with pneumoconiosis and the diffuse form with virus pneumonia.

The diagnosis of these cases clinically is very difficult. A definite diagnosis can only be made by lung biopsy or at autopsy. Occasionally examination of the sputum may give a lead to the diagnosis. Even bronchoscopy is often not helpful.

Mrs. . ., age 60, first consulted me on December 27, 1953. Her chief symptom was marked dyspnœa. She complained of cough, non-productive at first but later productive, for the past ten months. She said she took a cold in February 1953, from which she did not recover. She had lost 31 lb. in weight over the past four months. She denied any hæmoptysis. At times, she claimed, she ran a high fever.

Her family history was irrelevant except that her mother died of cancer. There was nothing in her personal history of a carcinogenic nature. She had lived on a farm all her life but had never tended sheep.

On physical examination she was thin and weak. It was evident that she had lost weight. What stood out most markedly was her extreme dyspnœa but cyanosis was not marked. Ears, nose, throat and neck were essentially normal. There were no enlarged lymph nodes in her neck. Her heart was large; the transverse diameter was 5¾ inches, rate 110, regular, no murmurs. B.P. 180/80. Lungs were dull to percussion, expansion was poor. There was no ascites. Pelvic and rectal examinations were negative. There was no œdema of the extremities. There were no palpable lymph nodes. The temperature was 96° F., the urine was negative and the erythrocyte sedimentation rate (Westergren) was 30.

A radiograph was taken of the chest and a diagnosis of advanced bilateral pulmonary tuberculosis with moderate hypertension was made.

Subsequent examinations of the sputum by direct smear and by inoculation into a guinea-pig did not reveal the presence of tubercle bacilli.

The patient died on January 13, 1954, eight days after having been admitted to hospital and 17 days after I had first seen her. Radiographs of the chest (Fig. 1) show the multiple nodular, widespread dissemination of the lesion throughout both lungs. Figs. 2 and 3 show sections of the lungs.

The pathological findings (Dr. Carlton Auger, Professor of Pathology, Laval University, Quebec) were as follows: "Tissue sections from all pulmonary lobes were received in fixative for histological examination. All were more or less completely invaded by a carcinoma, and, except in a few sclerotic foci, with conservation of the bronchi and the general alveolar pattern. The neoplasm was made up of high columnar cells which formed an irregular epithelium lining the alveolar septa with many folds into the lumina. Most cells contained muci-carminophilic material and mitotic figures were relatively few.

"A piece of liver and of spleen was also sectioned. It showed stasis, without any metastases.

"Diagnosis: alveolar carcinoma of the lung, also called pulmonary pseudo-adenomatosis."

As noted above, there were no metastases. The lesion in the lungs was multicentric. No other primary focus was found elsewhere in the body.

I am greatly indebted to Dr. Carlton Auger, Professor of Pathology, Laval University, Quebec, for the pathological examination, for his kind report and for the photomicrographs which are here shown; to Dr. P. Duval, Medical Director, Macamic Sanatorium, and his staff for their valuable work and for supplying radiographs and photographs, and to Dr. George H. Bergeron, Youville Hospital, Noranda, P.Q., for his interest and literature.

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MULTIPLE INFESTATION WITH DIPYLIDIUM CANINUM IN AN INFANT*

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DIPYLIDIUM CANINUM is a common parasite of dogs and cats and is cosmopolitan in distribution. Venard[1] states that more than 50% of the dogs in the United States are infected with *D. caninum*. Man is rarely affected, but over 90 cases, mostly in Europeans, have been reported[2] and many may be unreported. A case in a child in Canada was recorded in 1949 by Kuitunen-Ekbaum.[3]

Most of the patients are children. In Blanchard's series,[4] 30% were under six months and 85% under eight years of age. The youngest

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Canad. M. A. J.
Mar. 15, 1955, vol. 72

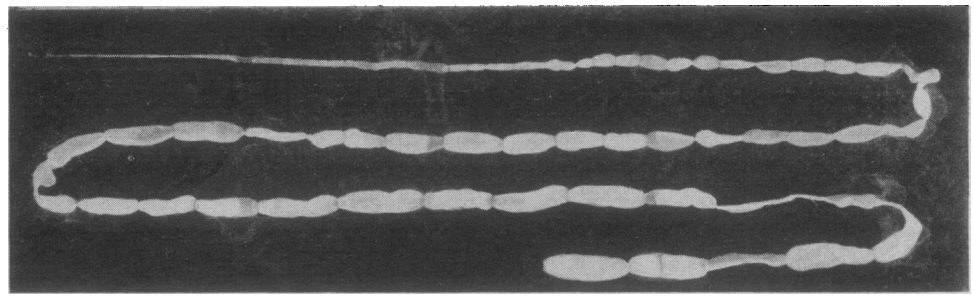

Fig. 1

child was five weeks old. Multiple infestation is rare[5] despite the fact that one flea may harbour one or a few *Dipylidium* larvæ or as many as 40 or 50.[3] Brandt (cited by Blanchard) has reported two cases of heavy infestation with 48 and 30 worms.

Segments of the tapeworm are discharged in the fæces of infected human subjects and animals. These may be slowly motile when freshly passed and may suggest pinworms to an inexperienced mother. It is unusual to find ova in the stools because the proglottides rarely expel them or disintegrate within the host. When the proglottides disintegrate, some of the liberated ova become embedded in the animal host's hair, especially the perianal hair. Here they are ingested by the intermediate host—the dog flea, cat flea, human flea, or dog louse—and in this host they develop into infective cysticercoids. Man is infested by swallowing these fleas. The greater incidence of infestation in children than in adults may result from their closer association with household pets, which often lick their faces, toys, and eating utensils.

J.C., a 13-month-old female infant, was in perfect health with normal development when seen at the Hospital for Sick Children. There was no history of gastrointestinal or other upset, and physical examination revealed a normal healthy child.

During the two weeks before admission, a few motile whitish flat segments, about ⅜ x ⅛ inch in size, were noted by the mother in almost every stool. A dog and a cat were kept in the house, but there was no illness or signs of parasitic infestation in them. The infant continued to pass the ivory-coloured segments, which were identified as mature and gravid proglottides of the dog tapeworm. Ova were not found in the stools.

Treatment consisted of a saline purge with one dram of magnesium sulphate given in the evening, followed the next morning by two doses of 0.2 gm. of extract of male fern administered through a stomach tube at one hour's interval. Three further doses of magnesium sulphate and an enema were given during the next few hours. No food except clear fluids was allowed during the course of treatment.

From the returns of the enema, six dog tapeworms were removed. Three more were passed the following

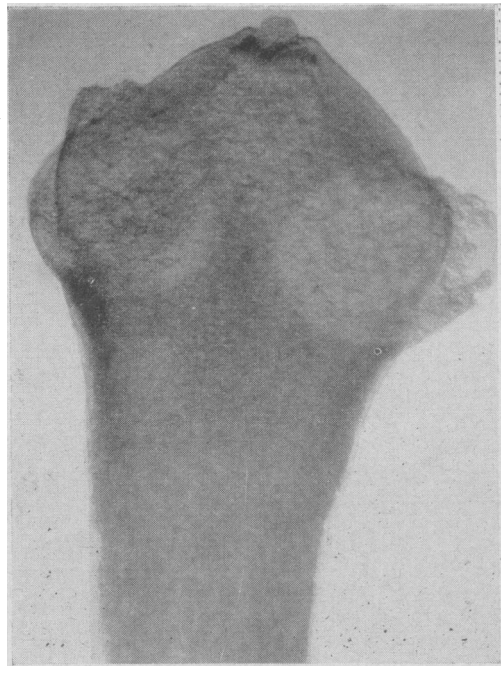

Fig. 2

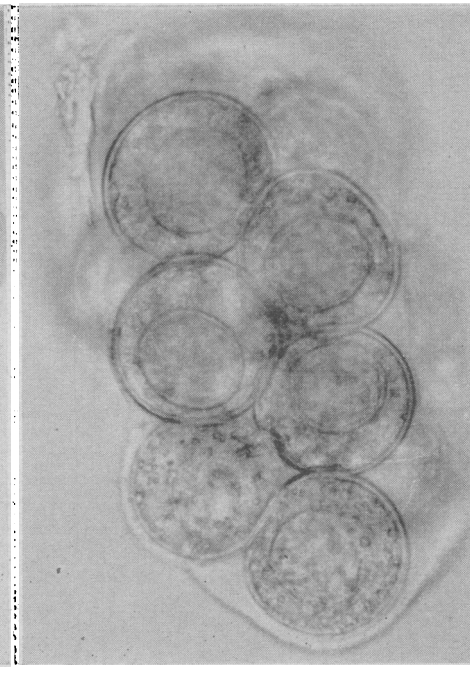

Fig. 3

day. All were complete as far as the neck, but only three were intact with heads. Their lengths varied from 8 to 20 inches. Figs. 1, 2, and 3 show respectively: a complete worm with some of the mature pumpkin-seed-like mature proglottides; an enlargement of the scolex showing two of the four suckers, the rostellum and a number of hooklets; a typical cluster of ova enclosed in an embryonic membrane. This latter was expressed from a mature proglottide. Embryos, some with indefinite hooklets, are visible within the ova.

There were no untoward effects from the treatment. The infant was readmitted to the hospital after 14 days because she continued to expel segments, though these were fewer in number and smaller than those found previously. The course of treatment was repeated and only a few short chains of immature and mature proglottides were recovered. In the following months, further segments were not found in the fæces.

COMMENT

A case of *Dipylidium caninum* infestation in an infant is described. Such a case is unusual according to our hospital records. Its infrequent occurrence is interesting in view of the high incidence of the parasite in household pets, but is understandable because of the method of acquiring the infestation—by ingestion of an infected flea.

Multiple infestation with *Dipylidium caninum* appears to be very unusual. This is more difficult to understand because an infected flea may harbour large numbers of larvæ.

The absence of symptoms, as in this case, is common in *Dipylidium caninum* infection. Often the infection is brought to notice only when segments are seen in the child's stool by the mother. In some cases of infestation, the children may experience slight intestinal discomfort, epigastric pain, anal pruritus, and reflex symptoms.

We wish to thank Dr. C. Collins-Williams for permission to report this case.

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BICARBONATE WITH SALICYLATE

The observations in the present study of children with rheumatic fever suggest that sodium bicarbonate is unnecessary in salicylate treatment. In one of the two cases of severe intolerance to the salicylate bicarbonate did not help. With sodium bicarbonate it was much more difficult to attain therapeutic serum-salicylate levels, and a much wider range of doses was necessary.—*The Lancet*, 2: 1198, 1954.

Clinical and Laboratory Notes

PROPOSAL FOR THE DISTRIBUTION OF A CERTIFIED STANDARD FOR USE IN HÆMOGLOBINOMETRY*

PREPARED BY THE DIVISION OF MEDICAL SCIENCES, NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL

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Washington, D.C.

THERE IS PROBABLY no procedure more commonly used in clinical laboratories than hæmoglobinometry and few that are less satisfactory in their results. The deficiencies may reside, in part, in inadequacies of the chosen method. In larger part, however, they result from manipulative errors in the measurement and processing of the samples of blood. The latter involve questions of technical proficiency which are entirely within the control of the analyst himself. When, however, he converts his observations—such as gasometric or photometric readings or measurements of specific gravity—to grams of hæmoglobin in 100 ml. of blood, he must depend upon his own calibration or a calibration supplied by an instrument maker, both procedures involving a conversion factor taken from the literature. To be satisfied that the calibration remains valid for the instrument, reagents, and technical routines in use in his laboratory, he should periodically undertake a precise and time-consuming series of standardizations. If a uniform hæmoglobin standard were available nationally and a single method of analysis widely practised, the individual laboratory would then have assurance not only that its results would be comparable from month to month, but that they would also be comparable with those from other laboratories employing the same standard. Inconsistencies in results that persisted under these conditions could then be clearly attributed to technical and manipulative errors.

The purpose of this report is to describe a plan for the distribution of a certified hæmoglobin standard and to advocate the wide adoption of a recommended analytical procedure. The use of both the new procedure and the standard is recommended. At the same time it is pointed out that the standard may be employed for the calibration of other methods of hæmoglobin analysis in laboratories that do not choose to adopt routinely the advocated photometric procedure.

In 1941 the Medical Research Council of the United Kingdom instituted an extensive study of the problem

*Presented in part at the meeting of the American Association of Blood Banks, Washington, D.C., September 1954.