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GARRE'S SCLEROSING OSTEOMYELITIS OF TIBIA: A CASE REPORT

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Abstract
Chronic sclerosing osteomyelitis of Garre is a rare bone infection that can present in different ways, and when it affects the diaphysis of long bones like the tibia, it becomes even more unusual. This particular case highlights the challenges of diagnosing such a condition, which requires careful consideration to rule out other potential issues and often relies on histopathological findings. For this patient, the diagnosis came after imaging revealed signs like periosteal reaction, thickening of the cortex, and changes in the medullary cavity. An MRI showed a cystic area alongside some swelling in the bone marrow, which helped confirm the diagnosis of Garre's sclerosing osteomyelitis. To address the issue, the treatment involved surgically removing the affected tissue through saucerization and curettage, followed by a course of antibiotics. Thankfully, this approach led to significant improvement in the patient's symptoms. Ongoing follow-up is essential to ensure that the condition doesn't return or cause any further complications.

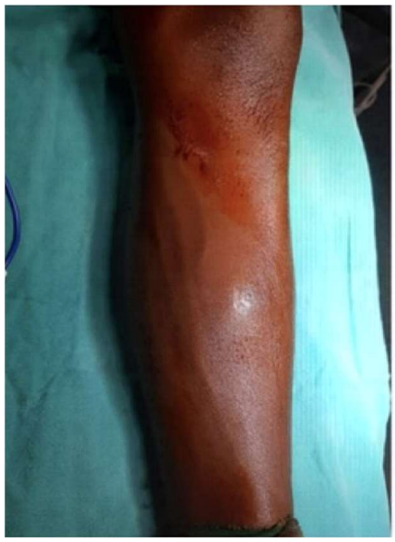
Keyword: *Garre's Sclerosing Osteomyelitis, Bone Infection, Tibia.*

INTRODUCTION

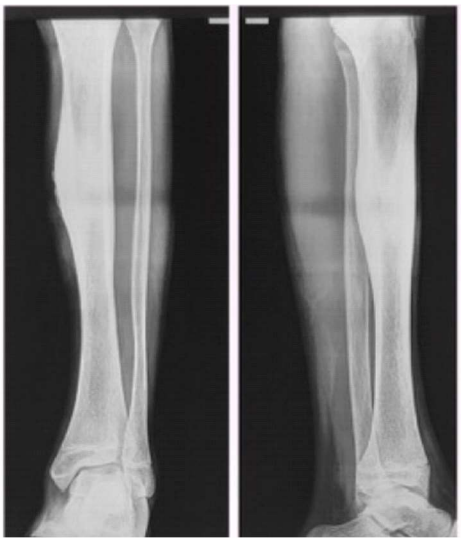
Garre's osteomyelitis, also known as idiopathic cortical sclerosis, is a rare chronic inflammatory condition that can be quite complex. It typically features periosteal reactions that lead to the formation of new bone. While it usually affects the mandible, there are rare instances where it appears in the metaphyseal regions of long bones, making such cases particularly intriguing. This condition can begin slowly, often with localized pain and reactions in the affected area. Patients may experience symptoms that come and go, lasting for months at a time. The duration of the condition varies widely; some individuals may deal with it for years. Interestingly, even when symptoms are present, the overall function of the affected bone usually remains intact, and many patients feel completely healthy between episodes. In this study, we report a rare case of Garre's sclerosing osteomyelitis affecting the tibial diaphysis in a 13-year-old patient.

Case Report: Garre's Osteomyelitis in a 13-Year-Old Male

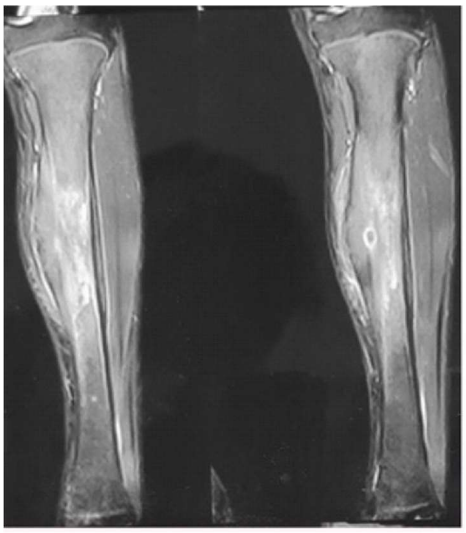
A 13-year-old boy came to our clinic with complaints of pain and swelling in the middle of his right leg. For the past seven months, he had been having trouble bearing weight, and despite trying over-the-counter pain relievers, the discomfort persisted. When we examined him, we noticed tenderness on the inner side of his right leg, but he seemed otherwise healthy—no fever and no signs of redness or drainage. X-rays revealed some concerning changes, including periosteal reactions, thickening of the bone cortex, and medullary sclerosis in the middle third of his tibia, suggesting a chronic, low-virulence osteomyelitis. To get a clearer understanding, we conducted an MRI, which showed a cystic area in the proximal part of his right tibia, along with some swelling in the surrounding marrow. There was also a small sinus extending into the medullary cavity, accompanied by soft tissue swelling. This case really emphasizes how important it is to recognize and accurately diagnose Garre's osteomyelitis, particularly in younger patients, so we can effectively manage their symptoms and help maintain their quality of life.



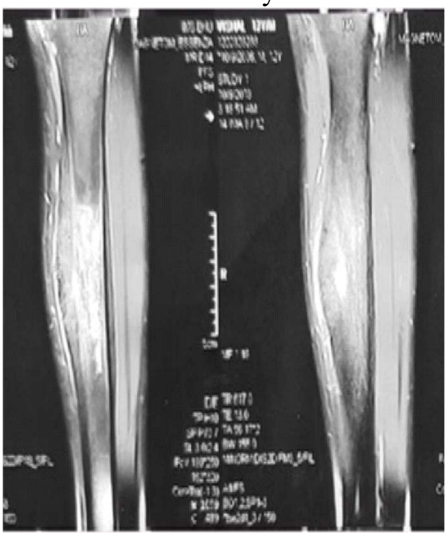
(Figure - 1)
Clinical image



(Figure-2)
Pre-op X-ray showing periosteal new bone formation and medullary sclerosis



(Figure - 3)



(Figure-4)

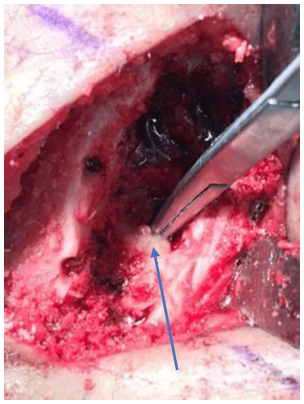
MRI RIGHT TIBIA SHOWS PERIOSTEAL REACTION AND FIBROSIS

The surgical procedure involved saucerization and curettage of the right tibia (see Figures 4 and 5). No purulent secretion was observed during the operation.

Intraoperative Image (Figure 5)

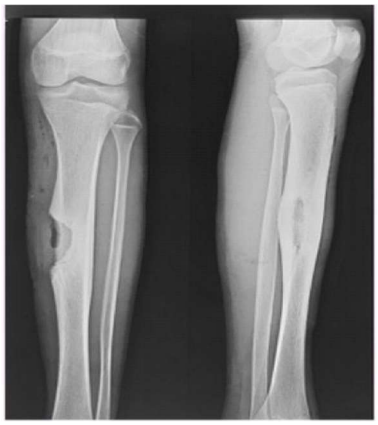
Postoperative X-ray (Figure 6)

The tissue collected during surgery was sent for biopsy analysis, which revealed signs of infection and chronic inflammation, marked by fibrosis and areas of pus (see Figures 7 and 8). Thankfully, there were no signs of acid-alcohol resistant bacilli (AARB), fungi, or cancer.After the surgery, the patient was started on intravenous antibiotics, specifically piperacillin and tazobactam (4.5 g twice daily for one week). Following this, he transitioned to oral clindamycin (900 mg per day for two months), and he experienced a noticeable improvement in his symptoms.



(Figure-5)

Intra- op image



(Figure -6)

Post-op X-ray

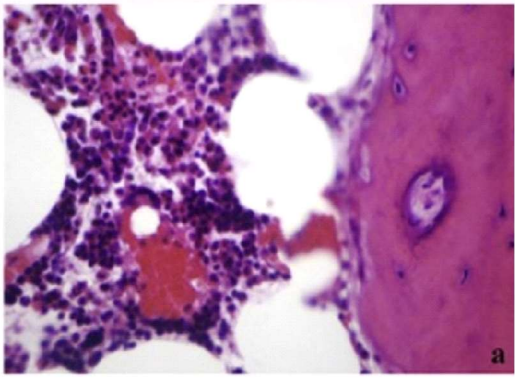


Figure- 7

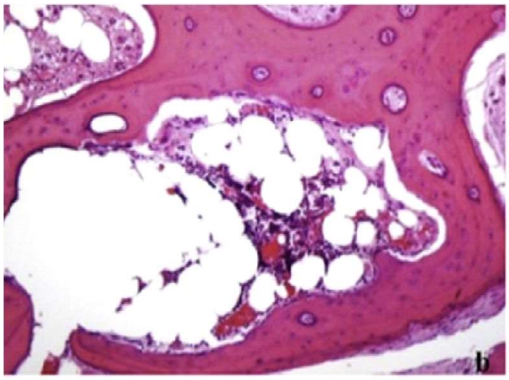


Figure-8

The histopathological examination showed bony trabeculae nestled within dense fibrous and fibrovascular tissue, accompanied by areas filled with chronic inflammatory cells. This suggests a response to ongoing inflammation in the affected area.

DISCUSSION

Alois Philipp Garre was a Swiss surgeon and bacteriologist known for his groundbreaking work on osteomyelitis, particularly in an influential article he published in 1893. This research led to the condition being named Garre's sclerosing osteomyelitis. Garre discovered that even mild irritation or infection could trigger a reaction in the bone, causing the periosteum—the outer layer of bone—to thicken, especially in long bones. Despite the condition's recognition, the exact cause of Garre's sclerosing osteomyelitis is still not well understood. While a bacterial infection is often suspected, cultures frequently come back negative, indicating that a low-virulence infection might persist even after treatment. In situations where standard cultures don't pinpoint the pathogen, doctors may recommend polymerase chain reaction (PCR) testing for a more precise diagnosis.Additionally, there are various other conditions that can present similarly to Garre's osteomyelitis, including fibrous dysplasia, syphilis, pustulosis palmoplantaris, ulcerative colitis, Crohn's disease, and SAPHO syndrome, which includes symptoms like synovitis, acne, pustulosis, hyperostosis, and osteitis. For unifocal sclerosing bone infections, conditions such as osteoid osteoma, Ewing's sarcoma, osteosarcoma, and eosinophilic granuloma should also be considered in the differential diagnosis.

CONCLUSION

The most effective way to treat chronic osteomyelitis involves both surgery and antibiotic therapy. Relying solely on antibiotics, no matter how they're given, isn't effective. This is because the infected area often

contains necrotic bone fragments that lack blood supply, making it impossible for the antibiotics to reach the infection effectively. Combining surgery with antibiotics ensures that the infection can be addressed more thoroughly.

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