A Unique Case of Spontaneous Pectoral Abscess

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Background

Chest pain is a common chief complaint in the emergency department itself representing about 2-5% of all emergency visits [2]. There are many different etiologies of chest pain ranging from emergent, life-threatening causes such as acute myocardial infarction and aortic dissection to benign, self-limiting causes such as costochondritis and anxiety [3]. Among one of the possible causes, is myositis of the chest wall muscle which itself can be complicated by abscess formation, also known as a pyomyositis.

Pyomyositis in general is a rare diagnosis and it is estimated that it occurs anywhere from 0.005% to 0.02% of all emergency department visits [4]. Many cases of pyomyositis occur in the deep muscles of the lower extremities and are often associated with immunocompromised individuals [4]. However, given that it can affect any muscle group, it can also appear in the in the muscles of the upper extremities and chest. [5,6]. As such, pyomyositis can itself be a case of chest pain though it is understandably low on the list of possible differential diagnoses. There are few documented cases in the literature of spontaneous pyomyositis in an immunocompetent person [8-12]. There are no reported cases of a spontaneous pectoral abscess leading to elevated cardiac biomarkers.

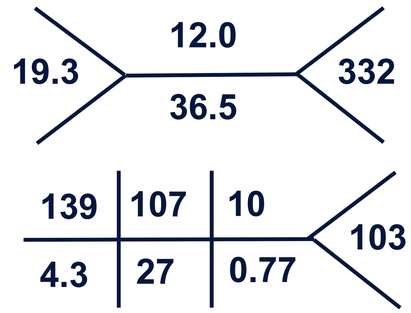
Case Presentation

A 35-year-old man with a past medical history of hypertension presented to the Emergency Department in November 2022 with right shoulder and clavicular pain that had started earlier that day. Pain was described as constant and non-radiating. A workup revealed leukocytosis on the labs with computed tomography angiography (CTA) of the chest with indeterminate soft tissue edema in the axillary region suggesting possible muscle strain. The patient was later discharged with a diagnosis of a fever and muscle strain, and prescribed naproxen for pain management , and given return precautions.

Four days later, the patient returned to the emergency department with worsening symptoms. The patient reported that his right shoulder and clavicular pain had worsened despite rest and analgesic relief. The patient now reported he had pain with deep inspiration and palpation. At this visit, the patient's physical exam was significant for tenderness to palpation over the right clavicle as well as pain with range of motion but with no overlying skin changes. Again, he was mildly tachycardic, but afebrile on this presentation. Lab work was again significant for leukocytosis but now with an elevated troponin as well as a mildly elevated brain natriuretic peptide (BNP).

A repeat CTA of the chest revealed an "internal development of moderate thickening of the right pectoralis major with surrounding stranding" which was concerning for hematoma, myositis, or infection. The patient was then admitted to medicine with cardiology consult for further evaluation as well as started on ceftriaxone and azithromycin.

Case Presentation Continued



Troponin: 746
BNP: 121.6
CRP: 24
Creatine Kinase: 132
Myoglobin: 77

Figure 1: Initial Laboratory Studies On Second Visit

. During his inpatient stay, the patient received an MRI of the chest which revealed a large complex fluid collection in the pectoralis minor, which was worrisome for an intramuscular abscess. An interventional radiology (IR) guided catheter was placed for abscess drainage. A gram stain of the fluid showed gram positive cocci in pairs concerning for streptococcus species and patient was started on regimen of vancomycin and meropenem

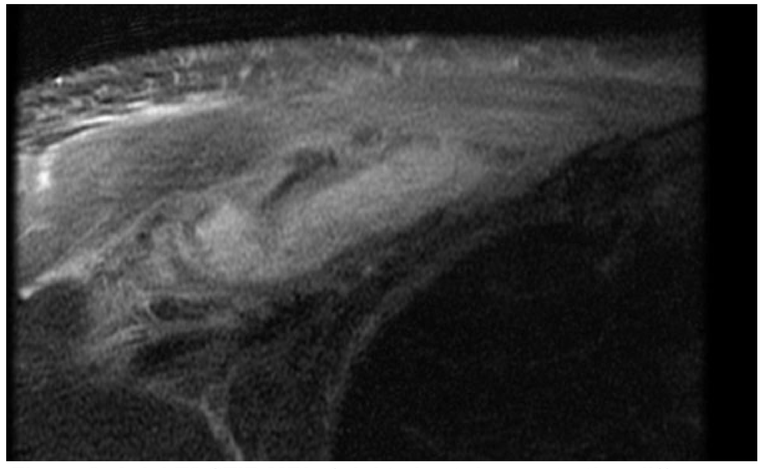


Figure 2: Axial T2 STIR MRI of right chest demonstrating diffuse edema and fluid collection in pectoralis minor

The patient's cardiac workup included an echocardiogram which showed a preserved ejection fraction and no wall motion abnormalities. Patients' troponins trended down during his stay. A percutaneous catheterization was not complete given the patient's low heart score and presence of myositis as a cause of cardiac biomarker elevation. The patient was later discharged after a seven-day inpatient stay with the discharge diagnoses of right pectoralis minor abscess and sent home with a PICC line with continuation of IV antibiotics for two weeks and sustained no long-term complications.

Discussion

In general, there is usually a known cause of pyomyositis such as IV drug use, testosterone injections, or recent trauma [7,9,13] There are some documented cases of spontaneous pyomyositis in the literature. One case describes pyomyositis in the rotator cuff muscles from immunocompromised adults with diabetes [14]. In these cases, the bacteria are thought to inoculate the muscle through hematogenous spread and, as such, can develop anywhere in the body. One of these cases describes a spontaneous pyomyositis in the pectoralis major similar to our case presentation but in an immunocompromised patient and without the elevated cardiac enzymes [6]. Another similar case describes a diabetic patient with spontaneous pyomyositis in both his biceps brachii and pectoralis major [15].

Most cases of spontaneous pyomyositis involve immunocompromised individuals. However, there are some a couple documented cases of spontaneous pyomyositis in otherwise healthy patients both of which occurred in the thigh [10]. Given its rarity, pyomyositis is prone to misdiagnosis, sometimes as a muscle strain or septic arthritis [12,17]. This misdiagnosis was present in our case complicated by the fact that the initial read of the CTA of the chest was a muscle strain.

Our case is unique in that not only does it describe an otherwise healthy male who developed spontaneous pectoral pyomyositis, but it occurred with elevated cardiac troponins

Learning Points

- This case reveals that pectoral pyomyositis could be misdiagnosed as pericarditis or myocarditis and delay care including drainage and treatment of the primary source of infection.
- This case study will help future physicians consider this rare diagnosis in a patient with atypical chest pain.

References

1. Comegna, L., et al., *Pyomyositis is not only a tropical pathology: a case series.* J Med Case Rep, 2016. **10**(1): p. 372.
2. Knockaert, D.C., et al., *Chest pain in the emergency department: the broad spectrum of causes.* Eur J Emerg Med, 2002. **9**(1): p. 25-30.
3. Jouriles, N.J., *Atypical chest pain.* Emerg Med Clin North Am, 1998. **16**(4): p. 717-40, v-vi.
4. Maravelas, R., et al., *Pyomyositis in the United States 2002-2014.* J Infect, 2020. **80**(5): p. 497-503.
5. Fernandez Perez, M., et al., *Spontaneous subscapular abscess. A clinical case.* An Sist Sanit Navar, 2020. **43**(1): p. 99-102.
6. Rayzah, M., *Pectoralis major muscle abscess in an immunocompromised adult: Case report and literature review.* Int J Surg Case Rep, 2020. **75**: p. 166-168.
7. Ebright, J.R. and B. Pieper, *Skin and soft tissue infections in injection drug users.* Infect Dis Clin North Am, 2002. **16**(3): p. 697-712.
8. Cleere, E.F., M. Corbett, and I.J. Keogh, *Primary Pyomyositis of the Levator Scapulae.* JAMA Otolaryngol Head Neck Surg, 2022. **148**(5): p. 491-493.
9. Da Mesquita Faustino, F. and F. Batista, *Infectious Pyomyositis With Intramuscular Abscess in a Healthy Adult.* Cureus, 2021. **13**(11): p. e19676.
10. Minami, K., et al., *Thigh pyomyositis caused by group A streptococcus in an immunocompetent adult without any cause.* BMC Res Notes, 2017. **10**(1): p. 33.
11. Yates, S.W., M.S. Gelfand, and C.R. Handorf, *Spontaneous pyomyositis due to Staphylococcus epidermidis.* Clin Infect Dis, 1997. **24**(5): p. 1016-7.
12. Zheng, Z. and C.S. Yoong, *Uncommon primary Group A streptococcal erector spinae pyomyositis diagnosed as muscle strain in a fit young male.* SAGE Open Med Case Rep, 2019. **7**: p. 2050313X19840243.
13. Thom, C., et al., *Point-of-Care Ultrasound Identifies Pyomyositis Secondary to Intramuscular Testosterone Injection: Report of Two Cases.* J Emerg Med, 2022. **62**(3): p. e51-e56.
14. East, J., D. Piper, and S. Chan, *Spontaneous Intramuscular Abscesses Involving the Ratator Cuff Muscles in Two Cases Presenting During the COVID-19 Pandemic.* Cureus, 2020. **12**(12): p. e11833.
15. Tatsuno, S., et al., *63-year-old man with right biceps and right pectoralis major abscesses: an unusual case of pyomyositis.* BMJ Case Rep, 2020. **13**(9).
16. Kern, L., C. Rassbach, and M. Ottolini, *Streptococcal pyomyositis of the psoas: case reports and review.* Pediatr Emerg Care, 2006. **22**(4): p. 250-3.
17. Abu-Abaa, M., et al., *Primary MRSA Myositis Mimicking Septic Arthritis.* Case Rep Crit Care, 2023. **2023**: p. 5623876.
18. Gamkrelidze, M., et al., *Myocardial dysfunction during septic shock (review).* Georgian Med News, 2014(237): p. 40-6.

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