

A pacemaker lead infection as a complication of a discitis post fall in an elderly: A case report

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ABSTRACT

The population around the world is growing in age, and taking care of the elderly has become a medical challenge as new pathologies, risk factors, treatments, and approaches are being explored. One of the most important chapters that should be focused on is falls in the elderly, as it is a common reason for, not only fractures but also dependency, morbidity, and mortality in this population. The chapter on fall is vast and can be further categorized. In this article, we aim to focus on one of the complications, which is discitis post-vertebral fracture. The patient studied was a 78-year-old female patient who consulted post-fall and was admitted to the geriatric ward for a vertebral fracture. The hospitalization was complicated by a spinal infection and later on by a rarely-seen pacemaker lead infection. Vertebral fractures are very common in the geriatric population, whether spontaneously or post-trauma. Although treatment can be surgical or conservative, complications are commonly seen and can be fatal. Discitis is a medical challenge as the germs can be difficult to isolate, the pain management is difficult and in frail elderly patients, the infection and inflammation can be fatal. Prevention of falls is important in the elderly population as a simple slip can have drastic outcomes. Understanding the possible complications of falls is essential for better management.

Keywords: Discitis, fall, geriatrics, lumbar pain, pace-maker infection, vertebral fracture

Introduction

By the end of 2020, 12% of the world population was older than 60 years old and the percentage is expected to reach 22% in 2050.^[1] One of the most common reasons for a medical consult in the elderly is a fall.^[1] In the United States, studies have shown a prevalence of 28% for falls among the elderly, whereas 25% in Europe.^[2] One of the most common consequences of a fall is a traumatic injury, such as skeletal fractures and traumatic brain injuries.^[3] In elderly, due to fragile bones and osteoporosis, the incidence of vertebral fractures post-trauma is not negligible, and recovery is usually difficult. Surgery is not always indicated,

and a spinal fracture takes weeks to months to heal.^[3] The healing process by itself is painful, limiting the activity of the patient. It has been shown in the literature that one of the rare complications of spinal fracture is spondylodiscitis, spontaneous or post-surgery, especially in a fragile immunosuppressed patient.^[4] The infection in a non-surgical conservative scenario usually arises from the hematoma that becomes a rich milieu for bacterial growth.^[5] Once spondylodiscitis is confirmed, the morbidity and mortality risk for the patient increases and a chain of other complications arises.^[5] In this case report, we present a case of an elderly patient with spondylodiscitis post-fall complicated by a pacemaker electrode infection.

Case Presentation

A 78-year-old female patient presented to the emergency for severe back pain post falls a few weeks ago. The patient was known to have ischemic cardiomyopathy, a triple-chamber

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pacemaker for atrioventricular block, heart failure, obstructive sleep apnea, hypertension, and diabetes. All were controlled by medical treatment. The patient had a score of 4.5/6 on the Activity of Daily Life (ADL) assessment test and 2/4 on the Instrumental Activity of Daily Life test (IADL). Missing points were in handling personal hygiene, cooking, and management of the finances, for which she had the necessary help. The patient sought an emergency consult for growing back pain that started 2 weeks ago, post a mechanical fall.

Upon her presentation, she was stable hemodynamically and complained of stabbing back pain, non-radiating, limiting her mobility and capability to walk. On physical exam, the patient had pain upon palpation of the thoracic and lumbar vertebrae; pain score of 5/5 on the Algoplus scale. Due to severe pain, a laboratory workup was performed in the emergency department to eliminate other causes, which showed an increased inflammatory marker with hyperleukocytosis and CRP of 75 mg/L. CT scan showed an old fracture in T12, a subacute fracture in T8, and severe arthritis L1–L2. The patient was hospitalized for pain management. During her stay, the pain increased in intensity, became persistent, and non-responding to morphine, whereas the inflammatory markers remained stable. Lumbar magnetic resonance imaging (MRI) showed tissue thickening in the peri-vertebral area T7–T8–T9, in favor of spondylodiscitis [Figure 1]. Blood cultures were positive for *Staphylococcus epidermidis*, and the patient was initially treated with vancomycin 15 mg/kg as a bolus and 30 mg/kg/24 h. Control cultures at 48 h remained positive; the patient was deteriorating clinically, and a control MRI showed an extension of the edema [Figure 2].

At this stage, the patient was under continuous morphine and became entirely bedridden. The stay was complicated by constipation, urinary retention, and a depressive episode. Antibiotics were switched for daptomycin and cefazoline later on.

In the search for other causes of infection, urine culture, and viral polymerase chain reaction (PCRs) were negative. PET scan showed an intense signal on the ventricular lead of the defibrillator [Figures 3 and 4]. No clinical improvement was noted; the patient’s morphine treatment was maximized. Cardiology refused to intervene in device removal due to the patient’s fragility.

The patient became somnolent and stopped eating and taking her oral medication.

She passed away from septic shock 6 weeks after her initial presentation.

Discussion

Some of the acute complications post fall specifically in the elderly are rhabdomyolyses, metabolic disturbances, and fractures. Ten percent of falls end up in at least one fracture. The most



Figure 1: C-spine MRI showing T8 fracture and the beginning of discitis



Figure 2: C-spine MRI showing T8 fracture and discitis 1 week later

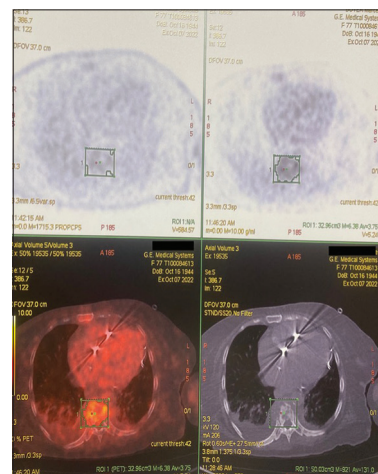


Figure 3: PET scan showing hyper signal at the pacemaker lead (cut 1), PET: Positron emission tomography

common type of fractures is vertebral fractures, hip, long bones, and wrists.^[6] The morbidity and mortality are not directly related to the fracture but to the management and possible complications. Spinal infection post-fall is not very common nor studied in the literature. Discitis, in general, is rare and more

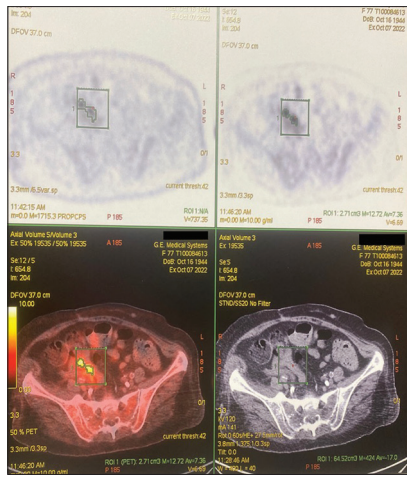


Figure 4: PET scan showing hyper signal at the pacemaker lead (cut 2), PET: Positron emission tomography

common in children and young adults; in most cases, the germs are not identified.^[7] The most commonly detected microbes are *Mycoplasmata tuberculosis* and *Staphylococcus aureus*.^[7]

The majority of guidelines for treating discitis are empiric IV antibiotics for an average of 6 weeks, with a good prognosis afterward.^[7] Therefore, in the above-presented case, the patient had an uncommon germ, and an uncommon, complicated post-fall vertebral fracture.

She was managed with the required antibiotics and painkillers but was subjected to more complications, mainly the infection of her defibrillator lead.

Pacemaker lead infections are usually a complication of post-implant of the material, and they remain a very rare complication occurring in 0.13% of permanent endocardial implants.^[8] They usually arise within the year post-implant and the literature mentions gram-negative *S. aureus* as the most common germ, as seen in our case.^[8] Very late-onset lead infections (after several years) are still mentioned in two cases, one post-urinary infection, and one post-pneumonia.^[9,10] However, in both presentations, the infection of the lead occurred at a distance from the primary causative agent; however, in our case, the infection was so rapid and reached the lead of the pacemaker in a matter of days. Similarly, in the two above-mentioned cases from the literature, the management was broad-spectrum antibiotics and removal of the device, which unfortunately was not possible for our patient, which lead to mortality.^[9,10]

Conclusion

Elderly care is challenging as the presentations of most pathologies are atypical and the complication rate is high. Understanding the possible complications of falls is very important as the population worldwide is growing and the risk of falls is increasing.

In this case, we presented a patient who had a fall, with a common complication of vertebral fracture, a less common complication of discitis, and a rare complication of very late onset pacemaker lead infection.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

References

1. World Health Organization. Ageing and Health. World Health Organization; 2022. Available from: <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>. [Last accessed on 2023 Mar 22].
2. Salari N, Darvishi N, Ahmadipanah M, Shohaimi S, Mohammadi M. Global prevalence of falls in the older adults: A comprehensive systematic review and meta-analysis. *J Orthop Surg Res* 2022;17:334.
3. Centers for Disease Control and Prevention. Facts About Falls. Centers for Disease Control and Prevention; 2021. Available from: <https://www.cdc.gov/falls/facts.html>. [Last accessed on 2023 Mar 27].
4. Nourbakhsh A, Garges KJ. Spondylodiscitis after vertebral fracture in the thoracic spine. *Am J Orthop (Belle Mead NJ)* 2009;38:E166-9.
5. Abdelrahman H, Shousha M, Boehm H. Post-traumatic spondylodiscitis. Update, series of 17 patients and review of the literature. *Global Spine J* 2016;6. doi: 10.1055/s-0036-15827.
6. Berry SD, Miller RR. Falls: Epidemiology, pathophysiology, and relationship to fracture. *Curr Osteoporos Rep* 2008;6:149-54.
7. Muscara J, Blazar E. Diskitis-StatPearls-NCBI Bookshelf. National Library of Medicine. 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK541047/>. [Last accessed on 2023 Mar 27].
8. Ertas F, Acet H, Kaya H, Kayan F, Soydisc S. Implantable cardioverter defibrillator pocket infection caused by Klebsiella pneumonia. *Afri Health Sci* 2012;12:388-9.
9. Ursaru AM, Haba CM, Popescu SE, Crișu D, Petriș AO, Tesloianu ND. A rare entity-percutaneous lead extraction in a very late onset pacemaker endocarditis: Case report and review of literature. *Diagnostics (Basel)* 2021;11:96.
10. Liu TT, Nery PB, Birnie D, Jessamine P, Suh KN. Cardiac device infection due to streptococcus pneumoniae. *Can J Infect Dis Med Microbiol* 2012;23:135-6.