DISEASES COMMON TO MAN AND ANIMALS IN MALTA

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Rather more than one hundred zoonoses are recognised in the world, of which relatively few are likely to be of local interest. It is not proposed here to give a list of them all, or for that matter to attempt to give full details of those relevant to Malta. This type of information is far better found in published text books, two of which are given in the references. The purpose of this article is rather to record some recent developments in our own knowledge of animal diseases which are, or may be, of significance to humans in Malta.

DISEASES KNOWN TO EXIST IN MALTA

Bacterial Diseases

Tuberculosis. The bovine form of this disease is now on the verge of eradication. However, a number of pigs have been found recently with isolated lesions in the sub-maxillary or pharyngeal glands. Work is being done to determine whether these infections are human, bovine or avian in origin. The significance is that flesh from this part of the carcase is commonly used for the manufacture of sausages.

Tetanus in equines is common. It is seen also occasionally in cattle, sheep, goats and pigs.

Anthrax is remarkable in its rarity. Only occasional cases have been diagnosed in cattle. Should the disease occur in sheep and goats, contamination of the grazing areas could well occur and the situation would change quite rapidly.

Brucellosis has been too familiar in Malta to warrant description. However it is perhaps not generally appreciated that a type of chronic brucellosis exists in man in which the patient is negative to the agglutination test, but may show varying degrees of headache, irritability, depression, arthritis and backache. In the absence of laboratory tests, this type of patient must be easy to confuse with the "neurotic". Kerr *et al* (1966) have shown that a combination of the Complement Fixation Test and the Anti-human Globulin test will demonstrate significant levels of antibody in such cases.

Salmonellosis. S. typhi murium is known to affect most forms of livestock. In Malta it has so far been encountered only in pigeons and rabbits. In sheep the infection is often fatal; two or three sudden deaths occur and then the outbreak ceases. The danger here is that outbreaks may well pass unreported and undiagnosed and that shepherds may "salvage" animals in the early stages of septicaemia, (Crowther, R.W., 1957). Ducks are a potential hazard; but this possibility applies more to other countries where they have the opportunity to consume mud from the bottom of ponds open to contamination. Cases of *S. cholerae suis* have been found in pigs, but this micro-organism is not recognised as a human pathogen.

Erysipelas is endemic amongst pigs in Malta and it is quite common in the abbattoir to see obviously infected carcases awaiting inspection. Despite this, however, localised infections amongst the butchers handling these carcases seem to be comparatively rare. Possibly, if one were not familiar with the rather characteristic erythema, this type of infected wound might pass unrecognised, and would in any case yield to standard antibiotical treatment.

Listeria infections in man occur usually as a meningo-encephalitis, as a septicaemia of infants, or as a cause of habitual abortions. A number of other manifestations are known and it is becoming increasingly clear that the infection is more common than it was once thought to be. In Malta a case of fatal septicaemia was seen recently in an adult pig. The animal came from stock imported

two years ago which had been distributed to several farms. On two of these farms stillbirths and weak piglets had been reported from the same parent stock about two months previously. At the time these were attributed to vitamin A deficiency.

L. monocytogenes is known to attack a large number of mammals and many birds and has a wide distribution. It is unlikely that this case represents the first introduction of the disease into Malta. An excellent review of Listeria infections was published by Gray and Killinger (1966).

Clostridial infections. Enterotoxaemia due to *Cl. welchii* has been seen locally in goats and in rabbits. It could also occur in sheep, pigs and cattle. The potential hazard here is that livestock passing large numbers of clostridia in their faeces are contaminating their surroundings with gangrene producing organisms.. In sheep, multiple gangrene infections following needle puncture have been observed after mass vaccination campaigns.

Staphylococcal food poisoning. Staphylococcal mastitis is recognised in Malta amongst cattle, sheep and goats and food poisoning from raw milk used to be fairly common in the days before pasteurisation. It is rarely seen now, though occasional cases occur when cream in pastries is contaminated by human carriers. In some Mediterranean countries cheese poisoning is quite common. The type of cheese affected is similar in appearance to a Gruyère and during its manufacture the milk is held for several hours at around blood temperature. Any pathogenic staphylococci present are thus given an opportunity to multiply and to produce a heat stable enterotoxin which remains thereafter in the cheese.

Leishmaniasis. Cachia and Fenech (1964) present a review of Kala-Azar in Malta in which it is shown that the incidence of human cases has fallen sharply from an annual figure of around 200 cases in 1948 to a level of 25 or less since 1955. They credit this reduction to improvements in rural health, sanitation and hygiene, to the use of insecticide sprays to control the sand-fly population and to the control of stray dogs. In 1949, 8 out of 718 spleens of stray dogs were found to contain Leishman-Donovan bodies. (Medical & Health Department Annual Report 1949). This in itself was an improvement on the figures for 1911 when 7 out of 53 stray dogs were found to be positive. The incidence in dogs now is probably lower than the 1% reported in 1949.

Leptospirosis in man due to *L. ichterohaemorragiae* occurs occasionally in Malta and rats are usually incriminated as the source of infection. Acute clinical cases of Leptospirosis in dogs are uncommon and it does not seem that they are often a source of infection to humans.

Fungal Diseases

In volume one of this journal Fenech and Grixti describe a case of pulmonary moniliasis in a poultry farmer. Moniliasis of the crop is recognised in birds, as is also aspergillosis of the respiratory tract. Probably anyone working near stocks of mouldy forage is at the risk of this type of infection.

In the U.K. certain forms of pulmonary oedema in cattle are believed to be associated with an anaphylactic reaction to certain moulds, principally the Actimomycetes. A similar condition is recognised in the farmers themselves, (Omar and Kirch, 1966).

Parasitic Diseases

Cys. cellulosae and *Cys. saginata* are very seldom encountered during meat inspection. Hydatid cysts are uncommon and *Trichinella spiralis* has not been seen for many years. This situation exists despite the lack of hygiene on many of our farms and can be attributed only to the fact that practically the whole of our local meat is subject to inspection. In other countries where sheep and goats are frequently slaughtered in villages and where the discarded offal is normally thrown to stray dogs, hydatid infections in humans can pose a serious problem.

DISEASES OF UNCERTAIN SIGNIFICANCE IN MALTA

Viral Diseases

Psittacosis. No case of this disease has yet been diagnosed in parrots or in any avian species. However, wild parrots and other members of the same family are frequently brought in from abroad and these are more dangerous than the aver-pet parrot brought here which has been kept in comparative isolation for some time before arrival. Unexplained cases of pulmonary disease amongst persons handling such birds would be suspicious.

Q. Fever has not been recognised amongst livestock in Malta; but since it does not produce symptoms in animals, this is hardly surprising. The disease is endemic throughout the world. Infected goats, sheep and cattle do not abort but will pass enormous numbers of virus particles at the time of parturition. An influenza-like infection in a shepherd during the lambing or kidding season would be suspicious.

Cat Scratch Fever is not very well understood. It is believed to be caused by a virus which subsists beningly in cats; but which produces in humans a local inflammatory reaction and a mild fever.

Milkers' infections. Ulcerative conditions of the teats and udders of cattle may be due to Cow Pox (Vaccinia), or to one of the Para-vaccinia or the Herpes groups of viruses. The condition in man known as "milker's nodule" or Pseudo Cow Pox is at present accepted as falling in the Para-vaccinia group (Peters *et al.* 1964 and Naginton *et al.* 1965). This group also includes the virus of Contagious Pustular Dermatitis (C.P.D.) which may attack sheep, goats and man. Both Cow Pox and Pseudo Cow Pox have been recognised as zoonoses since the time of Jenner; but the isolation of Herpes viruses from cattle by Martin *et al.* (1966) and others is more recent and their significance to humans is not quite certain. For that matter, we do not know how dangerous human cases are to cattle. In Malta, C.P.D. infections are recognised in sheep and goats, but from past experience it would seem that human infections rarely, if ever, occur from this source.

Herpes virus Simiae or Virus B. has not yet been recognised in monkeys imported into Malta. Humans are usually infected when bitten by monkeys, following which vesicles are formed at the site, followed by lymphadenitis and meningoencephalitis. In monkeys the disease appears often to be much less severe. Hartley (1964) reports finding 30 infected monkeys out of two consignments totalling 300. Of these, however, only one showed visible ulcerations. Probably wild monkeys, purchased for research purposes or for zoos, are more dangerous than those which have been kept as pets for some time in relative isolation from their own kind. However, it is worth remembering that monkeys are imported into Malta fairly frequently and could carry this virus without showing obvious symptoms or lesions.

Protozoal Infections

Relapsing Fever was recognised in Cyprus during the last war by Gambles and Coghill (1948). The parasite was transferred from small mammals to humans by Argasid ticks and cases were observed after soldiers had slept at night in old ruins and caves. However, similar conditions prevailed in Malta during the same period. Had such a natural chain of infection been present here it seems probable that human cases would have occurred and have been recognised.

Toxoplasma Infections appear to be common to most forms of animal life and are very widespread. Amongst other things, they are a recognised cause of abortion in sheep. So far they have not been seen in animals in Malta; but this means very little. It is difficult to obtain suitable material for diagnosis from sheep and goats.

Parasitic Conditions

Oestrus Ovis Infestation. Sheep and goats in Malta are heavily parasitised by the sheep nostril fly, which, whilst in flight, squirts living larvae into their nos-

trils. In some countries humans are attacked occasionally and during the summer months it is customary for shepherds to wear a branch of leaves in their hats or to carry a leafy twig between their teeth to discourage the flies. In their natural hosts the larvae migrate to the frontal and submaxillary sinuses where they grow to a large size. In humans, the small, almost microscopic, larvae fail to grow and wander aimlessly around the back of the pharynx causing a most severe irritation for several days. Presumably a suitable larvicide would hasten recovery in such cases.

Larva Migrans. Attention has recently been given to the infection of children by the larvae of *Toxocara canis* (Woodruff *et al.* 1966). In their abnormal host these larvae can wander erratically producing granulomas, sometime affecting the eye and occasionally producing an encephalitis. An allergic skin test has been developed to demonstrate previous sensitisation, but clearly diagnosis can present difficulties and the nervous type of lesion may be commoner than is suspected. At this stage one can only say that puppies will naturally harbour much larger numbers of ascarids than will adult dogs, and therefore the practice of giving children a small puppy to play with can be dangerous unless that puppy is treated for worms at regular intervals.

Discussion

With the parasitic diseases we already have several examples where a parasite can produce serious effects when it gains entry into an unnatural host. Probably the most classic example of this is Hydatid Cyst in Man. Amongst viruses and protozoa also, a number have a wide distribution in nature, with man apparently playing the part of the unnatural or accidental host and it often seems that the animal has acquired a greater degree of tolerance than has man. It seems possible that we shall find a number of other supposedly human diseases to exist in nature in other forms of animal life. Curiously, the process does not often seem to work the other way round; man does not to any degree act as carrier for the contagious diseases of animals. Perhaps this is because we are more interested in situations where "dog bites man" and have not looked hard enough for case where "man bites dog". Perhaps, in some cases, it is because animals have been here for much longer.

In an article of this length one can do little more than introduce the subject and pick from a wide field those points which are of more direct interest in Malta. This naturally leads to a somewhat uneven form of presentation.

In the experience of the author there has often been gain in discussing veterinary problems with those who have been trained in other disciplines and whose reading and approach come from a different angle. The foregoing is submitted with humility in the hope that the same process may work sometimes in reverse.

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