

# 猫からうつる病気：猫ひっかき病

## Cat-Scratch Disease

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Hello, everybody. I am Soichi Maruyama of Nihon University. Today I am going to talk about cat-scratch disease (CSD) as a representative example of diseases from cats.

To begin, as Dr. Okabe introduced earlier, I will try to explain in simple terms about zoonoses, or zoonotic infections. As my slide shows, a zoonosis is an infectious disease or an infection that can be transferred between human beings and other vertebrates under natural conditions. Sometimes, zoonoses are spread from humans to other animals but, in many cases, they are spread from animals to humans. As was introduced earlier, the technical term for diseases maintained in nature by humans and other animals is 'zoonosis'.

Among the 1,709 pathogens that infect humans, almost half of them are zoonotic infections. Moreover, among 156 emerging infectious diseases listed as having begun to spread since 1970 (a number which is now a little higher), 73% have been found to be zoonotic infections. So, I think it is fair to say that we are surrounded by a great many infectious diseases from animals.

We share our living environment with a variety of animals. These include the livestock that provide the meat we eat every day. Also, in Japan in recent years, wild animals have been intruding more frequently than before into human residential areas. Cats and dogs are extremely popular as pets, and there are also many people who keep reptiles as pets.

According to the data in 2009, approximately 12,320,000 dogs and 10,020,000 cats are being kept

as pets in Japan. This tells us that many people are pet owners. Actually, I am one of these people as I am a dog owner. When we look at the figures for the number of pets being kept per pet-owning household, it turns out that an average of 1.29 dogs and 1.7 cats are kept per household. So, from the data, it is clear that many of the households keep more than one animal as pet.

This is a dog that my family and I take care of. The way we treat pets in Japan is different to the old days. In treating them as members of the family, we have much closer contact with our pets. In this picture, we hug and stroke our dog every day and in general maintain a very close distance. But sometimes disease-causing agents carried by cats or dogs infect people accidentally. Given such circumstances, when we keep pets, we need to know more not only about the biology of the animals themselves, but also about the diseases they carry. So today, I would like to talk to you about CSD as an example of a disease that is often transmitted from cats to humans.

CSD was first reported over half a century ago in 1950 in France. The first case in Japan was reported three years after that, in 1953. However, it took a long time to isolate the disease-causing agent from the patients. It was finally identified in 1992. So I think we can count CSD as an emerging infection.

Unfortunately we do not have precise data on how many people have contracted CSD. The number of cases is taken from an article according to which there were approximately 22,000 cases in the United States in 1992, and the number increased to approximately 40,000 cases by 1997. The status of CSD in other

countries is totally unknown.

This is a questionnaire survey that was given to Japanese physicians in order to try to ascertain what types of zoonosis they had found among their patients. The respondents included internists and surgeons here in Kobe. According to the results, the most common zoonosis found by physicians both in Fukuoka and in Kobe was CSD. They also reported high rates of other diseases, such as psittacosis, which will be discussed later today, but the research indicates that CSD is the most common zoonosis in terms of the number of cases discovered. However, there is no legal requirement to report CSD infections in Japan, so there are unfortunately no national statistics.

The agent of CSD is the bacterium, *Bartonella henselae*. The bacterium can propagate in artificial medium, and *Bartonella henselae* is a very small bacterium that can exist inside the red blood cells of cats. I will explain later why bacteria in cats' red blood cells can be transmitted to humans through cat bites and scratches. These bacteria require several weeks to form a colony. A colony in this sense means that the bacteria have propagated in an artificial medium to the point where they form a clump large enough to be visible. Usually, in the case of coliform bacteria such as *E. coli* or *Salmonella*, a colony can be grown in an artificial medium within a single day. But in the case of *Bartonella*, the agent of CSD, the process takes several weeks. This bacterium will not grow into colonies unless we cultivate it for a very long period of time.

As for the symptoms, when an immunologically healthy individual is infected with CSD-causing bacteria, a papule will appear at the site of infection resembling an insect bite, (I will show you a picture of this later), or else the patient will develop a fever. Next, they will develop a general malaise, and then the nearby lymph nodes will become swollen. Many CSD-infected individuals exhibit these symptoms, but between 5 and 10% of them also go on to develop additional symptoms such as an eye symptom known as Parinaud's oculoglandular syndrome, encephalitis, and/or erythema nodosum (EN), which is an inflammation of

the fat cells under the skin.

This picture shows an early lesion. Here is an injury that was caused by a cat scratch. This picture also shows where a claw mark on the arm has caused an injury resembling that of an insect bite but which doesn't heal. This picture shows a symptom developed by a student who is a graduate of my college. She comes from Kobe, and while she was taking an instruction course at a private veterinary clinic in Kobe during her summer vacation, she was scratched by a tomcat that had been brought to the clinic for spaying. According to the student, she developed the symptom shown here, and then her lymph nodes became swollen. Soon after the lesion occurs, such symptoms can appear. Later, she developed a fever and her lymph nodes swelled to the size of eggs, as shown in the slide. The lymph nodes close to the wound site caused by a scratch or bite become swollen like this. After that, the wound becomes red if it is rubbed and I have heard that it can be very painful.

This next picture shows lymph nodes in the inguinal area hugely swollen. This is a CT image, and you can see how the nodes have swollen. Next, looking at this patient's feet, you will notice a lot of fleabites. This is because the patient was bitten many times by the fleas infesting his pet kitten. He was bitten and then scratched himself many times. Then, the inguinal lymph nodes became swollen. When he went for a medical examination he was found to have been infected with CSD. This is an example of a flea-borne CSD case and the case is uncommon.

Here is a case in which neuroretinitis has developed. If a person touches the fur of a cat with CSD-causing bacteria and then rubs his or her eye with the same hand, the bacteria can transfer to the eye. Neuroretinitis or conjunctivitis may then develop.

When immunosuppressed individuals are infected with *Bartonella henselae*, they can develop bacillary angiomatosis, a condition that may resemble Kaposi's sarcoma, on the skin. In this picture, you can see a lesion that has developed on a finger. Such lesions can

mimic a granuloma. They may also develop, not only on the skin, but within the liver or spleen where they can produce serious symptoms. Occasionally, other symptoms such as a lung abscess or endocarditis can also appear.

As you might expect from the name of this disease, cats are the main source of CSD infections. When we performed examinations on 63 CSD patients, we found that the infections were cat-related in 58 cases (92.1%). Cases involving kittens were particularly common. As was mentioned earlier, there are rare examples in which dogs are also carriers of the infectious agent.

Actually, these results were taken from research on antibody prevalence rates. In this research, we examined for the presence of antibodies in the blood, which provides an indication of whether or not an individual has been infected with a given disease in the past. Firstly, we roughly divided the subjects into those who had been in contact with cats and those who had not. As a result, we ascertained that 17.4% of the subjects who had been in contact with cats had antibodies to *Bartonella henselae* while, among those who had no contact, 7.9% had antibodies. Among those who were unsure whether or not they had had contact, the corresponding ratio was 4.8%. From this, we can say that having contact with cats is an important factor.

On this occasion, we checked the age distribution of patients with CSD and discovered that among children up to nine years old, the majority of such patients are boys, while among teenagers and adults up to their forties, the majority are female. However, this does not necessarily mean that there is any difference in sensitivity to the infection between males and females. It may simply reflect the frequency and intensity with which people come into contact with cats. For example, young boys who live with a cat at home may be more inclined than young girls to grab their pet suddenly, which scares the cat and may lead it to scratch or bite in response. In my own home, my children often play with the dog, and since the animal ranks the children at the bottom of the social hierarchy, they often get barked at or bitten. Still, the children continue to play

with the dog without being discouraged. From this, it seems natural that boys would have a higher frequency of being scratched or bitten by cats. In the case of adult women, when the family has a cat, it is often the mother or elder sister who takes care of the animal, meaning that women tend to have a higher frequency of close contact with cats.

When we checked the age distribution from the antibody prevalence rate, we examined 25 male patients and 23 female patients clinically diagnosed as having CSD, regardless of whether or not antibodies were present. The results showed that a greater number of women were carrying antibodies to the disease. I have found similar results when I observe students at my own college. As may be expected, when cats are present, the female students get closest to them, stroking them or patting them on the head and saying "how cute!" From this, we can say that women generally have a higher ratio of involvement with cats than men do.

This slide shows the causes of CSD. All of these cases involved cats. Looking at the data, as you might expect, we find that 44.8% of the patients developed their CSD symptoms as a result of being scratched. Surprisingly, only a few of them developed their symptoms due to bite wounds. Interestingly, 41.4% developed symptoms after merely touching a cat and only 5.2% developed their symptoms due to fleabites. These cases all involved cats so we can say that bites, scratches or other close contact with cats are among the causes of CSD development.

This graph shows how CSD develops on a month-by-month basis. The number of patients increases up to a peak in September and October. Surprisingly, from February until around April, May and June there are fewer cases. I think this may be related in some way to the flea-hatching season. Possibly, when the hot season arrives, more fleas hatch and jump onto cats. This causes the number of CSD-infected cats to increase, and this in turn is linked to the increase in month-by-month CSD development.

This is the mode of transmission of CSD. Consider that this cat has the bacteria *Bartonella henselae* in its blood. A flea sucks blood from this cat, and later jumps onto another cat, where it again sucks blood and also deposits feces. The bacteria in the blood are mixed in with the feces, which sticks to the cat's skin or fur. We know from watching cats that they groom themselves frequently. While the second cat is grooming, it takes bacteria into its mouth as well as onto its claws. If this cat later bites or scratches a person, the bacteria can infect that person. Alternatively, when a person hugs a cat that has CSD bacteria on the surface of its body, the bacteria can infect the person by passing through an existing small wound, etc.

Cats are a reservoir of CSD infection. On this occasion, we researched the percentage of cats that actually host CSD bacteria. We also made separate tabulations for the percentages of infected male and female cats, and we found little difference between them. In our survey, the CSD carrier ratio was 7.7% for male cats and 7.1% for female cats. Moreover, the age-classified CSD carrier ratio rose progressively from the age of less than one year and peaked at between two and three years old. For cats over three years old, the carrier ratio declined significantly to 3.4%. Accordingly, we can say that a high percentage of cats from kittens up to three years of age carry CSD bacteria.

Next, what is the CSD situation among newborn kittens? As was mentioned in the earlier keynote speech, are these bacteria transmitted from mothers to their kittens? In order to research that issue, we conducted tests on the blood of newborn kittens. However, we did not find even any positive result among the 88 animals we examined. From this result, we ascertained that vertical transmission does not happen, or in other words, CSD bacteria are not passed from mothers to their kittens.

This time, we researched the regionally classified CSD bacteria carrier ratios among cats in regions throughout Japan from north to south, from Hokkaido to Okinawa. Our results show that in the northern region, no bacteria were detected at all in Hokkaido and Miyagi.

However, the carrier ratios increased as we moved to regions further south. This is the result of a survey by veterinarians in Sanda City, Hyogo. Here, the carrier ratio was very low. As a tendency, the carrier ratios become progressively higher in regions further south. Also, cats in urban areas tend to have unexpectedly high carrier ratios.

This is because in the more southern parts of Japan, cats are infested with fleas all year round. Also, in urban areas, since the density of cats is high, free-roaming cats have more opportunities to meet other cats, making it more likely they will pick up fleas or become infected with bacteria in the course of fights with infected animals, etc.

We have also made a comparative study of different methods of keeping cats and their rates of flea infestation. Compared with cats that are kept indoors, those that are kept outside have almost double the ratio of flea infestation. When we examined the prevalence of CSD bacteria antibodies, we again found that the ratio of animals testing positive for antibodies is about double in the case of cats that are kept outside.

In other words, cats that are kept outside and are infested with fleas also have a very high CSD bacteria carrier ratio. These animals form an important reservoir of CSD infection.

Now, when a cat is infected with CSD bacteria, what kind of symptoms do they display? Actually, cats show very few if any symptoms at all. Cats that carry the bacteria develop relapsing bacteremia, which means that bacteria are present in the blood only intermittently. They appear for perhaps a year or more, then disappear for a time, and then appear again, and so on. This data shows the results of research conducted at my laboratory. The red sections indicate where CSD bacteria are present in the blood. If we follow the same cat over a period of time, you can see the bacteria appear here and again here, disappear here, and reappear here. You can see from this that the bacteria repeatedly appear and disappear from the cat's body. This is why even infected cats hardly ever

show clinical symptoms, and it also helps explain why it is difficult to discover whether an individual cat is a carrier of CSD bacteria or not.

As I said before, in recent years there have been occasional cases of CSD involving dogs. The British Medical Association's journal 'The Lancet' published a report by a Japanese researcher from Yamaguchi University about bartonellosis transmission from dogs, and our own group has also come across such a case.

Accordingly, we investigated how many dogs are actually carriers of CSD bacteria. We took blood samples from dogs with the cooperation of the Veterinary Association of Kobe City and the government of Saitama City. In Kobe, our examination of blood samples from 206 dogs did not reveal the presence of any CSD bacteria at all. However, DNA from this bacterium was detected in a blood sample in one case. In Saitama, we found ten cases in which dogs were carrying CSD bacteria and three cases in which dogs carried both *Bartonella henselae* and *Bartonella clarridgeiae*. From this result, we can surmise that dogs do not carry CSD bacteria permanently, but they may do so intermittently.

The method of diagnosing whether or not a cat is carrying CSD bacteria or not is to take a blood sample, examine the blood serum using the fluorescent antibody method, and ascertain whether the result is positive or not. This bright one is positive. The most important thing when bitten or scratched by a cat is to check whether there is an injury. To isolate the bacteria is not impossible, but is very difficult because, as I said earlier, the bacteria takes several weeks to grow into a colony. Also, physicians already use antibiotics for treatment of patients, which makes it rather difficult to isolate the bacteria. Another diagnostic method is the PCR method, which provides a way of detecting DNA from a blood or lymph node samples.

How do we treat patients who are infected with CSD? In many cases, antibiotics are used. But in general, antibiotics have very little effect when used on CSD in immunologically healthy people or for cats

carrying *Bartonella henselae*, which are sources of infection. However, antibiotics such as erythromycin or doxycycline, etc., can be effective when given to an immunocompromised person or an AIDS patient. I suppose that if you visit a physician for CSD you are likely to be prescribed an antibiotic almost all the time. But in the case of CSD, such drugs have almost no effect. We have to wait for the infection to clear up by itself.

Lastly, I would like to talk a little about CSD prevention measures. The first thing you can do is to choose gentle-natured cats as your pets. This can be rather difficult, but in situations where you have a choice of many individual animals, if you choose a cat that is too energetic, you will have a bigger chance of being scratched by that cat when it grows up. So please be sure to consult with the cat breeder or provider regarding that point, and choose a gentle animal.

Next, clip the cat's claws periodically. As a cat's claws lengthen, they grow into a hook shape. So if they penetrate into the skin they can cut deeply. Also, if you are scratched, thoroughly apply an antiseptic agent to the wound. The antiseptic you keep at home is OK for this purpose. But even if the injury is minor, be sure to clean it thoroughly. And if the wound is deep, you must visit a physician for treatment.

Avoid excessive contact with cats such as kissing and sleeping together. Also, and this is a very basic thing, but always wash your hands after touching a cat. And gargle your throat. It is quite difficult to carry out these instructions. I doubt whether even I could follow them all the time, but at least I wouldn't let my dog sleep on my bed. Also, as I mentioned earlier, if your hand becomes contaminated with CSD bacteria and then you touch your eye, you might develop conjunctivitis or neuroretinitis, so please wash your hands thoroughly.

The transmission of CSD from cat to cat often involves fleas. In rare cases, fleas are also involved in transmitting CSD to people. So be sure to conduct flea countermeasures properly. Nowadays there are a variety of flea expellants available, such as insecticide-

impregnated cat collars, liquid medicines and injections, so make use of these to get rid of fleas completely.

Also, immune suppressed people should avoid keeping animals. This is not only because of the risk of CSD but because, generally speaking, such people's physical resistance tends to be weak so they can be easily infected even by mild disease-causing agents. Such individuals can guard against getting diseases by refraining from keeping animals.

Even so, as Dr. Okabe mentioned at the beginning, I think that the positive effects of keeping pets at home are highly significant. Pets can help refresh our spirits and they provide children with emotional education. However, the animals themselves don't understand that kind of thing. So it is important to gain an understanding of how to handle animals, including the aspect of keeping them while also staying aware of potential diseases.

Finally, I would like to close my talk with the sentiment, "Let's enjoy your life with pets with appropriate manners." Thank you very much for your attention.





一猫からうつる病気: 猫ひっかき病  
Cat-scratch disease



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日本大学生物資源科学部  
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【Slide1】

1980年以降に新たに発見された感染症(新興感染症)

年	病原体	分類	疾病
1980	ヒトリンパ球特異性ウイルス(HITLV-1)	ウイルス	Tリンパ球腫
1981	ブドウ球菌毒素(TSS-1)	細菌	毒害ショック症候群
1982	大腸菌 O157 H7	細菌	出血性大腸炎、溶血性毒血症候群
1982	<i>Legionella pneumophila</i>	細菌	ライム病
1982	HITLV-II	ウイルス	Tリンパ球腫
1983	ヒト免疫不全ウイルス(HIV)	ウイルス	AIDS
1983	<i>Helicobacter pylori</i>	細菌	胃潰瘍
1984	<i>Yersinia enterocolitica</i>	細菌	日本紅斑熱
1985	プリオン	プリオン	伝播性海綿状脳症
1988	ヒトヘルペスウイルス-6(HHV-6)	ウイルス	ヒトヘルペスウイルス感染症
1989	C型肝炎ウイルス	ウイルス	C型肝炎
1991	<i>Cryptosporidium</i>	ウイルス	ヘイズユウ出血熱
1992	コレラ菌 O139	細菌	ベンガル型コレラ
1992	<i>Bartonella henselae</i>	細菌	猫ひっかき病
1993	ハンタウイルス	ウイルス	ハンタウイルス感染症候群
1994	ウマエーベリウイルス	ウイルス	ウマエーベリウイルス感染症
1994	<i>Sakia virus</i>	ウイルス	ブラジル出血熱
1995	HHV-8	ウイルス	ヒトヘルペスウイルス感染症
1999	<i>Nipah virus</i>	ウイルス	ニパウイルス感染症

● 人と動物の共通感染症

【Slide5】

講演内容

- ①猫ひっかき病とその病原体はどのようなもの?
- ②猫ひっかき病の疫学
- ③猫ひっかき病の診断・治療法
- ④猫のバルトネラ感染状況
- ⑤犬のバルトネラ感染状況
- ⑥猫ひっかき病の予防対策

【Slide2】

犬・猫の飼育頭数

2009年  
犬: 1,232万頭  
猫: 1,002万頭

世帯別平均飼育頭数  
犬: 1.29頭  
猫: 1.70頭  
(ペットフード工業界資料)

【Slide6】



【Slide3】

猫ひっかき病: Cat-Scratch Disease

1950年にフランスで初めて報告  
日本では1953年に初めて報告

アメリカ 1992年 22,000人  
アメリカ 1997年 40,000人  
その他の国 不明

【Slide7】

人と動物の共通感染症(Zoonosis)

自然の状態では、人と脊椎動物の間で相互に移行しうる感染症あるいは感染。  
= 人獣共通感染症

- ①人に感染する1,709の病原体の49%は人獣共通感染症
- ②156の新興感染症のうち、73%は人獣共通感染症

【Slide4】

医師による主な人と動物の共通感染症の診断状況(アンケート)  
Diagnostic cases of zoonoses by physicians

疾病	福岡市		神戸市		計
	内科医	外科医	内科医	外科医	
猫ひっかき病	13	14	13	15	55
皮膚糸状菌症	・	16	3	19	38
オウム病	15	・	15	3	33
トキソプラズマ症	3	5	・	11	19
サルモネラ症	6	・	4	・	10
クリプトコッカス症	4	・	4	・	8
トキソカラ症	3	1	1	3	8
疥癬	・	4	・	・	4
カンピロバクター症	1	・	1	1	3
マイコプラズマ症	1	・	・	・	1
パストレルラ症	・	・	・	・	・

感染症学雑誌 75:276-282(2001)から

【Slide8】

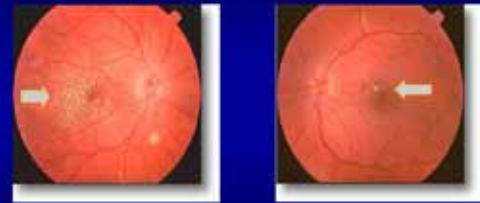
*Bartonella henselae*の性状  
Characteristics of *Bartonella henselae*

- グラム陰性, 多形性単桿菌
- 巾0.5~0.6 $\mu$ m, 長さ1 $\mu$ m
- 猫の**赤血球**の中に存在
- 35°C, 5%CO<sub>2</sub>下で良く発育
- コロニー形成に数週間



【Slide9】

猫ひっかき病の症例-4  
CSD patient (case-4)



視神経網膜炎を起こした例

(写真: Wehman/et- Southeastern Eye Center)

【Slide13】

猫ひっかき病患者の症例-1  
CSD patient (case-1)



(写真: 公立八女総合病院 吉田 博 先生)

(写真: 日本大学 丸山 純一)

【Slide10】

AIDS患者における症状

Clinical symptoms of *B. henselae* infection in AIDS patients

- 細菌性血管腫 (Bacillary angiomatosis)
- 肝臓の肉芽腫 (Bacillary peliosis)
- 脾臓の肉芽腫 (Bacillary splenitis)
- 肺膿瘍, 心内膜炎など



【Slide14】

猫ひっかき病患者の症例-2  
CSD patient (case-2)



(写真: 公立八女総合病院 吉田 博 先生)

【Slide11】

猫ひっかき病患者の年齢分布  
Age distribution of CSD patients

年齢	男	女	計
0~9	6	1	7
10~19	4	8	12
20~29	4	5	9
30~39	0	5	5
40~49	6	10	16
50~59	4	3	7
60~69	1	2	3
70~79	0	3	3
80~89	0	1	1
計(%)	25(39.7)	38(60.3)	63

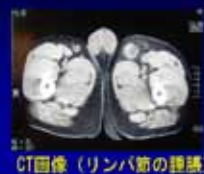
(公立八女総合病院 吉田博先生データ)

【Slide15】

猫ひっかき病患者の症例-3  
CSD patient (case-3)



多数のノミ刺咬痕と  
擦過後の瘡痕  
(36歳, 男性)



CT画像 (リンパ節の腫脹)



鼠径リンパ節の腫脹

【Slide12】

人の *B. henselae* 抗体陽性率と猫との関係  
Seroprevalence of *B. henselae* infection by cat contact

猫との 接触歴	検体数	陽性数(%)
+	155	27 17.4
-	38	3 7.9
不明	188	9 4.8
計	381	39 10.2

【Slide16】



### 人の *B. henselae* 抗体陽性率 (性別)

Seroprevalence of *B. henselae* infection by sex

由来	性	検体数	<i>B. henselae</i> 抗体陽性数 (%)
CSD患者	男	25	7 (28.0)
	女	23	14 (60.9) *
獣医系学生	男	48	2 (4.2)
	女	81	12 (14.8) *

\*  $P < 0.05$

【Slide17】

### 猫のバルトネラ感染状況

*Bartonella* infection in cats



【Slide21】

### 猫ひっかき病の原因

Sources of CSD

由来	例数	(%)
猫 子猫	41	58 (92.1)
成猫	17	
犬	4	(6.3)
不明	1	(1.6)
計	63	

(公立八女総合病院 吉田博先生データ)

【Slide18】

### 飼育猫の *Bartonella* 保菌率 (性別)

Prevalence of *Bartonella* bacteremia in pet cats by sex



【Slide22】

### 猫ひっかき病の発症原因 (58例)

Causes of CSD patients involving cats (58 cases)

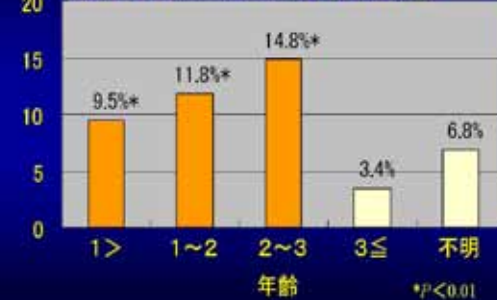
発症原因	例数	%
ひっかき傷	26	44.8
咬傷	5	8.6
接触のみ	24	41.4
猫ノミの刺咬	3	5.2

(公立八女総合病院 吉田博先生データ)

【Slide19】

### 飼育猫の *Bartonella* 保菌率 (年齢別)

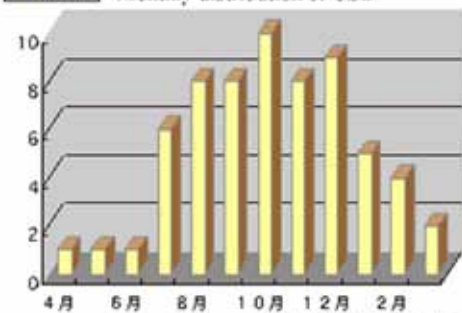
Prevalence of *Bartonella* bacteremia in pet cats by age



【Slide23】

### 猫ひっかき病の月別発生状況

Monthly distribution of CSD



(公立八女総合病院 吉田博先生データ)

【Slide20】

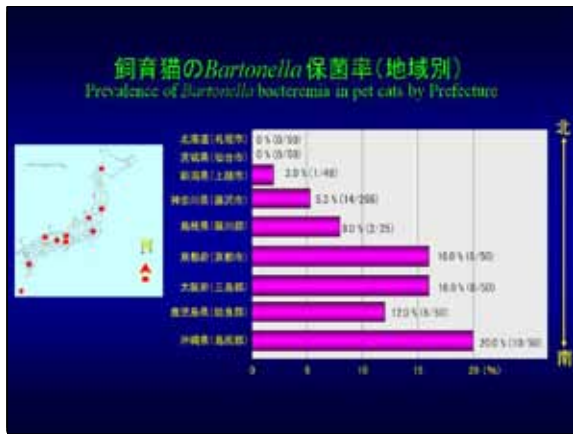
### 仔猫の *Bartonella* 保菌率

Prevalence of *Bartonella* bacteremia in kittens

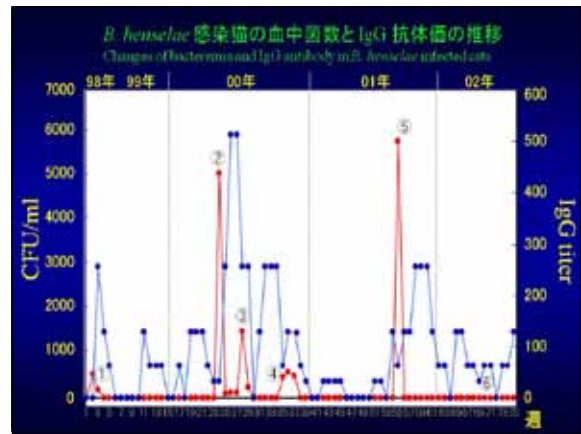
年齢	検体数	陽性数 (%)
新生子猫	88	0
子猫~成猫	162	5 (3.1)
不明	12	0
合計	262*	5 (1.9)

\*群馬県の猫

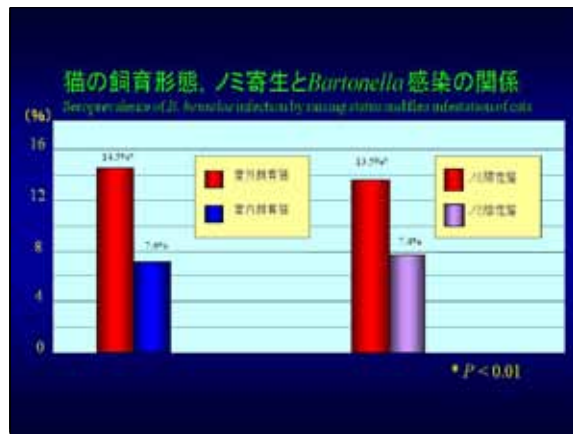
【Slide24】



【Slide25】



【Slide29】



【Slide26】



【Slide30】



【Slide27】

### *Bartonella henselae* infection from a dog

Masato Tsukahara, Hidehiro Tsuneoka, Hidechika Iino, Koichi Ohno, Ichiro Murano

The Lancet • Vol 352 • p1682 • November, 1998

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Two Patients with *Bartonella henselae* Infection from a Dog

Ichiro MURANO\*, Hidehiro TSUNEOKA\*, Hidechika IINO\*, Toshiaki KAMEI\*, Iano NAKAMURA\* & Masato TSUKAHARA\*

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J. Jpn. Assoc. Infect. Dis. Vol 75:808-810, 2001

【Slide31】

### 猫の臨床症状

Clinical symptoms of cats

- ほとんど無症状
- 菌血症(3~10<sup>6</sup>CFU/ml)は1年以上持続 回帰性の菌血症を起こす

【Slide28】

### Two Cases of Suspected *Bartonella henselae* Infection from a Dog

Schizuko KUSABA\*, Hiroaki TORIDA\*, Yuzuko SHIMOKAWA\* & Michio SATO\*

Department of Medicine, Yama General Hospital

\*Second Department of Medicine, Kurume University School of Medicine, Kurume

J. Jpn. Assoc. Infect. Dis. Vol 73:936-934, 1999

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### A Case of *Bartonella henselae* Infection from a Dog

Hirotugu YAMANOUCHI, Kenichi EZUMIKAWA, Yuko HOSAMATSU, Michiko YOSHINAGA, Etsuko SASAKI, Koichi USHIBAWA, Tamihiro HAYASHI, Katsuhiko HARA, Soichi MARUYAMA, Hiroaki OHYAMA & Iano SHIMOKAWA

Kanazawa Hospital

J. Jpn. Assoc. Infect. Dis. Vol 78:270-273, 2004

【Slide32】

## 犬の血液から検出された *Bartonella* DNA

Detection of *Bartonella* DNA from dogs

採材地	検体数	<i>B. v.</i>	<i>B. h.</i>	<i>B. c.</i>	<i>B. h.</i> + <i>B. c.</i>
神戸市	206	0	1	0	0
さいたま市	49	0	10	1	3
計(%)	255	0	11(4.3)	1(0.4)	3(1.2)

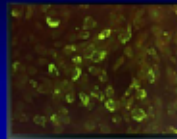
*B. v.*: *Bartonella vinsonii* subsp. *berkhoffii*

*B. h.*: *Bartonella henselae*

*B. c.*: *Bartonella clarridgeiae*

【Slide33】

## 診断法



- 臨床症状, 猫からの受傷の有無
- 血清診断: 間接蛍光抗体法
- 菌分離: 血液, リンパ節材料など
- PCR法: 血液, リンパ節材料など

【Slide34】

## 猫ひっかき病の予防対策 Control of CSD

- ①ペットには性格の温厚な動物を選択する
- ②動物の定期的な爪切り
- ③動物による外傷の消毒
- ④過度の接触(キス, 同衾)を避ける
- ⑤動物と接触後の手指の洗浄, うがいの励行
- ⑥猫ノミの駆除を徹底する(特にCSD)
- ⑦免疫抑制状態の人は動物の飼育を避ける

【Slide35】