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# Multiple Bone Involvement in Secondary Syphilis: Case Report

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## Abstract

Syphilitic periostitis is not a common manifestation of bone involvement in congenital and acquired late syphilis, and it's rarely seen in secondary syphilis. Syphilis should be considered as a differential diagnosis in patient with deep bony pain that worsens at night. We report a case of secondary syphilis presented with multiple bony swelling of both tibiae (sabre-like) and other long bones.

## Keywords

Secondary Syphilis, Sabre Tibia, Sexually Transmitted Infection, Periostitis

## 1. Introduction

Bone involvement in syphilis is a rare complication and it can mimic many other conditions (e.g. other bone infections, some bone tumors).

Syphilis is an infectious disease; it is caused by the spirochete *Treponema pallidum*.

Because of the high affinity to involve various body organs, a detailed medical history, thorough physical examination, proper radiological examination and interpretation of the laboratory results of the blood testing are mandatory to reach the diagnosis.

High doses of intravenous penicillin G are still the recommended treatment in syphilis.

## 2. Case Report

An informed consent was obtained from the patient and the patient's family to use all the data in his file for a case report.

Thirteen years old male was a referred case to orthopedics department in Tripoli Medical Center with a complaint of bony swellings in both legs, both forearms and the hands and pain that gets worse at night; his symptoms are of six months duration. Pain was insidious in onset, dull aching with periods of remission and relapse. It progressively increased in intensity, frequency and duration over the last period of time. There was history of a recurrent genital ulcer, he was ashamed to seek medical advice to treat them and they had healed without any medication after two weeks when they appeared. He noted that he feels a discomfort and dragging right upper abdominal pain over the last few months. There were no other constitutional or systemic symptoms.

General physical examination revealed an afebrile, emaciated, pale child with generalized lymphadenopathy involving axillary, inguinal and cervical groups of lymph nodes. They were not tender, discrete, firm, rubbery in consistency. There was no lesion in the buccal mucosa of the oral cavity, no jaundice, no cyanosis or pedal edema. Systemic examination of the respiratory, cardiovascular, neurological systems was normal. There was a palpable liver beyond the costal margin in the abdominal examination, no ascitis.

Examination of musculoskeletal system revealed tender shin of both tibiae with swelling at two levels on the right tibia and the left tibia, and there were bone swelling affecting the palpable subcutaneous bone surfaces on both ulnae, both radii and the third metacarpals in both hands as well.

The range of motion of his joints was in the good range of motion.

Local examination of the external genitals revealed three healed chancres on the glans.

Serological tests for syphilis demonstrated Venereal Disease Research Laboratory (VDRL) to be positive (no titer was performed).

Viral screening for HBsAg was positive (ELISA assay), complete blood count revealed hypochromic microcytic anemia.

WBC = $3.7 \times 10^3$ µl

RBC = $+5.27 \times 10^6$ µl

HGB = 11.2 g/dl

HCT = 34.9%

MCV = −66.2 fl

MCH = −21.3 pl

MCHC = 32.1 g/dl

PLT = $275 \times 10^3$ µl

Ultrasonographic abdominal examination revealed hepatosplenomegaly, chest radiograph, and ECG were within normal limits.

Radiological examination of bones of both legs (**Figures 1-3**) revealed an anteromedial unicortical thickening of the diaphyses only, metaphyses and epiphyses being normal. Same findings were noted in the third metacarpal bones (**Figure 4(a)** and **Figure 4(b)**) and the right ulna, both radii (**Figure 5** and **Figure 6**).

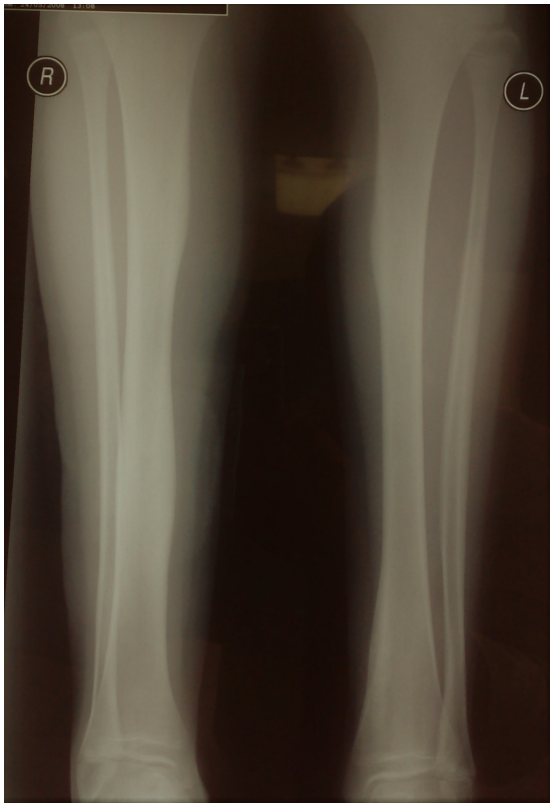



**Figure 1.** Plain X-ray, anteroposterior view of both legs showing unicortical thickening at two levels of both right and left tibiae (Sabre-like tibia).

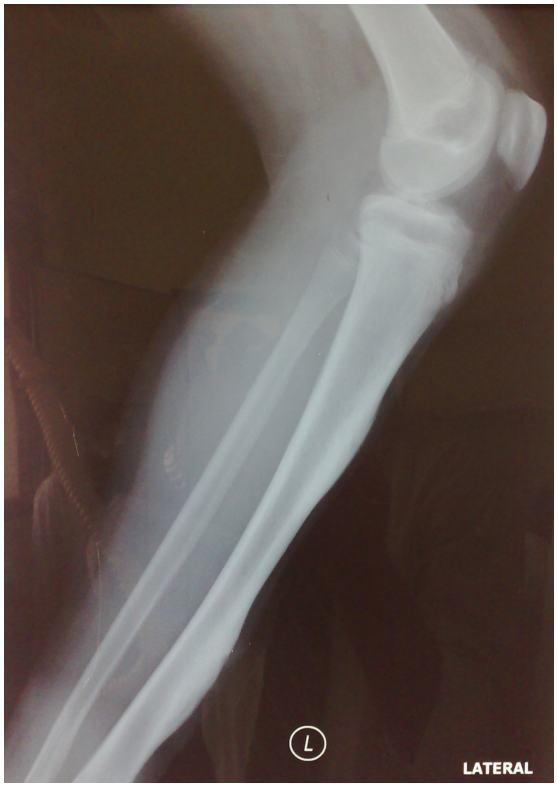



**Figure 2.** Plain X-ray, lateral view of left legs showing unicortical thickening at two levels.

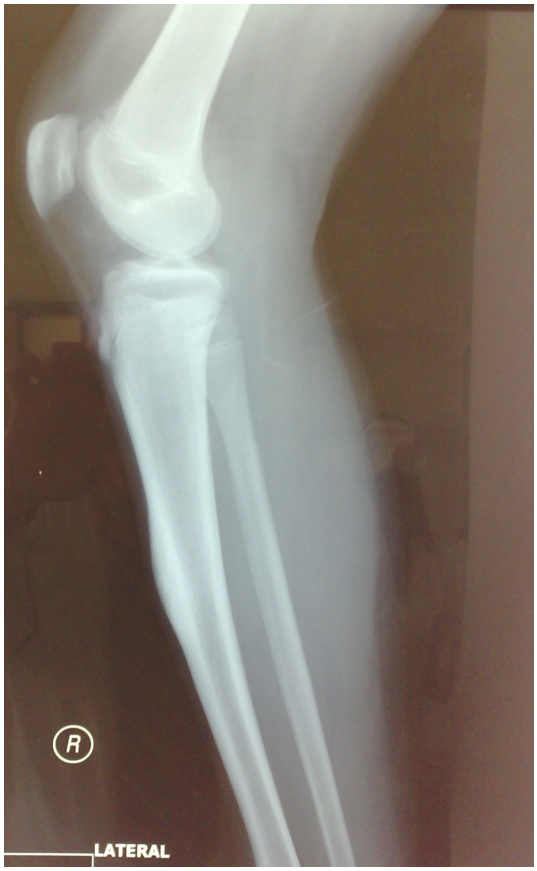
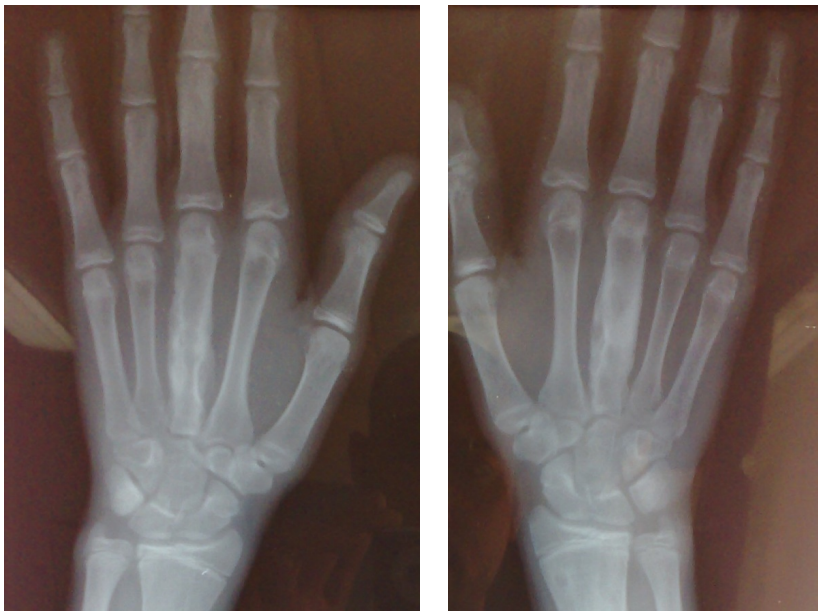



**Figure 3.** Plain X-ray, lateral view of right legs showing unicortical thickening at two levels.



(a) (b)

**Figure 4.** (a) and (b): plain X-ray, anteroposterior view of right and left hand showing diaphyseal osteosclerotic and lytic lesions involving the third metacarpal bones diaphysis on both hands.

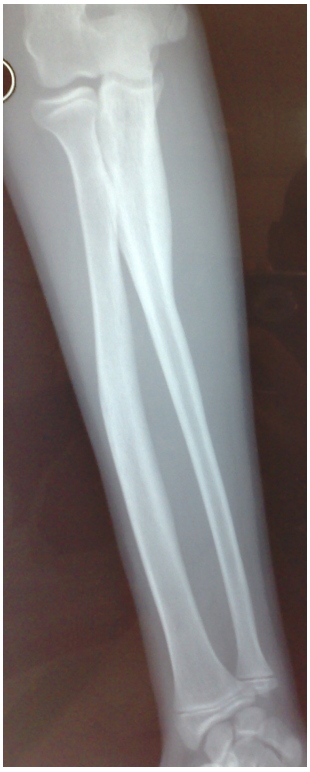


**Figure 5.** Plain X-ray, anteroposterior view of right forearm showing proximal unicortical thickening of the ulna and diaphyseal cortical thickening of the radius.

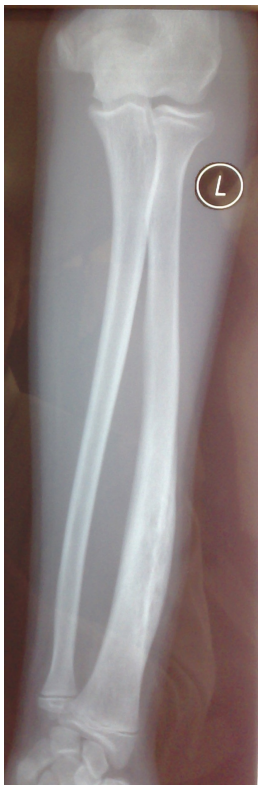



**Figure 6.** Plain X-ray, anteroposterior view of left forearm showing cortical thickening of the distal radius.

A similar finding of bone involvement was obtained on CT as well (Figure 7).

Isotope bone scan (Figure 8) revealed acute inflammatory process (acute osteomyelitis).

Radiography of rest of the bones (Figures 9-12) was essentially normal.

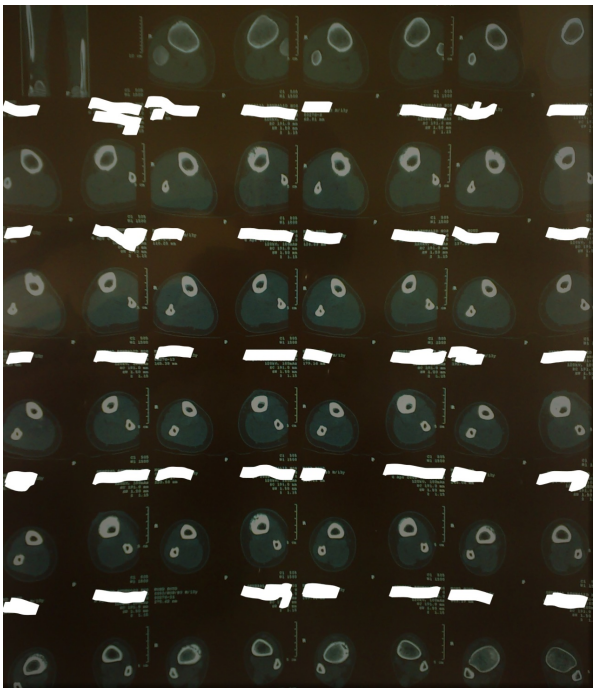


Figure 7. Plain CAT scan (computerized axial tomography), axial cuts of both legs, showing unicortical thickening of both legs at two levels.

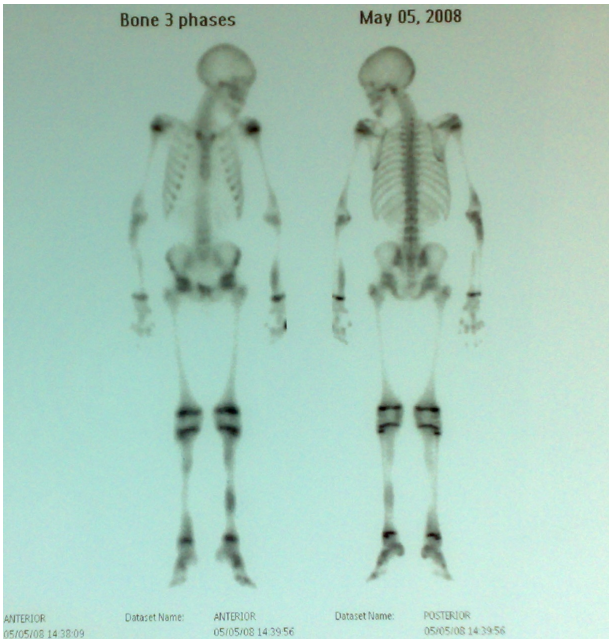



Figure 8. Three phase isotope bone scan shows acute inflammatory process (acute osteomyelitis), increase uptake at right proximal ulna, right and left radius, third metacarpals, both tibiae.

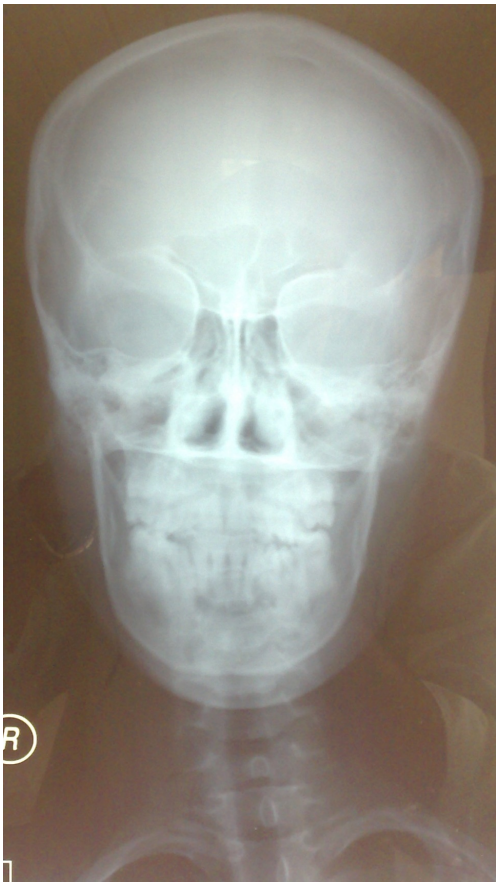


**Figure 9.** Normal plain X-ray, anteroposterior view of the skull, as part of the skeletal survey.

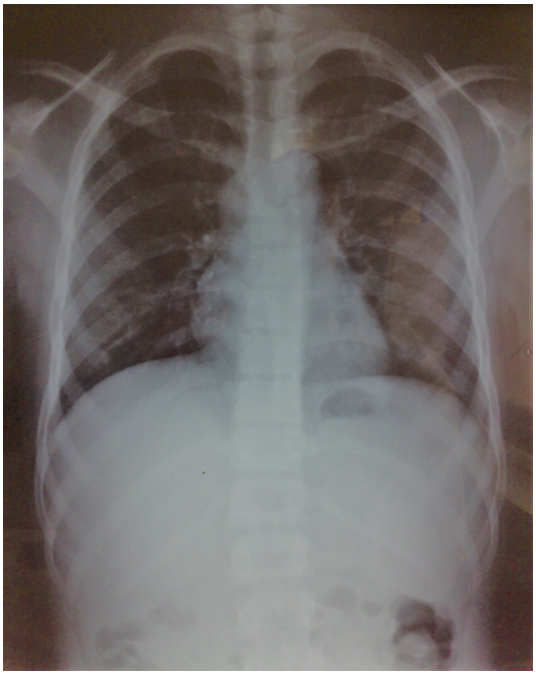


**Figure 10.** Plain X-ray, anteroposterior view of the chest, as part of the skeletal survey, shows no involvement of the ribs.

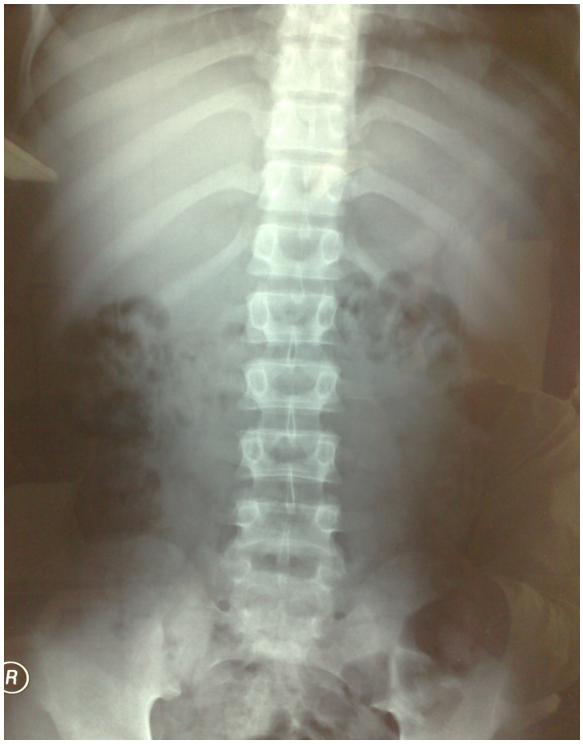


**Figure 11.** Plain X-ray, anteroposterior view of the lumbar spines, as part of the skeletal survey, shows no involvement of the lumbar spines.

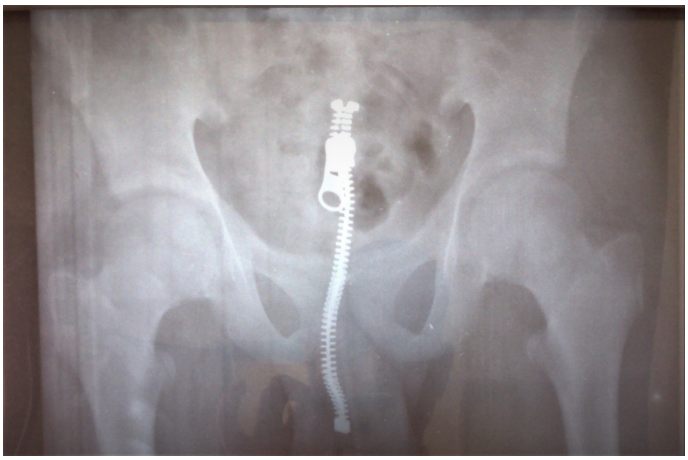


**Figure 12.** Plain X-ray, anteroposterior view of the pelvis and both hips, as part of the skeletal survey, shows no involvement of the pelvic bones nor the proximal femori.

Tibial bone biopsy revealed acute specific osteomyelitis (syphilitic gummata).

The patient were reported to the infectious department in the same hospital and treated as early syphilitics with penicillin in accordance with the recommendations of the WHO. Bone pain disappeared in the patient within one week and he was completely asymptomatic when seen after five weeks. Bony prominence was, however, present.

The patient was followed for one year then he passed away for other cause that's not related to his medical condition.

## 3. Discussion

Syphilis is an infectious venereal disease with wide range of clinical presentations according to the stage of the disease and the organ affected. [1]-[11]

It is caused by the spirochete, *Treponema pallidum* [1]-[9].

The incubation periods is about three weeks duration (ranges between ten to ninety days) and lasts for three weeks (ranges between one to five weeks) during which a painful chancer, fever and inguinal lymphadenopathy are present. [8] [9]

The secondary stage of acquired syphilis usually starts six to eight weeks after the primary stage, with symptoms such as shin rash (macules) all over the body, palmar and plantar rash, mucous patches, alopecia, condylomata lata along with generalized lymphadenopathy. Occasionally internal organs are involved leading to manifestations such as hepatitis, splenomegaly, nephrosis, iritis, meningitis, myositis, arthritis, bursitis, and tenosynovitis. [7] [8] [9] [10] [11]

Bone involvement is not usually seen in the secondary stage of syphilis, in contrast to its involvement in the tertiary stage of acquired syphilis and congenital syphilis. The exact incidence of bone involvement is not known in early acquired syphilis. [4] [5] [6]

The bony involvement may be in the form of proliferative periostitis or osteolytic lesion or both. The bones most often affected are the skull and the long bones of the limbs, the legs more frequently than the arms, followed by sternum and ribs. The highly cellular syphilitic granulation tissue formed around blood vessels extends into the Haversian canals leading to thickened, expanded and elevated periosteum resulting in the local pain followed by the osteoblastic process which contributes to the exostosis and the pathognomotic feature, unicortical thickening which known as (sabre-like bone). The main symptoms are nocturnal pain affecting the lower limbs and exaggerated by heat. [5] There may be localized swelling, erythema and tenderness, and pathological fractures may also occur.

Our patient had swelling of both tibiae, ulnae, radii and the third metacarpal bone with nocturnal pain. Radiography and CT showed unicortical thickening of the cortex and periosteum consistent with proliferative periostitis and osteitis as described earlier in the literature. [2]

Though sabre tibia is a well known complication of late and congenital syphilis, it can occur in secondary syphilis as well. Thus, detailed medical history and a thorough clinical examination should be done in all young patients with bone pains to rule out early acquired syphilis.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

[1] Park, K.-H., Lee, M.S., *et al.* (2014) Bone Involvement in Secondary Syphilis: A Case

Report and Systematic Review of the Literature. *Sexually Transmitted Diseases*, **41**, 532-537. https://doi.org/10.1097/OLQ.0000000000000164
https://www.jstor.org/stable/48511813

[2] Singh, A.E. and Romanowski, B. (1999) Syphilis: Review with Emphasis on Clinical, Epidemiologic, and Some Biologic Features. *Clinical Microbiology Reviews*, **12**, 187-209. https://doi.org/10.1128/CMR.12.2.187

[3] Reynolds, F.W. and Wasserman, H. (1942) Destructive Lesions in Early Syphilis. *Archives of Internal Medicine*, **69**, 263-276. https://doi.org/10.1001/archinte.1942.00200140101008

[4] Waugh, M.A. (1976) Bony Symptoms in Secondary Syphilis. *The British Journal of Venereal Diseases*, **52**, 204-205. https://doi.org/10.1136/sti.52.3.204

[5] Roy, R.B. and Laird, S.M. (1973) Acute Periostitis in Early Acquired Syphilis. *The British Journal of Venereal Diseases*, **49**, Article No. 555. https://doi.org/10.1136/sti.49.6.555

[6] WHO (1986) Expert Committee on Venereal Diseases and Treponematosis. WHO Tech Rep Ser No. 736. Geneva, 126-130.

[7] Parker, J.D.J. (1972) Uncommon Complications of Early Syphilis: Hepatitis, Periostitis, Iritis with Papillitis and Meningitis. *The British Journal of Venereal Diseases*, **48**, 32-36. https://doi.org/10.1136/sti.48.1.32

[8] Dismukes, W.E., Delgado, D.G., Mallernea, S.V. and Meyers, T.C. (1976) Destructive Bone Disease in Early Syphilis. *JAMA*, **236**, 2646-2648. https://doi.org/10.1001/jama.1976.03270240042025

[9] Shore, R.N., Kiesel, H.A. and Bennett, H.D. (1977) Osteolytic Lesions in Early Syphilis. *Archives of Internal Medicine*, **137**, 1465-1467. https://doi.org/10.1001/archinte.1977.03630220095023

[10] Olle-Goig, J.E., Barrio, J.L., Gurgui, M. and Mildvan, D. (1988) Bone Invasion in Secondary Syphilis: Case Reports. *Genitourinary Medicine*, **64**, 198-201. https://doi.org/10.1136/sti.64.3.198

[11] Dănescu, S.A., Szolga, B., Georgiu, C., Surcel, A. and Corina Șenilă, S.C. (2018) Unusual Manifestations of Secondary Syphilis: Case Presentations. *Acta Dermatovenerologica Croatica*, **26**, 186-188.