Abstract 107 Figure 1

the left atria had been generated using different mapping systems (CARTO®, Rhythmia™ and EnSite Precision™) were utilised. These EAMs consisting of 3D coordinates and annotations (e.g. voltage & activation times) were exported from the mapping system. EAMs were then compiled and transferred to the HoloLens using custom-developed functions on Unity®, Microsoft® C# and VisualStudio. Subsequently, feedback was obtained from 3 independent electrophysiologists on this technology.

Results We successfully exported the EAMs generated on CARTO®, Rhythmia™ and EnSite Precision™ mapping systems as holograms on to the HoloLens (Figure). Positive feedback included themes such as 1) the ability to use hand gestures and voice commands to interact with EAMs independent of another user unlike traditional cardiac mapping systems 2) offering an interactive 3D holographic experience whilst preserving the operators' physical interaction in the cardiac catheter lab 3) the capacity to better appreciate 3D geometry of EAMs in comparison to 2D monitors. The challenge of wearing a headset during long procedures was perceived as a disadvantage.

Conclusion This technology, which can be used with any mapping system, is currently optimised for offline display. Our software will be made available as an opensource teaching and simulation tool (at www.Openep.io). Users will be able to explore EAMs for research, planning complex cases and immersive learning. The future directions will include extending this toolkit for real-time cardiac mapping with catheter localisation, and could potentially be translated to other cardiac imaging modalities.

Conflict of Interest None

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SYSTEMIC REVIEW OF ALLERGIES AND TREATMENT TO COMPONENTS OF CARDIAC IMPLANTABLE ELECTRONIC DEVICES

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10.1136/heartjnl-2021-BCS.107

Background Components of Cardiac Implantable Electronic Devices (CIEDs) consist of polymers and metallic alloys. Although they are rare, there are documented cases of allergic reactions to components of CIEDs. These are commonly misdiagnosed as device pocket infections leading to wasted resources and potentially serious consequences for the patient.

Methods We conducted a systematic literature review to identify reported cases of allergic reactions to components of CIEDs and their treatment/management. The words 'pace-maker', 'cardiac implantable electronic device', 'cardiac rhythm device', 'implantable cardiac defibrillator' or 'cardiac resynchronization therapy' in combination with 'replacement' or 'treatment' were used as search criteria.

Results We identified a total of 32 case reports of Allergic reactions to components of CIEDs. Of these 25 were PPMs (Permanent Pace Makers) and 7 were ICDs (Implantable Cardioverter Defibrillator) (1 CRTD - Cardiac Resynchronization Therapy Device). 18 reported hypersensitivity reactions were to alloys or metals and 13, due to polymers. In 1 case, patch testing showed positivity to multiple allergens but a single, causative material was not identified. The onset of symptoms as a result of these reactions showed wide variation, ranging from 1 day to 10 years post CIED implant. The most common metal allergen was Titanium and the most common polymer was Epoxy Resin. Patient's history, clinical examination and patch testing were used to diagnose allergic reactions to CIED components. Management of the allergic reactions varied depending on the severity. Topical steroids were used for limited cutaneous reactions, while in more deep seated reactions, a complete system extraction with re-implantation of a Gold coated CIED was performed.

Conclusion Allergic reactions to CIEDs are rare but important complications. It is important to identify this pathology early in order to manage patients optimally to minimize harm.

Conflict of Interest None

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IMPACT OF COVID-19 PANDEMIC ON IN-PATIENT MORTALITY OF PATIENTS WITH IMPLANTABLE CARDIAC DEVICES

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10.1136/heartjnl-2021-BCS.108

Background Patients with cardiovascular disease have a higher risk of death from COVID-19 infection. Most patients with implantable cardiac devices (pacemakers and defibrillators) have significant cardiovascular co-morbidities, which would suggest a higher mortality in device patients during the pandemic. **Aim** To review inpatient mortality of patients with cardiac devices in our hospital before and after the outbreak of the COVID-19 pandemic. **Method** A retrospective analysis of all in-hospital deaths over 12 months, between 1st November 2019 and 31st October 2020, at a district general hospital in the UK. All patients with implantable cardiac devices were