

PYOGENIC VERTEBRAL OSTEOMYELITIS

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In adults, osteomyelitis involve the axial skeleton more commonly than the long bones of the appendicular skeleton. In children it has seen reversly. Vertebral pyogenic osteomyelitis is uncommon althoug it has seen at the same ratio with that of Mall de Pott. Because, the latter usually tends to chronic manner, the first may resolve spontaneously. Garcia and Grantham have reported only 40 cases in twentyfive years from a large madical center. The others have reported the frequency of vertebral involment if non - spesific vertebral osteomyelit, to be 2 - 4 % of all patients with pyogeniq osteomyelit. In the following article a brief rewiew of pathogenesis diagnosis and the treatment of non - spesific (pyogenic) vertebral osteomyelitis. Depending on the classical knowledges few cases of vertebral osteomyelitis are illustrated and reported that, the disease does not tend to improve chronically but could be treated with simple surgical drainage and antibiotic therapy combined with immobilization.

This disease is seen throughout the adult life but tends to be more common in the fifth and sixth decades. But our cases were rather younger and even two of them were children. It occurs more often in men than in women. The most commonly involved segments are lumbar and lower thoracic spine. However our one case was in T3.

PATHOGENESIS :

The infectious agent most frequently found is Staphylococcus Aureus. The frequency of this micro organism is about 90 %, Streptococci and several Gr (-) bacteria have also been reported to be responsible for vertebral osteomyelitis. In the remaining 10 %, E. Coli is the most common one.

Vertebral osteomyelitis may follow such sources of primary infection as furunculosis, infection of the female pelvic organs, bowel surgery and even Fractures of the mandible. (Fein)

Wiley and Truete had reported in the past that arterial spread of bacteria through the vertebral nutrient branches of the posterior spinal arteries is the actual mechanism of implantation. Stauffer declares that, whatever the source of infection or the haematogenous route of spread, the offending organisms most commonly lodge in the low - flow end - organ vasculer arcades adjacent to the subchondral plate region of the vertebral body. Pyogenic vertebral osteomyelitis and post - operative disc space infections differ in pathogenesis but their clinical course, findings and prognosis are similar. The first detectable finding may benar-

rowing of the disc space, leading to the erroneus inference and terminology of "disk space infection". This narrowing often does not occur until several weeks (or even months) in some cases after the beginning of the clinical features of the disease. In one of our cases the corpus was destructed, lysis and sclerosis seen together. He was intended one month later after the onset of the clinical course of the disease.

CLINICAL FEATURES and DIAGNOSIS:

General systemic acute infectious and early back pain with radicular features are seen. It is often progressive with little fever and malaise. The back pain is rather strong and continuous. It is characteristically non - mechanical and is present even at rest but activated by movement. Conservative treatment has little effect on comfort.

Physical examination findings are often; paravertebral muscle spasm, tenderness of the spinous process with palpation or percussion and subcutaneous abscesses in some cases.

Toxic febril course is unusual. In general a fluctuating low - grade fever is seen if searched every four - hour.

As laboratory findings, leucocyte increase is not more and common. Sedimentation is always high up to 100 mm in one hour. Stone and Bonfiglio have reported high serum globulin values in ten of his twelve patient. The urinary tract must be checked carefully.

The earliest X - ray findings are progressive narrowing of the disk space and blurring of the subchondral bone. In late cases loss of vertebral height is seen. Laminograms also show early bone distraction. Bone syntigraphy shows increased uptake of the radioisotope elements and help to idetify the localization.

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TREATMENT :

There is no specific way. It consists of paracental antibiotic therapy initially at least two to three weeks, then oral antibiotics for two to three weeks, then oral antibiotics for two to three months more. Bed rest and immobilization of the vertebrae is necessary. Often open drainage and debridement is needed especially in the cases with abscess of the soft tissue. As Stauffer advises a close irrigation with saline and drainage is useful for 1 - 2 weeks. The antibiotic chosen may be not specific but pus or blood cultures are desirable. The immobilization with a plaster body cast or corset is worn for at least three months.

The prognosis is good in general. Some patients may heal without any therapy. May be this is why the disease is seen very rare. In such cases it may occur at intervals of several years again.

The disease process is characteristically accompanied by intense bone regeneration and dense new bone may be formed even during the acute process as the vertebral body is being destroyed. This rapid new bone formation helps to distinguish pyogenic osteomyelitis from tuberculous spinal osteomyelitis. At a ratio of 80 %, bone bridging and spontaneous fusion of adjacent vertebral bodies are seen at the end of the disease. : •⁵

CASE REPORTS :

CASE I : Seven year-old girl had been treated suffering from septicemia in Pediatric Clinic was consulted by us had analgesic scoliosis and swelling at the back, left ankle and left crus was swollen and hyperemic. She was treated with antibiotic therapy and puncture drainage, because she had also pyogenic pericarditis. There were no osseous findings in the X-rays. Ten days after the ankle and tibia were drained and lower thoracic paravertebral abscess drained surgically. Six months later no back pain and radiologic findings showing the vertebral osteomyelitis did not proceed in a chronic way.

CASE II : A 26 year-old male suffering from low-back pain since one month had also weight loss about 10 kg. In physical examination, painful movement and percussion of lumbar vertebrae existed. Minimal lumbar kyphosis was seen. There was tenderness with deep palpation of the abdomen and no lymphatic pathology. As X-ray findings, osteolysis and expansion in the corpus of the fourth lumbar vertebrae and pedicular fracture at L3. CAT scans showed destruction of L4 corpus and soft tissue mass around it. Except the rapid sedimentation about 120 mm / 30 min.

the other haematologic findings and urinary tract was normal. Body temperature was also at the normal levels throughout the thirty-nine days of pre-operative hospitalization. By retroperitoneal approach, the abscess was drained lying over the iliopsoas muscle and a closed wound drainage was applied. The biopsy report was chronic non-specific osteomyelitis and the agent was Staph. Aureus. Chosen antibiotic therapy and plaster corset immobilization was applied. Sedimentation returned to normal levels one month later and the patient's complaints resolved twelve months later when the fusion of lumbar third, fourth and fifth vertebrae accessed.

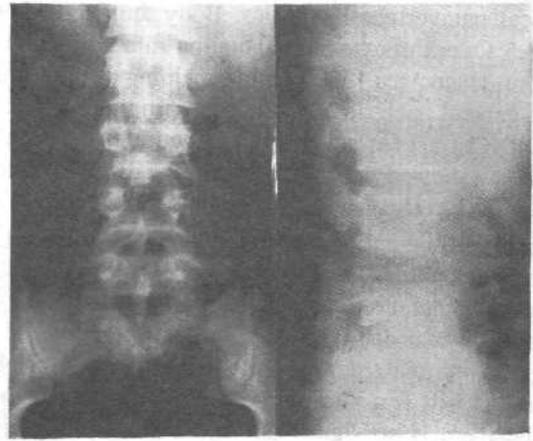


Fig. 1 : Case II; Initial anteroposterior and lateral X-rays showing the destruction of L4 body and inferior pedicular fracture of L3.

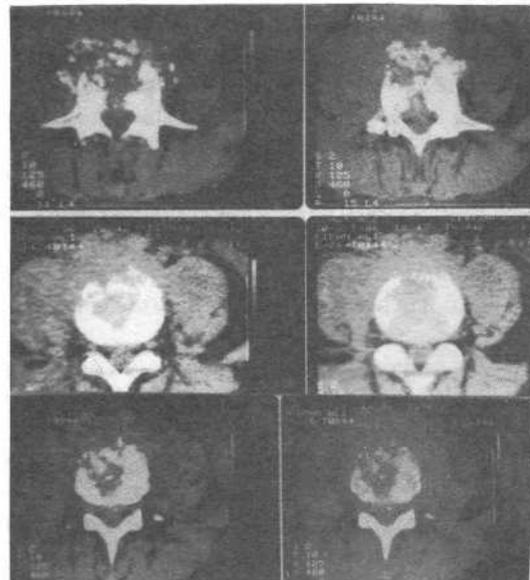


Fig. 2. Case II; Pre-operative CT Scans showing the destruction of L4 body.

CASE III : 20 year-old male suffering from abdominal pain and flexion contracture of his left hip. The body movements were painful. As an X-ray finding left psoas abscess was seen and CAT Scan proved it near the second lumbar vertebrae. The treatment was combined of surgical retroperitoneal drainage, chosen antibiotic therapy for Staph. Aureus. Fifteen days after the wound healed and three months later the disease was healed.

CASE IV : 8 year-old boy suffering from back pain for two days were examined and the findings were; torticollis, stiffness of the upper thoracic and cervical paravertebral muscles. Body temperature was 38.5°C, erythrocyte sedimentation rate : 120 mm / 1 hour, leucocytes 12000 / mm³, seeming as the features of general bacteremia. The other findings were normal. The abscess surgically drained and the fistulography showed the infection was localized in the corpus of T₃. The agent was again Staph. Aureus and with chosen antibiotic therapy and bed - rest, all the clinical findings were diminished. Three months after, the sedimentation rate was 10 mm / 1 hr. and the disease was healed.

In spite the recent reports that pyogenic vertebral osteomyelitis is a disease of adults, our observation is that there is no significant age period. The patients were young and even children. The disease is due to hematogenous seeding of the subchondral bony elements of the vertebral body.

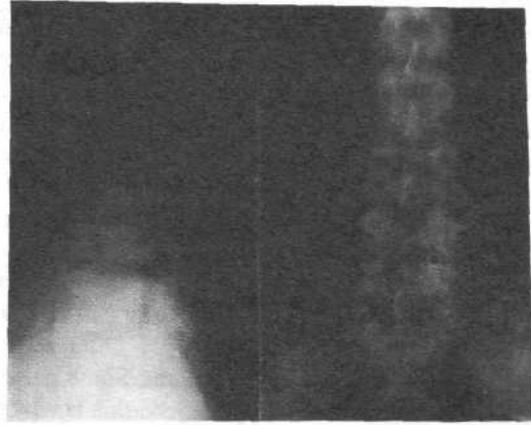


Fig. III : AP and lateral X-rays showing the insufficient fusion after three months of the operation of the same patient. A new corset was applied.

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