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Osteomyelitis (OM) A Condition of Bone Infection

(Symptoms, Causes, Diagnosis Prevention and Its Treatment)

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ABSTRACT

Osteomyelitis (OM) is a medical condition. In which bone is infected. It is a rare but serious bacterial infection of the bone, mainly caused by staphylococcus aureus. Symptoms may include pain in specific bone with overlying redness, fever and weakness. This infection can occurs in any site and any group of age. In the long bones of the arms and legs are most- commonly involved in children, while the feet, spine and hips are most commonly involved in adults. In this condition the bone gets infected and spreads to different parts of the body. Osteomyelitis cause is usually bacterial infection rarely, a fungal infection. It may occur by spread from the blood stream or from surrounding tissue. Risks for developing osteomyelitis includes diabetes, intravenous injection use, prior removal of spleen, and trauma to the area. Osteomyelitis diagnosis is typically suspected based on symptoms. This is than supported by blood tests, medical imaging or bone biopsy. Another possible test in a bone scan. Which reveals the cellular and metabolic activity in bones. If the bone scan does not provide enough information than may need an MRI scan and in some cases, A bone biopsy may be necessary. There are several option's may used to treat osteomyelitis. Treatment often involves both anti microbials and surgery. Some studies shown the young and old are more commonly affected, Males are more commonly affected than females.

INTRODUCTION

Osteomyelitis

A bone infection is known as osteomyelitis. Its means osteomyelitis is infection in the bone. Osteomyelitis can occur in infants, Children and adults.

In other words we can say osteomyelitis is the condition in which the bones are infected. Bone infection from one part can spread to the other bone. Bone infection may also occur due to the exposure of open fracture. Bone can also get infected from tissue infection or by means of blood infection. In children, bones on the legs and upper arm are mostly infected by osteomyelitis and adults' spine or vertebral column gets infected. Diabetic people can develop bone infection from their feet due to ulcers on their feet. Osteomyelitis can be treated by medications and for some people surgery is done for removing the infected bone.

If bone is infected by bacteria than human immune system sends WBCs and leukocytes to the affected part of bone to kill it. Once leukocytes reach the affected area, in process of- killing it, they release chemicals or enzymes that damage bone cells. This is also referred to as lysing of bone. Due to this disintegration of bone cells, pus is formed and it interferes with the flow of blood to the target area. This forms base for further infection. If not diagnosed timely and properly, it may lead to chronic conditions. Different types of bacteria typically affect the different age groups. Osteomyelitis most commonly occurs at the ends of the long bones of the arms and legs, affecting the hip knee, shoulder, and wrist in children and in adults, it is more common in the bones of the vertebral spine, feet in same cause its oceans in the pelvis.

There are a few conditions and circumstances that can increase the chances of osteomyelitis, mean cause of risk for osteomyelitis such as;

- Diabetic disorders that affect blood supply to the bones,
- Intravenous drug use,
- Trauma to the tissue surrounding the bone,

- Artificial joints or hardware most commonly use in joint replacement, that has become infected.
- Sickle cell disease
- Peripheral arterial disease (PAD)
- Smoking etc.

PREVENTION OF OSTEOMYELITIS

The question is can you prevent osteomyelitis?

Yes, osteomyelitis can be prevented, thoroughly wash and clean any cuts or open wounds in the skin. If a wound/cut does not look like it is healing with home treatment, contact and consult to the doctor immediately to have it examined. Always get immediate medical care for deep wounds or bone injuries. Let your doctor know if you have a disease or condition that makes it harder for you to fight off infection, and discuss ways to reduce your risk of infection.

The best way to prevent osteomyelitis is to prevent skin and wound infections. If a minor skin and wound, make sure to clean the wound well and cover it with a clean, sterile bandage. Always look for signs of infection such as redness, tenderness, swelling, pain or discharge.

Patients with diabetes mellitus can prevent osteomyelitis by minimizing foot trauma and by preventing- foot ulcers. This includes education about proper foot care, including daily inspection of the feet. Daily foot washing and use of moisturizing creams are necessary to avoid breaking of the skin.

SYMPTOMS OF OSTEOMYELITIS

The main and first symptom to appear is pain at the infection site other common symptoms are fever, chills, irritability or generally feeling unwell.

If bone infection in any part of the body is reflected in the form of fever, chills, moderate to intense pain in the infected area, swelling, redness, irritability or generally patient felling unwellness.

CAUSES OF OSTEOMYELITIS

The most common perception of physician that the bone infection is caused by bacteria staphylococcus aureus. This bacterium is present in the skin or even on the nose of individuals and when the conditions are favorable it starts infecting the bones.

The main caused of osteomyelitis is due to the presence of mycobacteria or pyogenic bacteria in bone marrow. Osteomyelitis can affect humans of all age groups,- the reason of osteomyelitis could vary from person to person and age. Some studies shown the different type of bacteria is responsible for osteomyelitis.

These bacteria or microorganisms reach and infect the bone marrow though blood because the bacteria can flow into the blood stream through local areas of infection, as in case of cuts and wounds. In some cases of joint replacement and removals during fracture operation’s.

DIAGNOSES

Several methods use for diagnose osteomyelitis and condition of bone infection. First of all Doctor may advise for blood culture for determining the level of white blood cells. (Increased WBC can be due to infection), He may also order for CT scan, X-ray or MRI scan for getting precise images of the infected bones. He may also do a bone biopsy by collecting small sample of bone and sending it to the laboratory for detecting the presence of germ. Bone biopsy has been considered most effective way of diagnosing osteomyelitis; because of the fact the bone biopsy gives exact nature of the bacteria which has affected the bone.

TREATMENT

There are several option the experts or physicians use to treat the bone infection. In several condition of infection the patient has to be hospitalized and treated. The physician will start antibiotics, antibiotics are give to mange infection. Strong antibiotics can keep the infection under control and often it is not necessary to go the surgery.

(a) Physician may administer the antibiotics intravenously, or direct into the veins, it is commonly observed if the infection is severe condition patient may need to intensive care and take the antibiotics regularly and for up to six weeks. Some time antibiotics are administered for a long period of time, In that condition patient may report problems like nausea, headache, acidity, vomiting and diarrhea.

If the bone infection is very severe causing death of the bone, it has to be removed through surgery. The surgeon would open the area to drain the pus inside. Then by debridement he would gently remove the diseased bone fully. In this process the surrounding tissues will also be removed if it is infected. He would fill the empty space with another piece of bone or tissue.

DISCUSSION

"Bacteria can enter patients system at a surgical site, such as the site of joint replacement or bone fracture repair. When bone breaks, bacteria can invade the bone, leading to osteomyelitis.

Many organisms, most commonly Staphylococcus aureus, travel through the bloodstream and can cause a bone infection. An infection may begin in one area of the body and spread to the bones via the blood stream. Usually a bacterial infection; rarely, a fungal infection. It may occur by spread from the blood or from surrounding tissue. Risks for developing osteomyelitis include diabetes, intravenous drug use, prior removal of the spleen, and trauma to the area. Diagnosis is always typically suspected based on symptoms. This is then supported by blood tests, medical imaging, or bone biopsy. Treatment often based on both antibiotics and surgery. In those with poor blood flow, amputation may be required. With treatment outcomes are often generally good when the condition has only been present a short time.

Staphylococcus aureus is the most common organism isolated. A variety of multidrug-resistant- organisms of bacteria continue to be a source of concern in arresting infection.

Osteomyelitis is a variety of challenges depending on the infection's particular features (etiology, pathogenesis, extent of bone involvement, and duration) and the patient (infant, child, adult or immune compromised).

CONCLUSION

Osteomyelitis (OM) is a rare but serious infection of bone, bone infection can happen suddenly or develop over a long period of time . If they're not properly treated, bone infection & can leave a bone permanently damaged bone infection can occur to any individuals age. Diabetic people are at a high risk of getting this infection. Once osteomyelitis is diagnosed, depending on circumstances and severity, Doctor can decide for go though medicinal or surgical procedure.

Most case of osteomyelitis are treatable but chronic infections of the bone, however, may take longer to treat and heal, specially if they require surgery.

The best way to prevent osteomyelitis is to prevent skin and would infection, patient have a minor skin wound,- make sure to clean the wound well and cover it with a clean, sterile bandage. Always looks for signs of infection such as redness trendiness, selling, pain or discharge.

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