

# Aspergillus terreus Infection In A Patient With Cardiac Implantable Electronic Device



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## Introduction

- Cardiac implantable electronic devices (CIED) include pacemakers, implantable cardioverter-defibrillators (ICDs), and cardiac resynchronization therapy (CRT) devices.
- CIED infections are generally considered in two categories i.e pocket infections and systemic infections.
- The true incidence of CIED infection is not known but according to Eggimien *et al* the rate of infection can range from 0.8 to 5.7 %.
- The most common causative organisms to cause these infections are *Staphylococcus aureus* and coagulase negative *Staphylococcus*.
- Other organisms implicated are *Streptococcus species*, *Corynebacterium species*, *Cutibacterium acnes*, Gram negative bacilli, *Candida species* and *Aspergillus species*.
- Among the *Aspergillus species*, *Aspergillus fumigatus* is the most common causative organism.

## Case Report

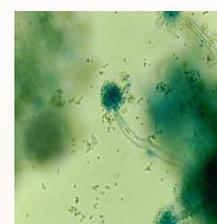
- A 55 year old man presented in the emergency with fever for 7 days, redness and discharge from pacemaker pocket site.
- Past History
- History of essential hypertension for 12 years on multiple antihypertensives.
- 2001:- Permanent pacemaker placed in view of complete heart block.
- 2010:- Pocket site infection with *Staphylococcus aureus*.
- 2015:-Bacterial endocarditis, causative organism being *Staphylococcus aureus* treated with Vancomycin.
- Present Admission
- Chest X-ray:- Cardiomegaly.
- Transthoracic Echocardiogram:- Restrictive cardiomyopathy with pulmonary artery thrombus with multiple vegetations.
- The patient underwent pulmonary artery thrombectomy, pacemaker removal and necrosed tissue removal.

## Microbiology Investigations

- The necrosed tissue and the pacemaker leads were sent to the Microbiology laboratory for bacterial and fungal culture.
- The sample was sent in wide mouth screw capped sterile container which contained black, necrosed, blood tinged tissue in saline.
- Bacterial culture:- Negative.



- Calcofluor white-KOH mount:- Septate hyphae was visualized.
- Culture on Sabouraud Dextrose Agar:- White downy growth with white border was seen within 5 days which turned to cinnamon brown later, on further incubation.
- MALDI-TOF from the initial growth revealed *Aspergillus terreus* complex
- Serum galactomannan was 2.83.



LPCB Mount

## Discussion

- Based on Calcofluor white-KOH Mount findings the patient was started on Intravenous Amphotericin-B.
- After the species was confirmed I.V. Amphotericin-B was stopped and Tab. Voriconazole 400mg B.D. was started .
- Patient was on the treatment for 6 weeks.
- The wound healed and repeat cultures were negative.
- Pacemaker implant was put for the patient.

## Conclusion

- CIED pocket infection must be suspected when there is continuous fever and signs of inflammation over the pocket skin (e.g. reddish discoloration, purulent discharge) is seen.
- The most common causative organisms are *Staphylococcus aureus* and coagulase negative staphylococcus.
- In the review of literature by Pincus *et al*, most pacemaker pocket infections due to fungi are caused by *Aspergillus fumigatus*.
- However, unusual organisms like *Aspergillus terreus*, as in the present case, may rarely cause infection.
- The importance of identifying till the species level is important since treatment of the patient changes as in our case .

## References

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- Pincus J.L., Jahng M., Lee S.A. Early Aspergillus pacemaker pocket infection: Case and review. *Med Mycol Case Rep.*2012;1(1):32-34.

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