28 Harrison EG Jr, Koves G: Unpublished data.

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Man's Best Friend

According to archaeological findings in Europe, the dog had become man's faithful companion, efficient hunting partner and reliable guardian of man's possessions some twelve thousand years ago. His loyalty and attachment to humans is proverbial. His obedience is exemplary. He will readily comprehend particular chores which are part of his daily routine, such as hunting, sheep and cattle herding and transportation (sled-dogs). He follows commands with remarkable adaptability, promptness and efficacy. With the exception of a few breeds, their visual acuity is far exceeded by their olfactory and auditory perception. They have a wide-range discriminating sense of smell and can identify hundreds of scents and odors not detectable by humans. Dogs can hear sounds from a far greater distance and at a much higher pitch than humans. Devoe (This Fascinating Animal World, New York, McGraw-Hill, 1951) cites Kalischer of Berlin, stating that not only can a dog distinguish between two adjacent notes on the piano but also between two notes that are separated by one-quarter of the range that separates the two piano notes. At the other extreme, their mastery in keeping sheep from straying away from enormous herds and in protecting them from night marauders is indispensable to shepherds. Some Australians herd sheep by motorcycle with their sheepdog on the backseat. Australia and New Zealand are leading sheep grazing countries, with well over 150 million sheep in Australia and some 50 million in New Zealand. One of the serious hazards of sheep raising is hydatid disease in man caused by Echinococcus granulosus. Sheep are one of the intermediate hosts of the small cestode, Taenia echinococcus (2-9 mm). Prevalence of hydatid disease in man parallels its incidence of this parasite in the intestinal tract of animals which are intermediate hosts. The latter contract the parasites by eating grass or drinking water contaminated with the fecal material of dogs, which contain the ova of the Taenia. On the other hand, dog as a definitive host to the parasite is infected by eating dwarf tape worms attached to the intestinal wall of the intermediate host. Accordingly, hydatid disease is observed in considerable number in individuals in Australia, New Zealand, some of the Balkan countries, Russia, the Near East, North Africa, South Africa, South America and the subarctic regions of Alaska and Canada. Human hydatid disease is acquired by handling, harnessing, petting, caressing dogs. The ova of Taenia echinococcus attached to the fur of the animal are carried to the mouth and swallowed. Also, the soil becomes contaminated with dog excreta, and thus a possible source of contamination of food and drinking water. The embryos are liberated from the ova in the duodenum. Then the larvae are carried to the liver through the portal system. Some of them may pass through the liver and reach the right ventricle, the lung, the left ventricle and from here, various organs and tissues. Growth of larvae in the human body is slow. Thus it may take years or decades before manifestations of the disease become obvious. Incidence in children under 15 years of age varies from 25 to 34 percent of cases reported. Hydatid cyst of the liver is by far the most common form of the disease. Pulmonary involvement varies from 10 to 59 percent. In a recent authoritative paper (CHEST 59:280, 1971) Papamichael et al note that 300 cases of hydatid cysts of the heart have been reported: "Small solitary unruptured cysts of the myocardium are symptomless. Multiple cysts of the myocardium produce symptoms of myocardial malfunction. Usually if these cysts are left untreated, they rupture to the heart chambers or to the pericardium. If the cysts contain daughter cysts or debris, arterial embolism will result in acute or pulmonary or cerebral symptoms." Pericardial implantation or constrictive pericarditis may follow rupture of hydatid cyst from the myocardium, lung or abdominal cavity into the pericardial sac. Relative to pulmonary involvement, solitary cyst is found in the right lung in about 60 percent of cases. Bilateral cysts may be noted in about 15 percent of instances. Cysts of 5 to 10 cm in diameter may rupture spontaneously or in consequence of infection or trauma. Rupture of the cyst may be followed by lung abscess, fibrosis or bronchiectasis. Perforation into the pleural space results in intrapleural spread or anaphylaxis and death; also, tension pneumothorax has been reported. During the slow development of the cyst there are no symptoms unless vital organs or structures are impinged upon, compressed or irritated. Hemoptyisis may be due to rupture of the cyst or to submucosal arteriovenous communication in adjacent bronchi. Also, hemoptyisis is observed from superinfection, together with cough, expectoration, fever and pain. Dyspnea may be caused by a large cyst, rupture of the cyst into the pleural space or by flooding of the lower air passages. Cysts of 5 cm or larger may cause dull pain in the chest. Diagnosis is established on the basis of history of exposure, characteristic x-ray findings, laboratory tests, including Casoni's, complement fixation, hemagglutination, immunofluorescence, immunoelectrophoresis, microscopic visualization of scolices and hooklets in cyst fluid. Significant progress has been demonstrated in the control of hydatid disease in Iceland where the previously prevalent disease has been eradicated by licensing of dogs, by their annual treatment with arecoline bromide and by enforcing of burial or burning of infected material.

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