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Nancy McIntosh

Tom Madhavan

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Zoonoses at Henry Ford Hospital

Clinical, Epidemiologic, and Therapeutic Aspects†

Nancy McIntosh, MD* and Tom Madhavan, MD*

Zoonoses are diseases of animals that can be transmitted to humans. We reviewed the experience with zoonotic illnesses treated at Henry Ford Hospital in the past ten years. Included in this report are cases of brucellosis, lep-

tospirosis, relapsing fever, Colorado tick fever, toxoplasmosis, psittacosis, and pasteurellosis. This report describes the clinical and epidemiologic aspects of zoonoses in 60 patients in a large urban general hospital.

Humans and the other animals, living together or apart, inevitably have encounters which transmit the agents of disease. Zoonotic illnesses present challenging diagnostic problems to physicians in both rural and urban environments. Review of the experience during the past ten years at Henry Ford Hospital yielded a substantial collection of zoonotic diseases, including brucellosis, leptospirosis, relapsing fever, Colorado tick fever, toxoplasmosis, psittacosis, and pasteurellosis (Table I). This report reviews the clinical and epidemiologic aspects of zoonoses in 60 patients at a large urban general hospital.

Brucellosis

Four patients were treated for brucellosis (Table II); the presenting complaint for all was fever. The associated symptoms included fatigue, malaise, and headache. Two patients had hepatosplenomegaly. Initial laboratory studies revealed elevated liver enzyme values in only one patient, and two had granulomas demonstrated by liver biopsy. In these cases of brucellosis, the clue to diagnosis was in the patient histories. The first was born in Yugoslavia in a farming area, while the second patient was a native of Malta where goat milk and cheese were a major part of her

diet. The other two patients had jobs in the meat packing industry where they incurred a high risk for this disease. All were cured with antimicrobial therapy.

Leptospirosis

This 59-year-old man was employed as an animal handler in an open air market and presented at Henry Ford Hospital with fever, shaking chills, frontal headache, nausea, vomiting, and diffuse myalgias. He noted that his urine was becoming darker in color. Physical examination was remarkable only for scleral icterus, but laboratory tests disclosed SGOT of 85 μ /L (normal < 35 μ /L), serum bilirubin, 3.8 mg/dl, blood urea nitrogen, 73 mg/dl, and creatinine, 4.8 mg/dl. Multiple blood cultures and liver-spleen scan were negative. The diagnosis of leptospirosis was confirmed by the high serum agglutination titers. The patient became well after treatment with intravenous penicillin followed by tetracycline for seven days.

Colorado tick fever

This 60-year-old man also presented with fever, chills, headache, and myalgias four days after he returned from a vacation in Colorado. He did not recall a direct animal contact during his trip but did remember removing a large, hard-shelled tick from his buttocks. Physical examination revealed no abnormalities, and results of the initial laboratory studies were normal. Because differential diagnosis was between Rocky Mountain spotted fever and Colorado tick fever, treatment was begun with chloramphenicol. The patient rapidly became afebrile and remained so for 60 hours, during which time he was clinically much improved. However, a fever spike thereafter heralded the return of severe headache. By then, the results from a blood sample sent to the California State Health Department

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Address reprint requests to Dr. Madhavan, Department of Internal Medicine, Henry Ford Hospital, 2799 W Grand Blvd, Detroit, MI 48202

Table I
Zoonotic Infections at Henry Ford Hospital
1970-1980

	Number (60)		Age Range	Animal Sources
	Men	Women		
Brucellosis	3	1	26-57	abbatoirs, cattle, sheep
Leptospirosis	1		59	rat
Colorado tick fever	1		60	tick
Relapsing fever	2		29, 66	tick
Toxoplasmosis	5	2	19-52	beef (raw), cat
Psittacosis	10	10	14-66	turkey, parrot, parakeet, canary, pigeon
Pasteurellosis		25	all ages	animal bites, wild or domestic

Table II
Laboratory Diagnosis and Treatment of Brucellosis

Age	Race/Sex	Source of Infection	Laboratory Diagnosis	Treatment
26	W/M	Born in Yugoslavia	Brucella titer 1:5120 Brucella suis and blood culture	Tetracycline 2 gm daily plus streptomycin 1 gm daily for 3 weeks
57	W/F	Born in Malta	Brucella titer 1:5120	80 mg trimethoprim/ 640 mg sulfamethoxazole daily for 3 weeks
45	W/M	Meat packing house	Brucella suis and blood culture	Tetracycline 2 gm daily plus streptomycin 1 gm daily for 3 weeks
32	B/M	Hog butcher	Brucella titer >1:160	Tetracycline 2 gm daily plus streptomycin 1 gm daily for 3 weeks

showed that the direct fluorescent antibody test of the red blood cells was positive for Colorado tick fever virus. Subsequent treatment was supportive.

Relapsing fever

Two of our patients became ill while vacationing in the Rocky Mountains. Both had complained chiefly of fever and chills accompanied by anorexia. The first, a 29-year-old restaurant owner, recalled being awakened at night in a mountain cabin by a tick in his leg. Four days later, he experienced shaking chills, sweats, and fever to 103°F. He was treated with aspirin and reassured that his "tick fever" would disappear, but he felt well for no more than two weeks. All of his symptoms recurred, and he presented to Henry Ford Hospital after his tenth episode. Diagnosis of relapsing fever was established by serologic testing performed by the New Orleans Health Department.

The second patient experienced an initial episode of shak-

ing chills, sweats, and fever while vacationing in northern Arizona. He presented to us after the first relapse of fever to 103°F. After the patient was hospitalized, he remained afebrile for three days, was then discharged with negative cultures and serologic studies, and remained well for three weeks. At that time, he relapsed again with fever to 104°F, shaking chills, and sweats. The correct diagnosis was then established by demonstration of the *Borrelia* organism on the peripheral blood smear. Both patients became well after receiving tetracycline 2 gm daily for ten days.

Toxoplasmosis

Seven patients have been treated for toxoplasmosis (Table III). Lymphadenopathy was the single most common manifestation of disease. All our patients were otherwise healthy adults with a mean age of 30.4 years. Notable in our experience is patient #3, who presented with myocarditis and pericardial effusion. While findings are reported to occur in immunosuppressed patients who contract tox-

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Table III
Clinical Studies: Toxoplasmosis

Case No.	Age	Sex	Occupation	Mode of Acquisition	Physical Findings	Serologic Tests
1	28	F	Pediatrician	Raw ground beef (steak tartar)	Generalized lymphadenopathy	IgM-IFA* 1:1048
2	25	M	Court clerk	Raw kibble (lamb)	Generalized lymphadenopathy	IFA+ 1:2048
3	31	M	Butcher	Raw beef	Myocarditis, pericardial effusion	IFA+ 1:512-1:32
4	19	M	Truck driver	Unknown	Temporal lobe granuloma with <i>T. gondii</i> organisms	IFA+ 1:512
5	52	M	Office worker	Unknown	Chorioretinitis, decreased vision	IFA+ 1:512
6	26	F	Homemaker	Cat feces	Pregnancy (4 mos);** fever; generalized lymphadenopathy	IgM-IFA* 1:1024
7	32	M	Emergency Room Assistant	Raw meat	Cervical and occipital adenopathy	IFA+ 1:8192

* IgM indirect fluorescent antibody titer. The test is negative or very low (<1:2) in the absence of acute toxoplasmosis. The tests were performed by Jack Remington, MD, Stanford University School of Medicine, Palo Alto, CA.

+ Indirect fluorescent antibody; titers >1:256 support the diagnosis of toxoplasmosis.

** Normal infant, term delivery

toxoplasmosis, our case indicated that they may appear in a healthy host as well. Patient #4 had also been healthy, but he presented with temporal lobe seizures which responded poorly to pheyntoin. Brain scan revealed a temporal lobe mass which was surgically resected and demonstrated to harbor the trophozoites of *Toxoplasma gondii*.

Patient #6 exemplifies the most difficult problem associated with this disease: the management of a pregnant woman with suspected acute toxoplasmosis. Remington (1) estimates that 25-45% of American women of childbearing age carry toxoplasmosis antibodies, which usually protect the fetus. However, when acute toxoplasmosis is acquired for the first time during pregnancy, profound congenital anomalies may result. Treatment does not completely eliminate the possibility of an infected infant. To make matters even more difficult, pyrimethamine, one of the agents used to treat toxoplasmosis, has been shown to have teratogenic potential in animals. Details of this case have been previously published (2).

Pasteurellosis

The most common zoonosis seen in clinical practice is the wound infection caused by *Pasteurella multocida*, a small gram-negative rod. This bacterium is frequently found as

normal pharyngeal flora in both wild and domestic animals. It is estimated that 50-90% of cats and 12-54% of dogs are colonized with this organism (3). Diagnosis is based on positive wound cultures. Characteristically, the patient is seen when the wound of an animal bite becomes painful, red, and swollen. Tender, regional lymphadenopathy and serosanguinous drainage from the wound site are common. In the 25 patients treated during the years of our survey, the infections were clearly related to animal bites; however, in other series 5-15% of patients gave no history of animal exposure.

Although ampicillin, cephalosporins, and tetracycline may be demonstrated to be active in vitro, penicillin is the treatment of choice. The in vitro activity of the semisynthetic penicillins and of erythromycin is poor, and their use usually is ineffectual.

Psittacosis

Of the 20 patients with psittacosis, nearly all gave a history of being exposed to birds that very often were known to be ill. Psittacosis is caused by the intracellular parasite *Chlamydia psittaci*, and the organisms are shed in bird excreta. All but one of our cases acknowledged such exposure, usually to exotic birds kept as pets. Headache and nonproductive cough were the most common com-

plaints, and 17 of the patients had pneumonia that was clinically similar to other nonbacterial pneumonias. Four patients had epistaxis, and one had hemoptysis. The disease produced meningoencephalitis in a 44-year-old man who had been exposed to dead parakeets. In all patients, the complement fixation titer was greater than 1:16 during either the acute or convalescent phase and was as high as 1:1024 in one case. Treatment with tetracycline 2-4 gms

daily for 10-14 days led to remission in all cases; none experienced a relapse (4).

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References

1. Remington JS, Desmonts G. In: Remington JS, Klein JO, eds. *Toxoplasmosis: Infectious diseases of the fetus and newborn infant*. Philadelphia: WB Saunders, 1976:274-99.
2. Quinn EL, Fisher EJ, Cox F. The clinical spectrum of toxoplasmosis in the adult. *Cleveland Clin Q* 1975;42:71-81.
3. Frances DP, Holmes MA, Brandon G. *Pasterurella multocida*. *JAMA* 1975;233:42-5.
4. Mandel GL, Douglas RG, Bennet JE. *Principles and practices of infectious disease*. John Wiley & Sons, 1979.