

Blastomycosis: Awareness can Save Lives

By Jane-Anne Campbell

A fifteen year-old is recovering well from blastomycosis, a fungal disease endemic to Georgian Bay, Northwestern Ontario, and Manitoba. In September of last year, the young man began to experience difficulty breathing and was taken to a hospital emergency department. Two months and many tests later, a lung biopsy revealed blastomycosis. After a week in hospital, the young man is on the road to recovery.

The young man's dog is also doing well. He too fell ill with blastomycosis, along with a number of other dogs from the Pointe au Baril area. This dog was one of the lucky ones. Three of eleven dogs have died in this, the largest cluster of confirmed cases that we know of in Georgian Bay.

Is blastomycosis new to Georgian Bay? Certainly not. The Bay has been long considered an endemic area for the disease. Isolated cases and small clusters involving dogs and people have occurred in various parts of the Bay including Sans Souci, Bayfield/Nares and Key River.

Is blastomycosis on the increase? On average, thirty cases every year are reported to the Northwestern Health Unit from across Ontario, though most are from the Kenora area. In 2004, that number rose to 53 cases, but Lyle Wiebe, Environmental Health Specialist at the Northwestern Health Unit, cautions against assuming any upward trend. Greater awareness of blastomycosis might be causing more people to be correctly diagnosed. Blastomycosis is not a disease that must be reported to public health authorities; so there is inadequate information from which to draw conclusions.

Bill Limerick, Director of Environmental Health, has been working with others at the

Northwestern Health Unit to put blastomycosis back on the list of diseases that must be reported to public health officials. (Blastomycosis was removed from the list in 1989, because it can rarely be transmitted between people and/or animals, and because very few cases were being reported.)

What *we do* know is that blastomycosis is an uncommon disease in dogs, and a rare disease among humans and other animals. While many dogs and people are probably exposed to the fungus, most do not get sick

because their immune systems overcome it. In very rare cases, and most often when an individual is elderly, has a compromised immune system or other health problems, blastomycosis can

physicians and veterinarians to be aware of the illness.

With blastomycosis, delays in diagnosis and treatment are common for four main reasons.

First, blastomycosis is very uncommon. Many physicians and veterinarians, especially those practicing outside Georgian Bay and other endemic areas, have never seen a case of it and do not know much about it.

Second, blastomycosis is often hard to recognize. It can cause different symptoms in different individuals and can resemble many other diseases, including tuberculosis and cancer.

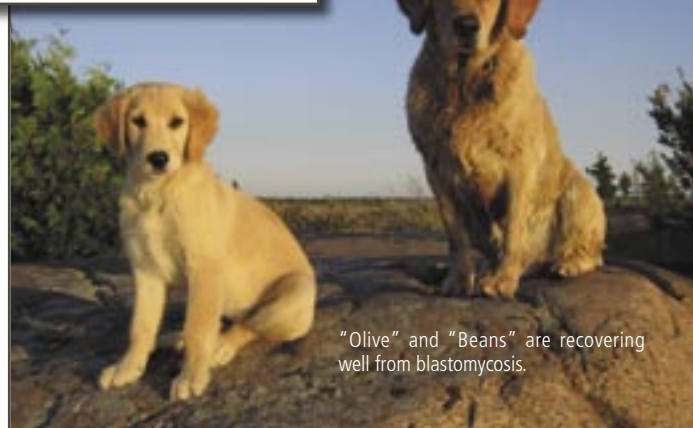
Third, blastomycosis can be difficult and time-consuming to diagnose.

Fourth, symptoms do not appear for several weeks and sometimes months after the fungus is contracted. A person with vague symptoms in January is thus unlikely to suspect that he/she has blastomycosis.



A microscopic view of a budding yeast cell, the form blastomycosis takes in an animal or human body.

Credit: Northwestern Health Unit



"Olive" and "Beans" are recovering well from blastomycosis.

Photo credit: Maggie Pepper

cause, organ damage, long-term health complications and even death. We must, however, keep the risk in perspective. According to Dr. John Embil, Director of the Infection Control Unit at the Health Sciences Centre in Winnipeg, getting blastomycosis is about as common as being struck by lightning.

Prompt diagnosis and treatment are critical for people and their pets. It is very important for Georgian Bay cottagers, their

our townships, associations and individual cottagers, to do the same.

We are working with partners in the human and animal medicine communities to increase awareness among physicians and veterinarians. We plan to prepare information sheets that cottagers can share with their own physicians and veterinarians.

Finally, we are looking for researchers who

What is the Georgian Bay Association doing to help?

Blastomycosis is difficult if not impossible to prevent; so our top priority is to increase awareness of the disease so that people and pets with blastomycosis are diagnosed and treated as quickly as possible.

We have organized for Sunday, April 17 a seminar to help us learn about the disease.

GBA has written to the Chief Medical Officer for Ontario to encourage her to put blastomycosis back on the list of reportable illnesses, and we are encouraging others, including

will study the most recent outbreak in Pointe au Baril.

We thank this young man, his family and all the other cottagers and residents of Georgian Bay who shared their stories to help us increase awareness of blastomycosis.

What is blastomycosis and how is it contracted?

Blastomycosis is a disease caused by the fungus, *Blastomyces dermatitidis* which is endemic to Georgian Bay and other areas in central Canada, a few American states, and elsewhere in the world. More prevalent near water, the fungus grows in damp, acidic soil that contains organic material such as rotting wood, leaves and animal excrement. Blastomycosis exists in nature in a form that produces spores that can be contracted when inhaled and less commonly when rubbed into broken skin. While the exact conditions under which this occurs are poorly understood, disturbing contaminated soil during construction, digging and gardening may facilitate this release. Once inside the body, the fungus can turn into a yeast form, which is not infective. With blastomycosis, the incubation, the length of time between exposure and first symptoms, is very long. In people, the average incubation is 45 days, but it can range from a few weeks to four months. Fortunately, most people experience few or no symptoms following exposure.

Is blastomycosis contagious?

The yeast form, which exists in animals and humans, is not infective; thus blastomycosis cannot be passed from person to person, from dog to dog, from person to dog or from dog to person except in very rare cases, such as when medical personnel contract localized forms of blastomycosis through dog bites and infected syringes.

Who is at risk?

Anyone who visits an endemic area such as Georgian Bay can contract blastomycosis, but the risk may increase for the elderly and people who have compromised immune systems and those who frequently engage in activities that involve close contact with soil or rotting wood such as construction, digging, farming, forestry, hunting, trapping, gardening and clearing beaver structures. Dr. John Embil, Lyle Wiebe and Bill Limerick

are collaborating on a study examining the genetic and environmental risk factors for blastomycosis, with preliminary results expected late this year.

Dogs are far more likely than people to become ill with blastomycosis. While the reasons for this are not clear, they may be related to the frequency with which dogs dig, chew and snuffle around the ground. Dogs of all breeds and ages can get blastomycosis, but young dogs of the large sporting breeds seem the most susceptible. Dogs are more likely to become seriously or fatally ill, and are more likely to have relapses. While one cottager has reported the deaths of two cats from blastomycosis, feline blastomycosis is rare.

What are the symptoms?

In people and dogs, symptoms of blastomycosis commonly include the following:

- Fatigue/lethargy
- Cough
- Shortness of breath/difficulty breathing
- Chest pain
- Loss of appetite and weight loss
- Increased sputum that is yellow or green
- Fever (and night sweats in people)
- Swollen glands
- Skin lesions which worsen over time



Blastomycosis skin lesions can vary in appearance and usually worsen over time.

Photo credit: John Embil

For both people and dogs, the first symptoms when the fungus has been inhaled are often flu-like. In some cases, they worsen and pneumonia can develop. Once the disease is established in the lungs, it can spread to other areas of the body, including the bones and other organs, and can cause a variety of unusual symptoms. When the fungus is contracted through broken skin, early symptoms often include a rash of painless red pimples, which can become crusted or ulcerated.

In dogs, pneumonia often develops quickly and can be fatal within a few days. Eye

lesions, cysts and abscesses (especially on paws) are also common symptoms.

Remember that symptoms appear several weeks or months after exposure.

Why is blastomycosis difficult to diagnose?

Once blastomycosis is suspected, it can still be difficult to confirm the diagnosis quickly. While a blood test for blastomycosis exists, results can take several weeks and are not always definitive. The pneumonia form can also be hard to recognize on x-ray. Dr. Hillary Turnbull of the Georgian Animal Hospital, who treats an average of about four cases of blastomycosis per year, describes a “snow storm” appearance to the chest x-rays of many dogs with blastomycosis. In other cases, however, blastomycosis may resemble a lung cancer tumour. Samples from sputum, lesions and cysts examined under a microscope can often confirm diagnosis, but a biopsy of lung tissue may be required.

As the disease can progress very rapidly in dogs, veterinarians sometimes recommend that treatment begin before the diagnosis is confirmed.

How Successful is Treatment?

Treatment is similar for people and pets. Itraconazole, taken by mouth, is the usual drug of choice, although intravenous amphotericin is also used in serious cases. In people, blastomycosis is rarely fatal when treated, and most recover with no residual effects. Anti-fungal medication must, however, be taken for several months to prevent relapses.

In Dr. Turnbull’s experience, the majority of dogs can be saved if treatment is initiated promptly. Unfortunately, the diagnosis and treatment of blastomycosis in pets is expensive, usually costing at least \$1,000.

How can we protect ourselves and our pets?

There is no vaccine to prevent blastomycosis. Early recognition and treatment are extremely important and can be life-saving.

1. **Become informed.** Come to the GBA information session on April 17th.
2. **Tell your physicians and veterinarian that you cottage in a blastomycosis endemic area.** Ask them to record it on the inside cover of

your family and pets' health records, or in another prominent spot. If they are not knowledgeable about blastomycosis, give them a copy of this article.

3. **Recognize early symptoms of blastomycosis and go to your physician/veterinarian promptly.**

If a family member or pet becomes ill with unusual symptoms, ask your physician or veterinarian about the possibility of blastomycosis.

4. **Inform visitors to Georgian Bay about blastomycosis.**

5. **Consider obtaining veterinary insurance.** Blastomycosis is very expensive to diagnose and treat.

6. **If someone in your family is diagnosed with blastomycosis, report it to the Northwestern Health Unit at 1-800-830-5978 or 1-807-468-3147.**

7. **Write a letter to Dr. Sheila Basrur, Chief Medical Officer for Ontario.** (See address at end of article.) Ask her to make blastomycosis a reportable illness!

Can we prevent blastomycosis?

Blastomycosis is difficult if not impossible to prevent for four main reasons:

a) It can be almost anywhere in the soil.

Blastomycosis is considered to be ubiquitous in the environment, appearing and disappearing in specific areas without notice.

b) Its presence/absence is extremely difficult to confirm with soil testing. While many attempts have been made, blastomycosis has been successfully isolated from the natural environment only a couple of times. If an animal or human becomes ill with blastomycosis, it is usually IMPOSSIBLE to determine the source of the fungus. Don't let anyone tell you otherwise! Experts agree that it is generally useless and a waste of money to test for blastomycosis on your property, or to try to eradicate it.

c) Little is known about the conditions that cause spores to be released.

d) Little is known about the reasons some animals and people become ill while most do not. The good news is that many dogs and people frequenting Georgian Bay have probably been in contact with blastomycosis already, and have successfully fought it off.

Public health units frequently offer the following suggestions, although there is no scientific evidence that they will reduce your chances of contracting blastomycosis.

1. Wearing a disposable NIOSH H100 approved HEPA filter dust mask (available from your home improvement store), gloves, proper footwear, long pants and a long-sleeved shirt when working in moist areas where the fungus may grow (e.g. under cottages, porches and sheds), may

help to prevent blastomycosis, although there is no guarantee.

2. If you have an organ transplant, cancer, HIV/AIDS or are otherwise immune-suppressed, discuss with your physician the advisability of avoiding activities that involve close contact with soil in Georgian Bay and other endemic areas.
3. Avoid allowing piles of rotten wood to accumulate under or right around your cottage.

While there is no scientific evidence that following these suggestions will reduce a dog's chances of contracting blastomycosis, many veterinarians suggest that owners discourage their dogs from digging and from chewing/eating rotten wood or other decomposing matter, especially in areas where blastomycosis is more likely to be contracted, such as under cottages and around rotting wood piles, old docks, beaver houses, or construction areas. All advise against allowing pets to wander extensively unsupervised. Aside from any risk of contracting blastomycosis, many pets are injured and killed every year in accidents such as falls off rocks and encounters with wildlife. ■■

Jane-Anne Campbell is a volunteer resource for GBA on wildlife and a cottager at Sans Souci.