



## A CURIOUS CASE OF CHEST PAIN: SYPHILIS MASQUERADING AS COSTOCHONDRITIS

### Cardiothoracis

**Prof Dr MD Abid Geelani**

Medical Director, GB Pant Hospital.

**Dr Karthik P**

Assistant Professor, Department of CTVS, GB Pant Hospital.

**Dr A. B. Karthikeyan\***

3<sup>rd</sup> year Senior Resident, Department of CTVS, GB Pant Hospital. \*Corresponding Author

### ABSTRACT

**Background:** Syphilis is a systemic infection with protean manifestations, often referred to as 'the great imitator.' Its incidence is rising globally, and clinicians should consider it for unexplained systemic symptoms. We present an unusual case of persistent chest pain in a postoperative aortic valve replacement (AVR) patient, initially misdiagnosed as sternal costochondritis, later found to be secondary syphilis. **Case Report:** A 58-year-old male presented one month after AVR with persistent anterior chest pain. Initial cardiac evaluation was unremarkable, and costochondritis was suspected. During admission, he developed widespread nodular skin lesions, including genital involvement. Serologic testing revealed positive rapid plasma reagin (RPR) and venereal disease research laboratory (VDRL) tests, confirming secondary syphilis. The patient was referred for specific antimicrobial therapy with resolution of symptoms. **Conclusions:** This case emphasizes considering syphilis in the differential diagnosis of persistent postoperative chest pain, particularly when accompanied by dermatologic signs. Early serologic screening can prevent diagnostic delays.

### KEYWORDS

Syphilis; Costochondritis; Aortic Valve Replacement; Chest Pain; Postoperative Complications

### INTRODUCTION

Syphilis, caused by *Treponema pallidum*, is a chronic systemic infection with diverse clinical manifestations, earning it the title of "the great imitator." Despite advances in diagnosis and treatment, its global incidence is rising, leading to atypical presentations that can challenge clinicians. Postoperative chest pain following aortic valve replacement (AVR) is common and is often attributed to benign musculoskeletal causes such as costochondritis or post-sternotomy pain syndrome. However, infectious etiologies-particularly syphilis-are rare and easily overlooked. This case highlights an unusual presentation of secondary syphilis mimicking postoperative costochondritis, emphasizing the importance of maintaining a broad differential diagnosis in patients with persistent chest pain and new systemic signs after cardiac surgery.

### Case Report

A 58-year-old man with a history of mechanical aortic valve replacement presented with a one-month history of persistent anterior chest pain. The pain localized to the mid-sternum, exacerbated by movement and deep breathing. He denied fever, respiratory symptoms, or recent trauma. Examination revealed mid-sternal tenderness without swelling. Cardiac and respiratory examinations were otherwise unremarkable. Initial investigations including ECG and chest radiograph showed no new findings. Laboratory evaluation revealed elevated antistreptolysin O (ASO) titers (240 IU/mL) and minimally raised inflammatory markers.

Costochondritis was suspected given the surgical history. However, during admission, the patient developed generalized nodular rashes including genital lesions. [Figure 1,2,3,4] Dermatology consultation was obtained, and syphilis serology was ordered. RPR returned strongly positive, and VDRL confirmed secondary syphilis. The patient was referred to dermatology for intramuscular benzathine penicillin therapy. Follow-up showed gradual resolution of chest pain and cutaneous lesions.



**Figure 1.** Frontal view of the patient showing generalized

papulonodular skin lesions distributed over the face, trunk, and extremities, with visible median sternotomy scar



**Figure 2.** Posterior view of the patient's trunk showing multiple discrete hyperpigmented papules and nodules predominantly over the upper back.



**Figure 3.** Close-up of the genital region showing grouped hyperpigmented papules and nodules with crusting at the base of the penis.



**Figure 4.** Close-up facial view (eyes masked) showing multiple

erythematous to hyperpigmented papulonodular lesions involving the forehead, nasal bridge, cheeks, and perioral area.

## DISCUSSION

This case illustrates an unusual cause of chronic chest pain after cardiac surgery. Post-sternotomy pain syndrome (PSPS) and costochondritis are well-described sequelae of median sternotomy. In fact, musculoskeletal issues account for a large proportion of non-cardiac chest pain in post-operative patients. For example, one study found that costochondritis accounted for up to 30–35% of chest pain following open-heart surgery. Inflammatory mechanisms (scar tissue, nerve entrapment) and bone healing abnormalities are often implicated. In our patient, these common etiologies were considered first due to the clinical context.

However, atypical infectious causes should be considered when the clinical picture is incongruent. Syphilis is known to have protean manifestations, including musculoskeletal involvement. Costochondritis itself is usually idiopathic, but Mayo Clinic sources note that systemic infections (e.g. tuberculosis or syphilis) can rarely infect rib cartilage and mimic this syndrome. Thus, *Treponema pallidum* can directly cause an inflammatory process in costal cartilage or adjacent tissues, potentially explaining the patient's sternal pain. Moreover syphilis is often accompanied by skin and mucous membrane lesions. In our patient, the appearance of widespread nodular lesions and condyloma lata on the genitals were key clues. Such skin findings – especially a rash involving trunk and genitals – are hallmark features of secondary syphilis. Indeed, Ogawa et al. reported a similar scenario of syphilis presenting with chest pain and a rash, where lung nodules and skin findings led to diagnosis.

Another diagnostic challenge was the elevated ASO titer. While this suggested a post-streptococcal phenomenon, it is not specific and could represent false positivity or an unrelated finding. Ultimately, syphilis serology was diagnostic. In practice, a positive nontreponemal test (RPR or VDRL) should be confirmed with a specific treponemal assay. In this case, both RPR and VDRL were positive, confirming active syphilis.

This case underscores several lessons. First, it reinforces that syphilis can mimic many conditions, even postoperative complications. Physicians should remember Osler's dictum to know syphilis in all its forms. Second, it demonstrates that in the setting of unexplained symptoms (e.g. chest pain plus rash), syphilis should be tested for early. The rising incidence of syphilis worldwide means such “old” diseases can present in modern scenarios. Finally, it highlights the importance of a thorough workup: when routine cardiac and surgical causes were excluded, attention to the dermatologic findings led to the correct diagnosis.

Early recognition and testing with RPR/VDRL in atypical presentations can expedite diagnosis and management. Given the global resurgence of syphilis, clinicians should maintain awareness of its diverse manifestations.

## CONCLUSIONS

Syphilis should be included in the differential diagnosis of persistent postoperative chest pain, especially with skin lesions. Infectious causes of costochondritis, though rare, should not be overlooked. Prompt serologic screening can lead to timely diagnosis and treatment.

## Acknowledgments

We thank the patient for providing consent to publish this report.

## Conflict Of Interest

The authors declare no conflicts of interest.

## Funding

No funding was received for this study.

## REFERENCES

1. Tudor ME, Al Aboud AM, Leslie SW, Gossman W. Syphilis. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024.
2. Ohta A, Furusyo N, Kishihara Y, Eiraku K, Murata M, Kainuma M, et al. Secondary syphilis with pulmonary involvement. Intern Med. 2018;57(1):121-6.
3. Bordoni B, Marelli F, Morabito B, Sacconi B, Severino P. Post-sternotomy pain syndrome following cardiac surgery: Case report. J Pain Res. 2017;10:1163-9.
4. Jamal MN, Sarwar MA, Fatima I, Shabbir S, Hayat R. Costochondritis after coronary artery bypass grafting. Pak J Health Sci. 2022;3(4):117-22.
5. Madjarov JM, Katz MG, Hadas Y, Kim SJ, Freage-Kahn L, Madzharov S, et al. Chronic thoracic pain after cardiac surgery: Role of inflammation and biomechanical sternal

- stability. Front Pain Res (Lausanne). 2023;4:1180969.
6. Reginato AJ. Syphilitic arthritis and osteitis. Rheum Dis Clin North Am. 1993;19(2):379-98.
7. Augusta Health. Costochondritis. Mayo Clinic Medical Information Library [Internet]. 2020 Apr 22 [cited 2025 Aug 10]. Available from: <https://augustahealth.com/disease/costochondritis>
8. Ogawa T, Sato H, Nakanishi Y, Yamashita K, Kimura K. Secondary syphilis presenting as multiple subcutaneous nodules. J Dermatol. 2012;39(10):892-4.
9. Fiumara NJ. Manifestations of secondary syphilis. Arch Dermatol. 1975;111(6):749-53.
10. Hook EW 3rd, Peeling RW. Syphilis control — a continuing challenge. N Engl J Med. 2004;351:122-4.