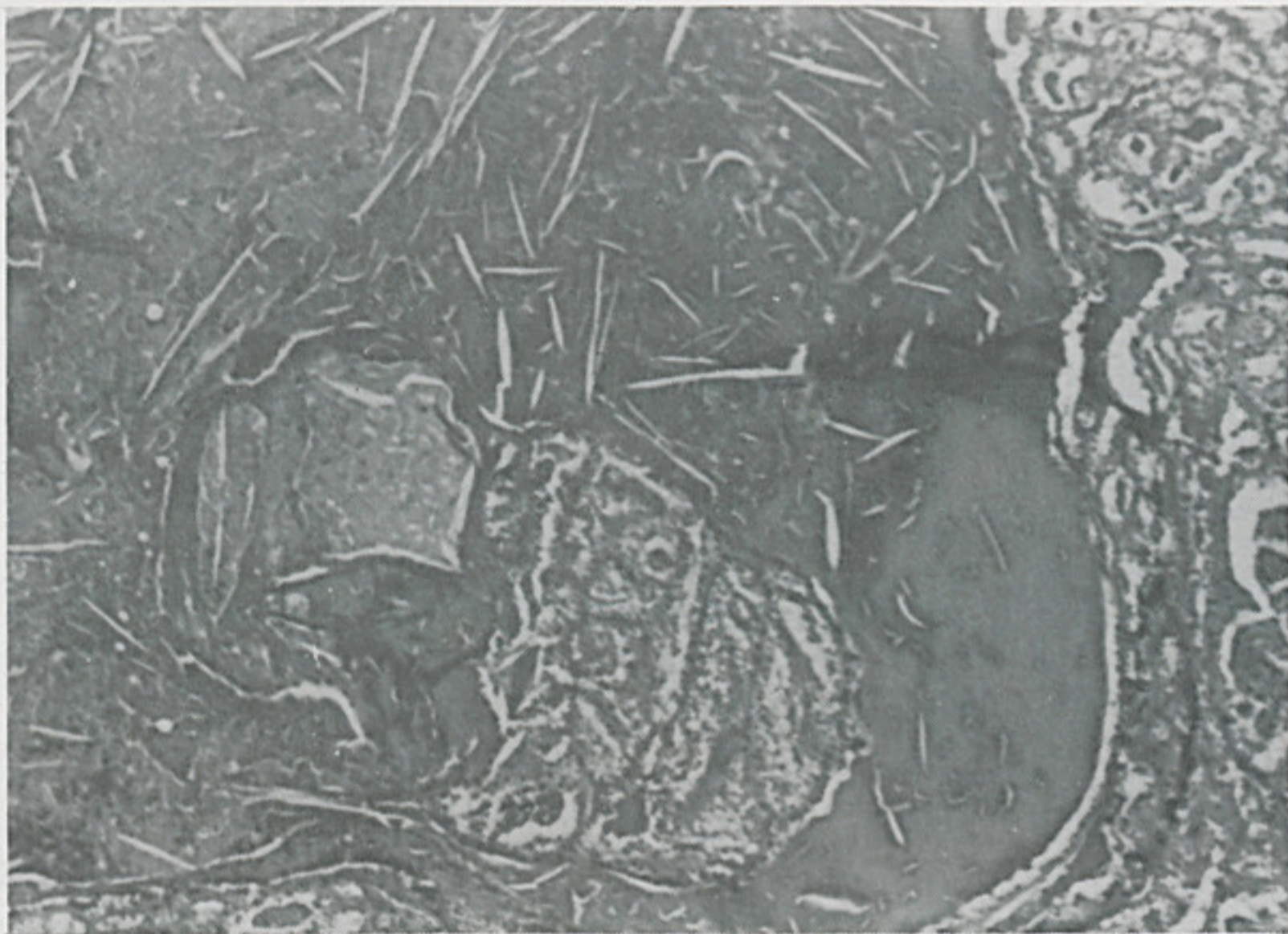


Fig. 11 — Thin kidney sections of *Procyon lotor* showing renal adenocarcinoma with an extensive necrotic area where numerous cholesterol crystals are seen. HE staining; magnification about 400 x.

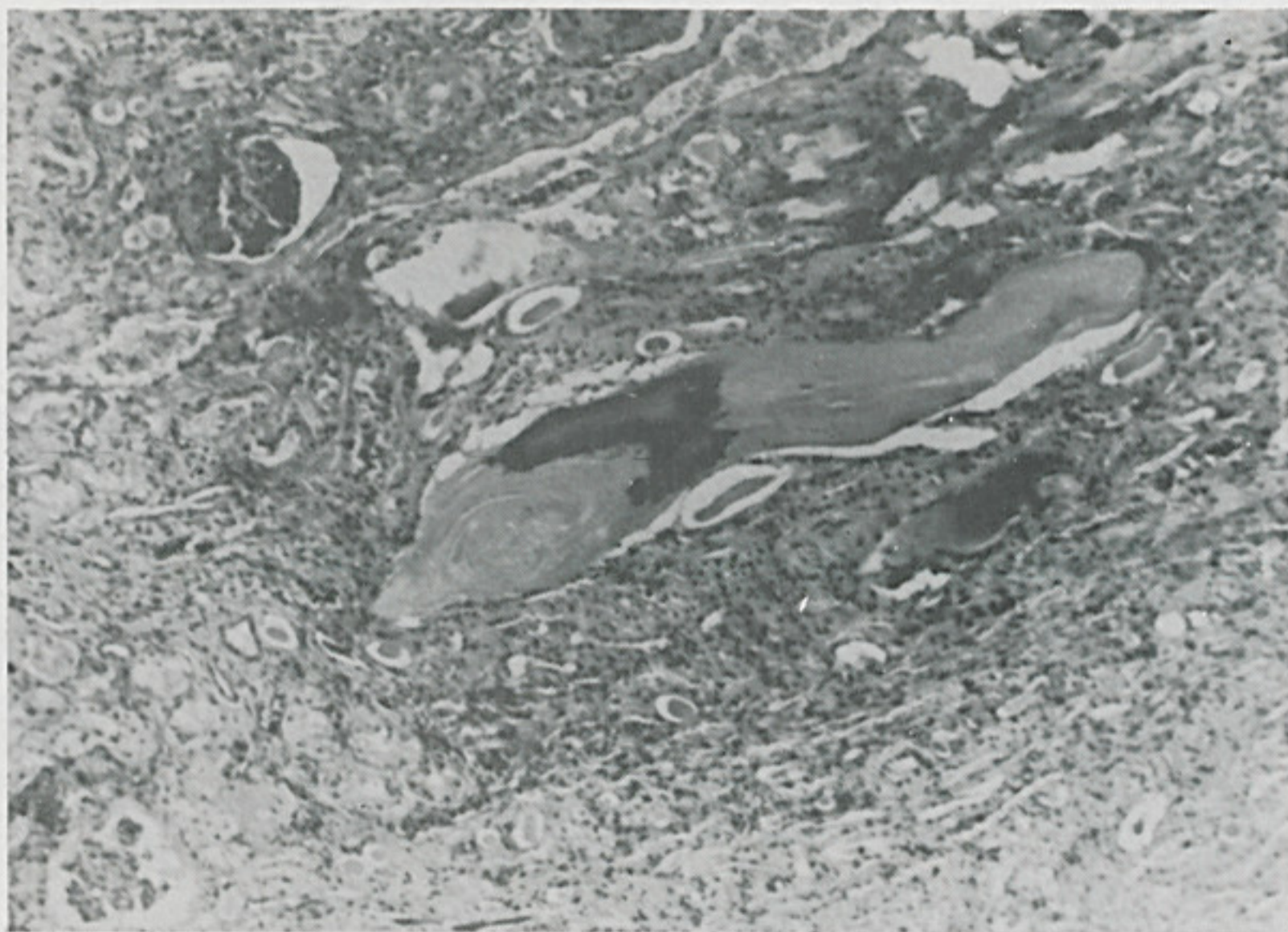


Fig. 12 — Thin kidney section of *Procyon lotor*, showing areas of calcifications and metaplastic ossification. HE staining; magnification about 160 x.

39. *Callithrix penicillata* (3926)
Female, unknown age, donated on October 2, 1971; it died on October 5, 1971.
Main disease: verminosis.
Morbid anatomic findings: secondary anemia; hemorrhagic catarrhal gastroenteritis; cachexia.
Note: within the intestines numerous exemplaries of strongylidae were found.
40. *Callithrix penicillata* (2878)
Male, unknown age, donated on March 22, 1970. On November 1, 1970, presented small injuries.
Main disease: traumatism.
Morbid anatomic findings: anemia, hemothorax; hemoperitonium; traumatic rupture of the lung and of liver.
41. *Callithrix* spp. (2265)
Female, unknown age, proceeding from Bahia, on October 8, 1969, and released after quarantine on November 18, 1969. On June 19, 1971, it was found dead without presenting any prior signs or symptoms.
Main disease: purulent pneumonia.
Morbid anatomic findings: purulent pneumonia.
42. *Saguinus niger* (3516)
Male, unknown age, arrived at the ZOO on March 19, 1971, from Goiania. On March 23, 1971, it was found dead.
Main disease: fibrinous peritonitis.
Note: in the abdominal cavity, numerous exemplaries of filaria were found.
43. *Saguinus bicolor* (665)
Female, over four years of age. Arrived from Manaus on September 27, 1967. On March 3, 1971, it presented prolapse of the rectum due to dysentery. Although rich and varied food was supplied, it gradually became emaciated. It died on September 17, 1971.
Main disease: pyelonephritis.
Morbid anatomic finding: pyelonephritis.
Histopathological findings: pyelonephritis; toxic hepatic dystrophia — fig. 14.
44. *Cacajao melanocephalus* (557)
Female, approximately eight years of age.
Main disease: hepatitis.

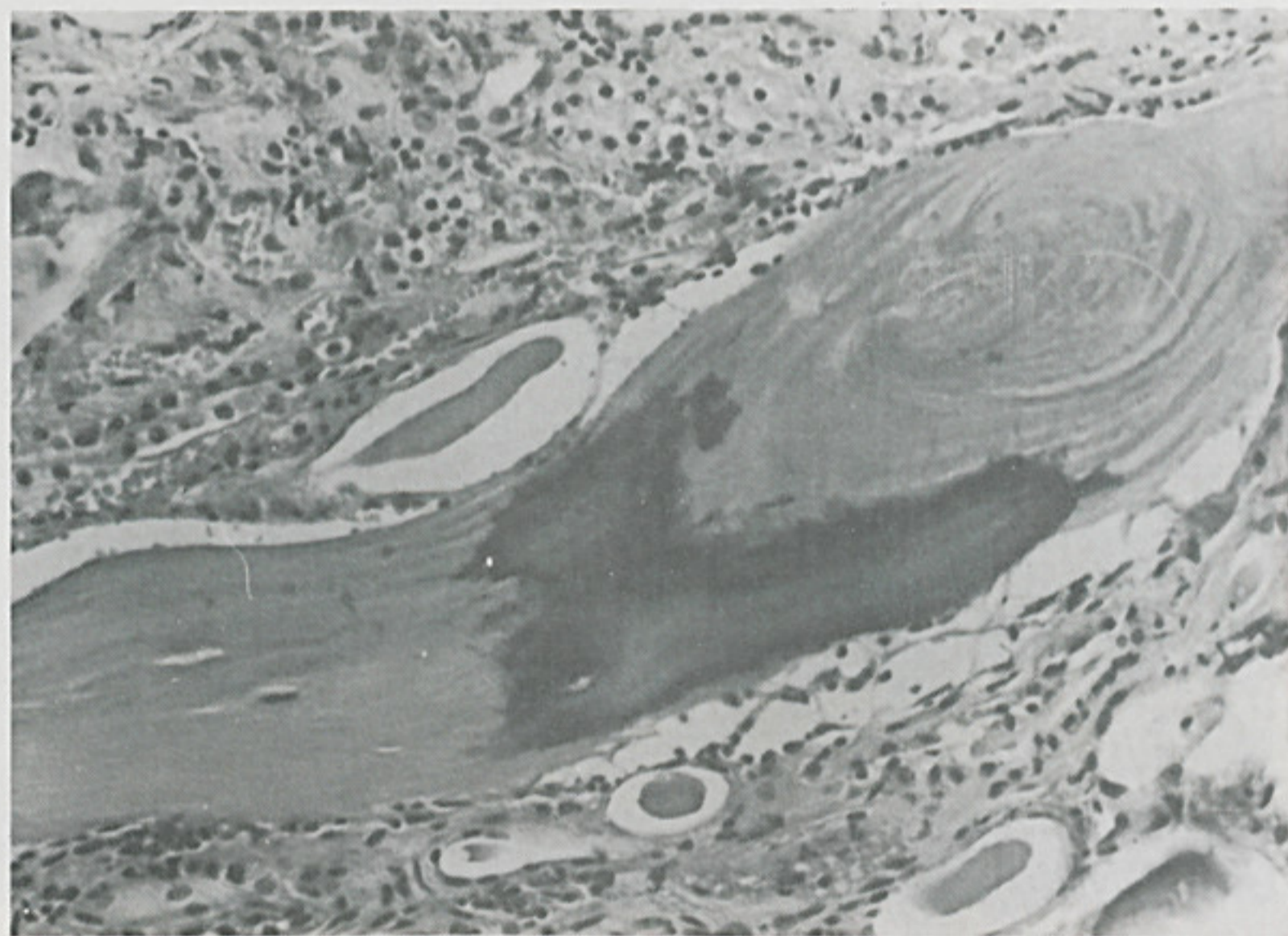


Fig. 13 — Detail of fig. 12 showing hyaline cylinders too. HE staining; magnification about 400 x.

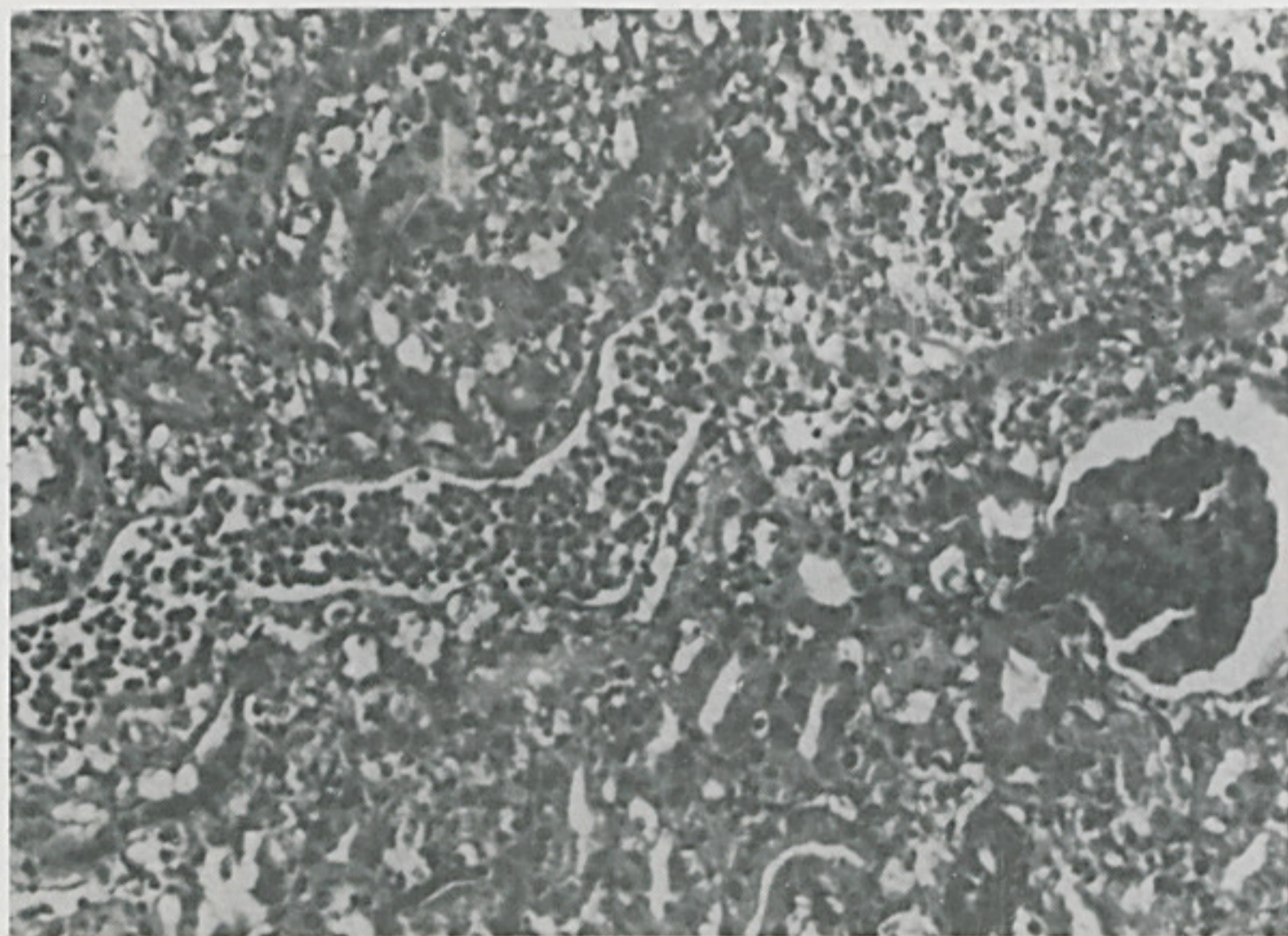


Fig. 14 — Thin kidney section of *Saguinus bicolor* with pyelonephritis. HE staining; magnification about 250 x.

Morbid anatomic findings: hepatitis; pulmonary edema; hydrotorax; interstitial nephritis.

Histopathological findings: edema and passive pulmonary congestion; hepatitis; chronic interstitial nephritis; cardiac hemorrhage.

45. *Alouatta guariba* (3405)

Male, estimated age three years. It was captured when young, arrived on January 28, 1971, from Pariquera-Açu, two years old. On March 4, 1971, it presented ascariasis. On July 15, 1971, it became apathic, inappetent, presented pneumonia and was still infested by ascarides.

Main disease: purulent necrotic pneumonia.

Morbid anatomic findings: purulent necrotic pneumonia; purulent necrotic enteritis; hemorrhagic enteritis.

Histopathological findings: purulent pneumonia; purulent necrotic glossitis; purulent nephritis; splenic lymphoreticular hyperplasia.

46. *Alouatta* sp (3565)

Male, approximate age 11 months. Arrived on March 28, 1971, from Itapeçerica da Serra — São Paulo. On November 15, 1971, it became apathic, inappetent, and showed fetid faeces.

Main disease: hemorrhagic catarrhal gastroenteritis.

Morbid anatomic findings: hemorrhagic catarrhal gastroenteritis; generalized ganglionic hypertrophy; toxic dystrophia of the liver.

Histopathological findings: toxic dystrophia of the liver; ganglionic lymphoreticular hyperplasia.

47. *Saimiri sciureus* (2556)

Male, unknown age. Arrived on June 2, 1970, and on May 13, 1971, presented deep injuries by fighting. It died on May 14, 1971.

Main disease: traumatism.

Morbid anatomic findings: hemothorax; hemoperitonium; hemo-pericardium; pulmonary traumatism; anemia.

FINAL CONSIDERATIONS

Among the examined animals, the highest incidence of alterations was seen at the level of the circulatory tract, and the most common conditions affecting the animals were thrombo-endocarditis, and myocarditis with their manifestations. Following, were disturbances of the digestive tract, most part represented by severe patho-anatomical aspects of gastroenteritis, several cases caused by helminths, inducing invariably diarrhea, dehydration, and cachexia in the infested animals. At times, alterations of the urinary tract were observed represented by pyelonephritis, mostly of ascendent origin. A fact to be noted is the finding of neoplasia represented by one case of renal adenocarcinoma.

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RESUMO: Durante o ano de 1971, o Zoológico de São Paulo manteve em cativeiro 2066 animais dos quais 674 mamíferos. Foram recebidos 101 mamíferos para exame necroscópico e 47 casos foram selecionados, compreendendo 27 animais aclimatados e 20 em quarentena. Fragmentos de tecidos foram coletados e fixados em solução de formol a 15% ou em líquido de Bouin. Cortes de tecidos de 5 μ foram submetidos a diversos métodos de coloração para exame histológico. O material coletado compreende às seguintes ordens zoológicas: Primates, Carnívora, Artiodactyla, Perissodactyla, Marsupialia, Rodentia e Edentata. Dentre os mamíferos examinados, foi visto maior incidência ao nível do aparelho circulatório. Seguindo, distúrbios do aparelho digestivo, respiratório e urinário. Foram observados também alterações do aparelho genital e alguns casos de traumatismos. Fato a ser notado é o encontro de neoplasia, representada por um caso de adenocarcinoma renal.

PALAVRAS-CHAVE: Animais em cativeiro, Patologia.

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