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Bacteria and Termites: are they the Same or are they Different

Bacteria lives everywhere including infected organic tissues of animals, humans and plants. Termites live in wood; they eat wood and cause structural damage to the wood.

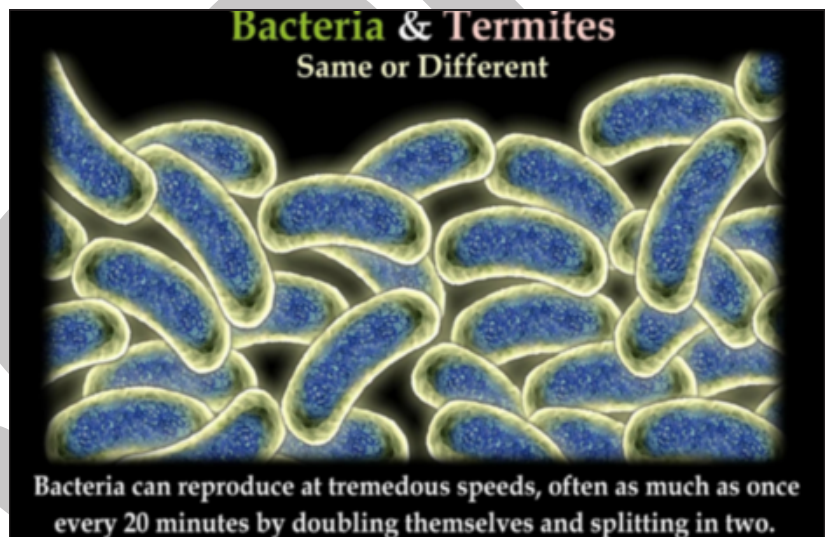
Bacteria have the same needs as that of the termite. They must obtain food and break the food down. Termites feed on materials that contain cellulose which is actually digested by bacteria living within the gut of the termite.

Bacteria can reproduce with tremendous speed, often as much as once every 20 minutes by doubling themselves and splitting in two. In one day, they could become millions and millions. The queen termite has an incredible capacity to reproduce as well. In one day, she can produce as many as 30,000 eggs; in her lifetime, she will lay millions of eggs that will, in turn, become termites.

The bacteria that live inside adult termite's gut will pass into the young termites that are produced. Bacteria can hide inside the bone until the bone deteriorates and forms an abscess or osteomyelitis. Termites can hide within the wood's walls deteriorating the wooden structure and integrity of buildings.

Once the bacteria infect the bone, the treatment is to wash the bone with a very strong washing tool called a jet lavage. The patient is given antibiotics that should reach the bone. When termites infect the wood, the treatment is to spray the wood with chemicals to wash or eliminate the problem. This is very similar in theory as the jet lavage for a bacterial infection. Holes are drilled deep into the wood to deliver the chemicals to help in clearing the infected wood. This is similar to treating infected bone with antibiotics.

When the patient has hardware in place, the bacteria creates a



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biofilm around it and becomes resistant to antibiotics. Antibiotics alone will not help. Necrotizing fasciitis, a severe type of bacterial infection, can destroy muscles, skin and underlying tissue. It spreads faster than termite infestation and is lethal. It could end in amputation or death. The diagnosis is not always clear and can be mistaken for cellulitis. Within an hour, the bacteria and toxins spread into the fascia and muscles and destroy them.

When infection is severe, debridement of affected tissue is necessary to limit the spread of bacteria. The loose, contaminated hardware has to be removed in a lot of cases. A more stable hardware or a different fixation method is usually used. The infection which causes sequestrum or dead bone around or within the bone must be removed. A new bone is created by adding a fresh, healthy bone graft or material that regenerates bone. Similar to the deteriorated bone tissue, the badly affected wood will have to be removed and replaced with a healthy, new structure.

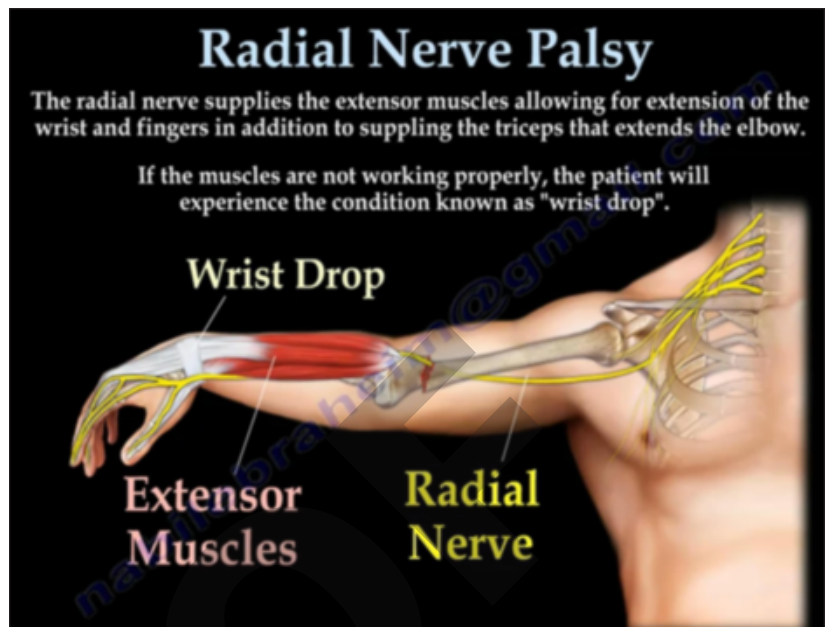
Radial Nerve Palsy-Wrist Drop

The radial nerve originates from the posterior cord of the brachial plexus. Radial nerve injury is usually the result of acute trauma or compression of the radial nerve.

This condition is sometimes referred to as Saturday Night Palsy, Honeymoon Palsy, or Crutch palsy. In Saturday Night Palsy, alcohol is sometimes a factor as a person falls asleep with the back of their arm compressed by a chair back, bar edge, etc. In Honeymoon Palsy, one person sleeps on the other person's arm overnight, compressing the nerve. It can also be called Crutch Palsy due to compression of the nerve in the axilla from walking with crutches.

The radial nerve supplies the extensor muscles allowing for extension of the wrist and fingers. It also supplies the triceps muscles which extends the elbow. If the muscles are not working properly, the patient will experience a condition known as "wrist drop".

The normal radial nerve function extends the wrist and extends the fingers. Radial nerve injury, which is classically caused by fractures involving the distal third of the humeral shaft, causes "wrist drop". The patient will also be unable to perform the "hitch-hike/thumbs up" sign. If the nerve is compressed at the axilla, the triceps muscle will be affected. The patient will not be able to extend the elbow in addition to having "wrist drop".



Treatment usually involves a brace or a cock-up splint. Physical therapy is usually utilized to help maintain muscle strength and avoid contracture. EMG and nerve studies may also be utilized. Here, the brachioradialis is the first muscle to recover. These studies can be done as early as three weeks after the injury. Progress should be followed. Nerve exploration, repair, or graft may also be utilized. Here, nerve exploration is indicated in open humeral fractures with radial nerve palsy or in conditions that have had sufficient time without nerve recovery (usually about 4-6 months). Tendon transfers are needed if the nerve cannot be repaired or function cannot be restored.

What is Avascular Necrosis?

Avascular necrosis, also known as osteonecrosis, is a disease causing bone tissue death due to insufficient blood supply. As avascular necrosis progresses, tiny breaks develop in the bone eventually causing the bone to collapse.

Patients with avascular necrosis will present with pain and decreased range-of-motion in the affected joint. While the hip is the most common joint affected by avascular necrosis, it is commonly found in knees and shoulders as well. Other areas of the body affected by avascular necrosis include: ankles; feet; hands; jaw; spine; and wrists. Symptoms may occur suddenly if caused by an acute event or may occur gradually over several months with increased stiffness and pain.

The most common causes of avascular necrosis include joint injury, narrow blood vessels, and pressure inside the bone. Fractures or

dislocated joint may damage or destroy blood vessels, interrupting blood supply. Narrow blood vessels can limit adequate blood flow to bones and may become clogged over time. In addition, pressure inside the bone can make it difficult for blood entrance.

Certain factors predispose patients and contribute to the development of avascular necrosis. Firstly, the use of corticosteroids has been identified as a factor in the development of avascular necrosis. Excessive alcohol intake can also contribute as it causes build-up of fatty deposits in the blood vessels. Osteoporosis medicine, specifically bisphosphonates, may aid in developing avascular necrosis of the jaw. In addition, there are several underlying conditions that make patients more susceptible to avascular necrosis including: diabetes, Lupus, sickle cell anemia, HIV, and Gaucher's disease.

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To diagnose avascular necrosis, physicians will utilize a combination of x-rays, MRIs and bone scans to detect changes in bone. Sometimes, patients may have pain in the region of the hip with a negative x-ray. A bone scan or MRI may be utilized for diagnosis. Early diagnosis and reduction of the hip dislocation/fracture in the young can help reduce incidence of avascular necrosis. Delay in treatment results in a high incidence of avascular necrosis.

Once identified, there are several methods of treating avascular necrosis. Conservative treatment in the form of non-steroidal anti-inflammatory medications, bisphosphates, and therapy including rest, exercise and electrical stimulation may be used. If conservative

treatment fails, surgical intervention will be needed. Here, physicians may perform a core decompression, bone graft, osteotomy, or joint replacement. During a core decompression, part of the inner layer of bone is removed creating space for new bone and blood vessels to grow. For a bone graft procedure, surgeons will remove a piece of healthy bone from another part of the body and implant it into the diseased area. Avascularized fibular grafts are used with success. Trabecular or metal implants may be used to support the bone. During an osteotomy (not frequently done in the USA), bone is reshaped to reduce stress on the area affected by avascular necrosis. Finally, a joint replacement may be necessary if the bone has collapsed in advanced conditions.

Patient Donates to the Orthopaedics

The Orthopaedic Center had given her so much that she felt it was time to give back. That's why Waunetta Wiechman and her husband decided to give a donation to the Orthopaedic Center in late October.

Mrs. Wiechman had suffered a left proximal humerus fracture following a fall. With the fracture markedly displaced, Mrs. Wiechman needed surgical intervention. She underwent closed reduction with multiplanar external fixator placement. This was actually the second time Mrs. Wiechman had come to the Orthopaedic Center for treatment. She was also seen in 2004 following a fall which necessitated surgical intervention in the form of open reduction and internal fixation of the right distal radius.

Ms. Wiechman stated she and her husband were happy to donate to the Orthopaedic Center.

"I'm very fortunate to have received care here," Mrs. Wiechman said. "The entire Orthopaedic Center staff did a wonderful job for me."



Waunetta Wiechman gives donation to Dr. Ebraheim

Low Back Pain

There is definite etiology of low back pain in 85 percent of cases. Patients with a single episode of low back pain return to work within 6 weeks 90 percent of the time. Moreover, most patients get better with time. In fact, about 60 percent of patients get better in approximately 10 days.

Low back pain is the second most common cause of work absenteeism. If a person has a history of low back pain, it is likely they could develop occupational low back pain. Persistent back pain for more than 6 months constitutes only four percent of cases. Disability is usually closely related to compensation and litigation.

The least amount of pressure on the discs is measured with the patient lying in the supine position. The highest amount of disc pressure is measured while sitting with 20 degrees of forward leaning with a 20 kg load in the arms. It is better to keep the weight of the load close to the body. This will reduce the compressive forces placed on the lumbar spine. Yoga activities and exercises performed during sitting probably have less pressure being placed on the discs.

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Low Back Pain continued

Physical factors which lead to low back pain include the following: lack of fitness; heavy lifting of objects; operating motor vehicles; prolonged sitting; operating motor vehicle accidents; prolonged sitting; operating vibrating tools; and cigarette smoking (nicotine causes disc degeneration).

There are many sports-related activities related to low back pain. When golfing, pain occurs as the result of twisting, bad forward bending, and most importantly overarching the spine during the swing. After the age of 40, we lose about 50 percent of our rotational spine movement. It is important to stretch and warm-up before starting the game. Vibration caused by horseback riding increases the load on the discs. The back muscles work constantly to keep posture straight. Caring for horses could also be detrimental to the back due to the bending and lifting associated with their care.

Virtually any structure in the spine can hurt including: the facet Joints; intervertebral discs; spinal canal; sacroiliac joints; muscles; ligaments; nerves; hip joints/Piriformis muscles; and trochanteric bursitis. Red flags for cancer include: over 50 years of age; pain at rest and night; unexplained weight loss; history of cancer; and bone destruction involving the pedicle is pathognomonic. Red flags for infection include: diabetes; fever; drug abuse; urinary tract infection; and previous surgery

Treatment for acute low back pain, without sciatica (leg pain), involves a short period of bed rest, anti-inflammatory medications, and physical therapy for a short period of time. Patients will also be advised to work within the limits of pain.

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Neither Dr. Ebraheim nor Dave
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with industry to disclose.

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