

# Extrinsic Cardiac Compression in a Child Due to Defibrillator Patch Fibrotic Capsular Reaction

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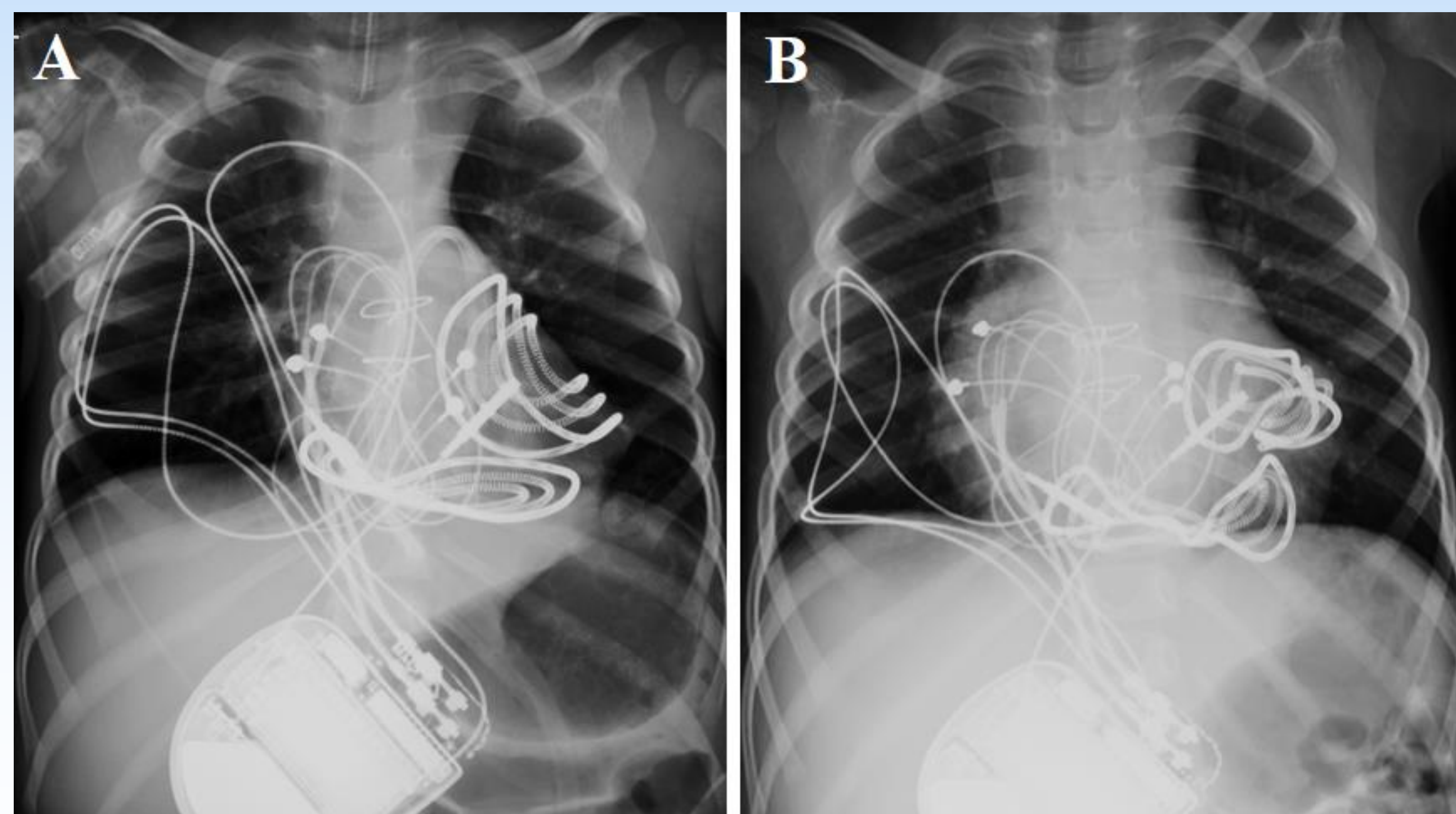
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## Background

- Epicardial defibrillator patch crinkling can cause patch malfunction, pain, constrictive pericarditis, and even death.
- Transvenous leads are routinely used in adults, but this approach is not as favorable in many small pediatric patients due to vessel size.
- In pediatric patients, epicardial patches or coils are commonly used.
- There are no well-established guidelines for monitoring of epicardial patch configuration.
- We present a case of fully functioning defibrillator patches with significant patch deformation.

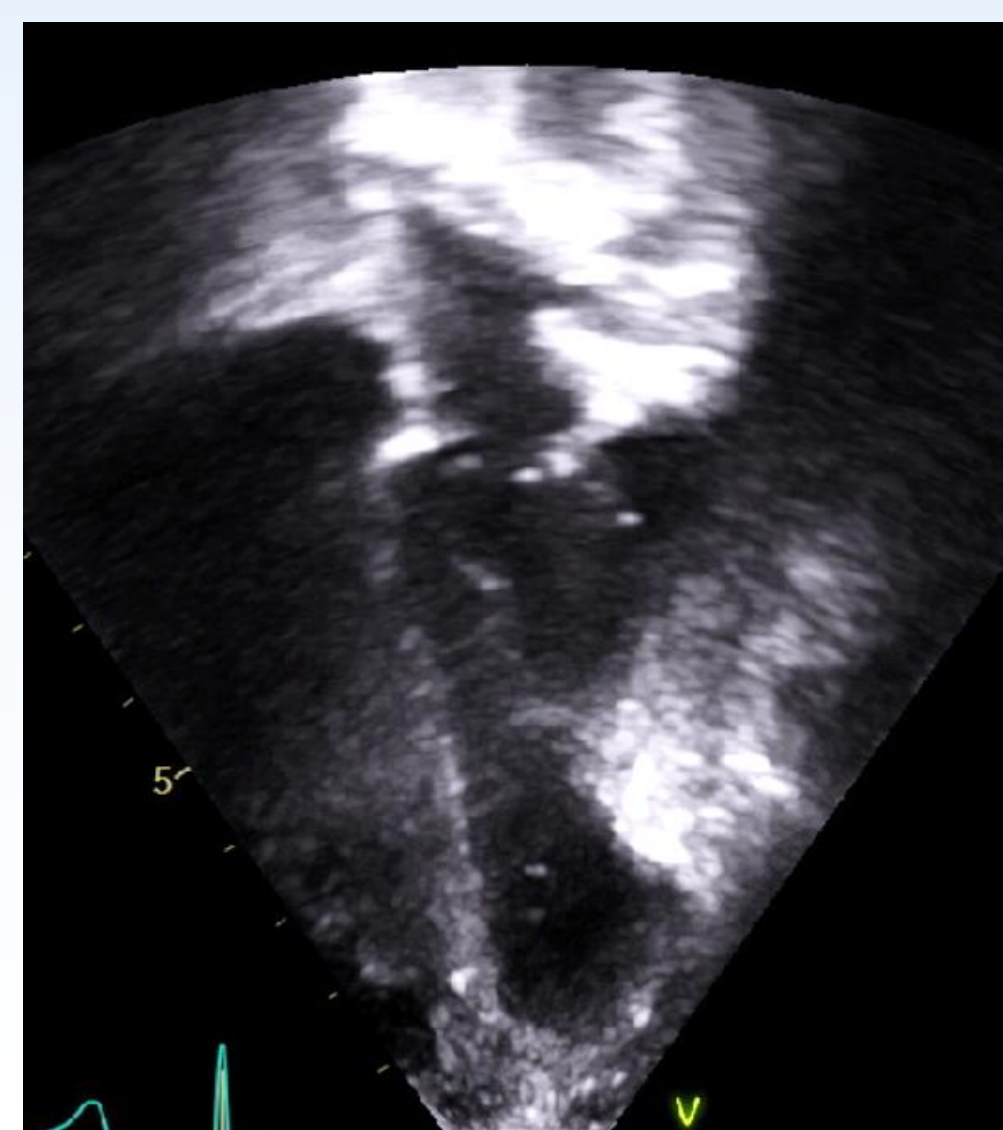
## Case Description

- 3-year-old female with Timothy syndrome and associated long QT syndrome
- The patient suffered an out of hospital cardiac arrest due to ventricular arrhythmia and underwent placement of an ICD with a two epicardial patch system
- Chest radiograph on post-operative day 11 (Figure 1A) showed appropriate patch location and morphology
- The patient had regular electrophysiology follow-up with no clinical concerns.

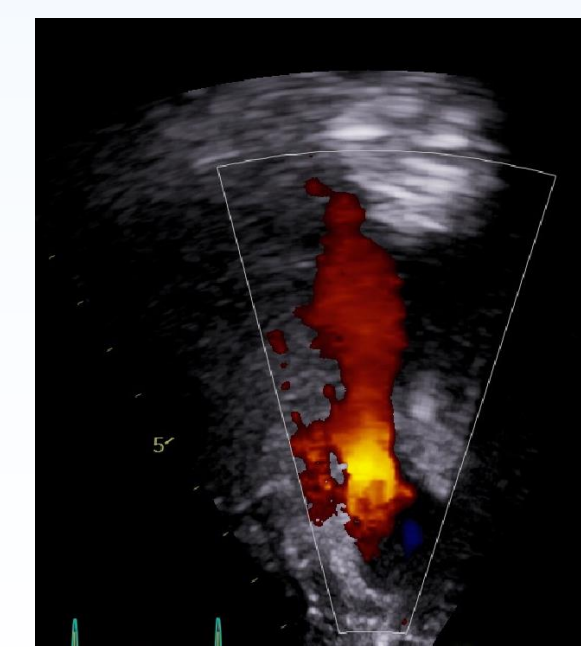


**Figure 1:** (A) Standard AP chest x-ray taken post-operative day 11 demonstrates appropriate configuration of epicardial patches. (B) X-ray obtained during workup after an appropriate ICD shock seventeen months later demonstrates crinkling and deformation of patches.

- Seventeen months after initial AICD placement, the patient had appropriate and successful discharge of her AICD
- Routine surveillance transthoracic echocardiogram obtained during observation after the AICD discharge demonstrated an echodense mass compressing the left ventricular free wall (Figure 2), but normal ventricular function, and no outflow tract obstruction
- Chest radiograph at this time suggested significant crinkling of both AICD patches (Figure 1B)
- Due to the risk of patch-lead fracture and possibility of future coronary compression, revision of the patches was recommended.
- Patch crinkling was felt to be due to tension on the wires with noted movement in position of wires (Figure 3)
- Intraoperatively, severe dense fibrotic capsular reaction was noted involving both patches and extending to the pericardial space and ventricular epicardium.
- Her post-operative course was complicated by recurrent pleural effusion and fever, thought to be infectious versus inflammatory in nature. She was treated with antibiotics and NSAIDs and is doing clinically well at this time.

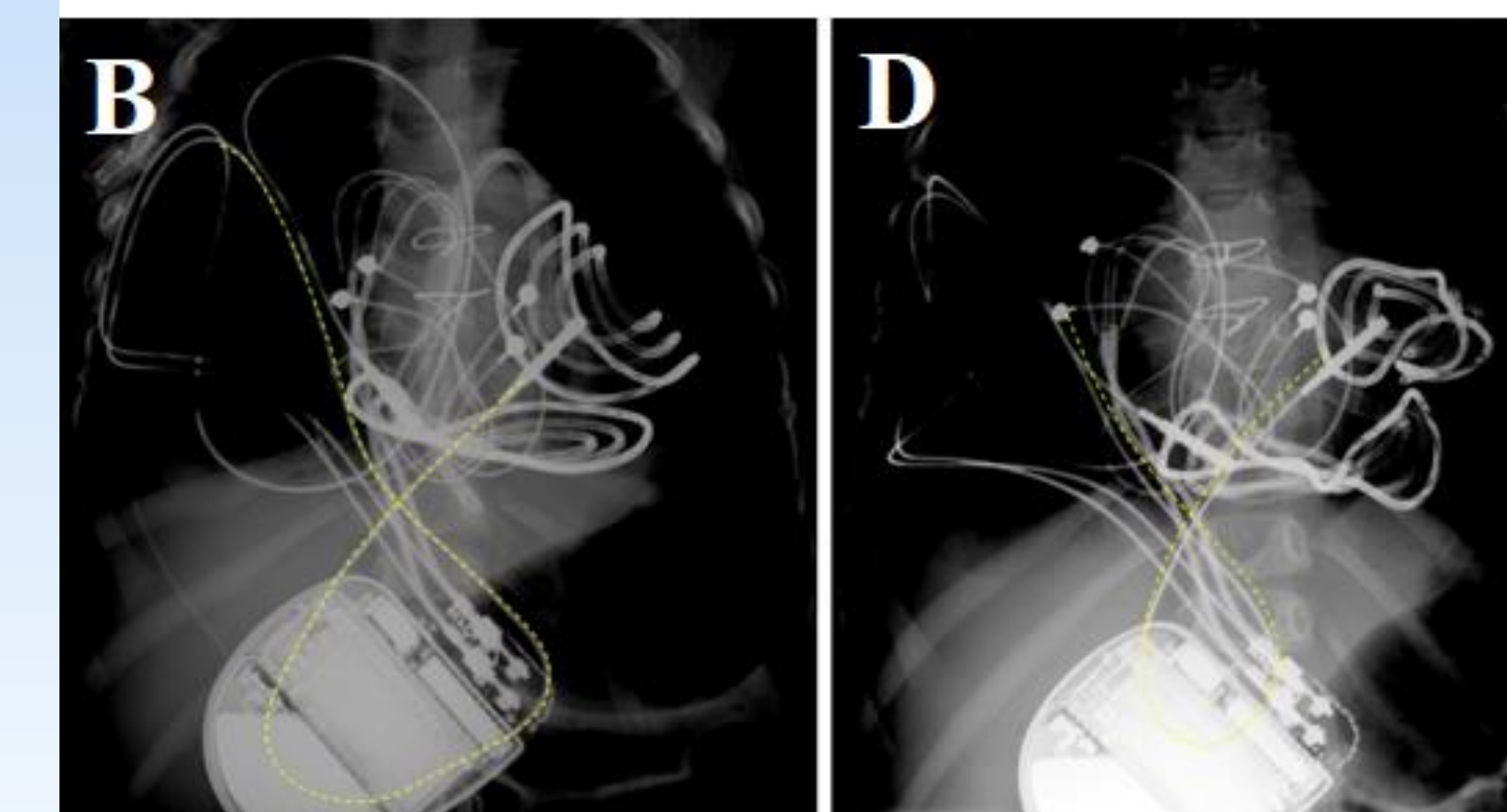
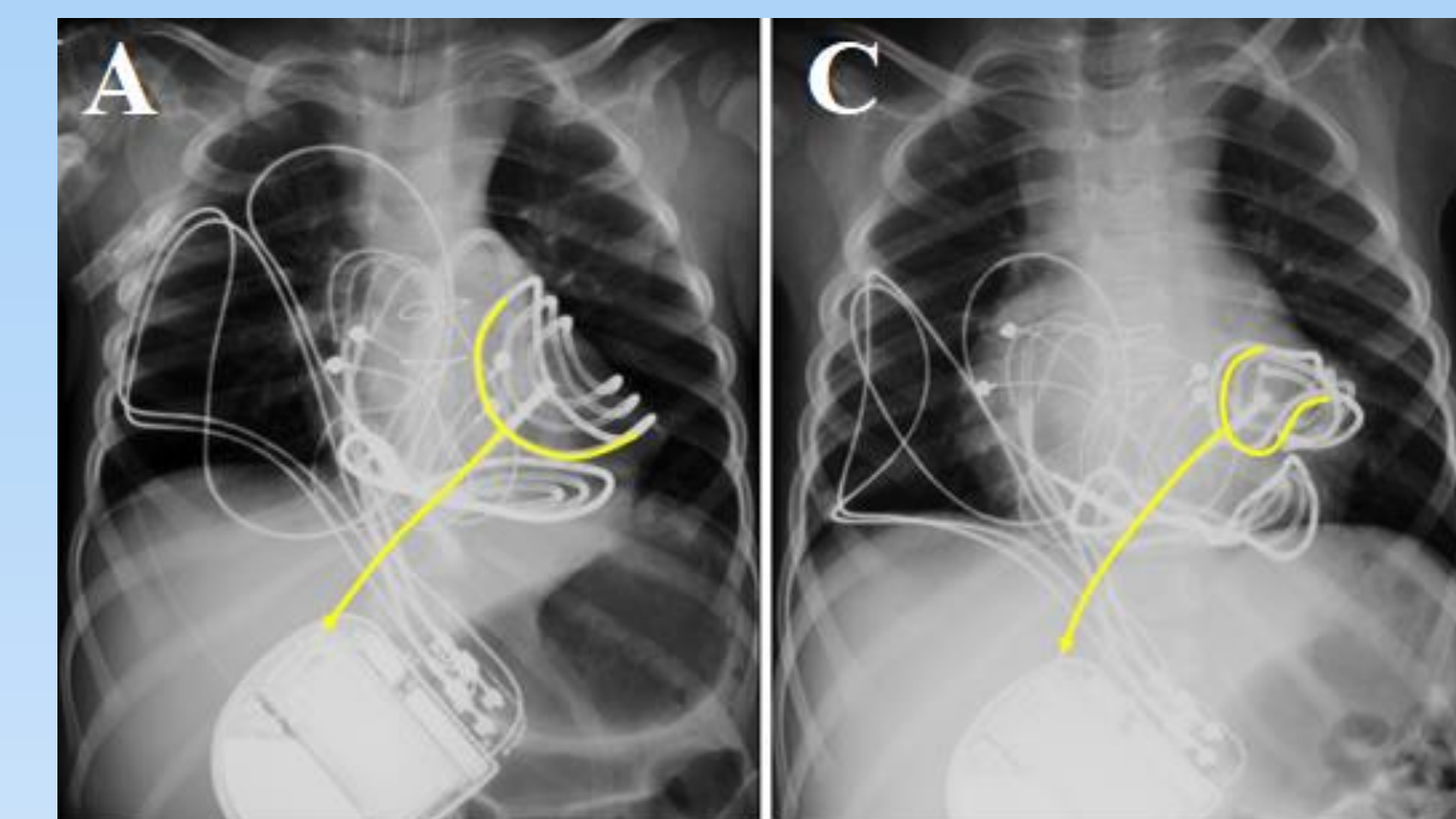


**Figure 2:** Apical 4-chamber echocardiogram views demonstrate an echodense mass deforming the left ventricular free wall.



## Conclusion

This case suggests the need for routine assessment of epicardial patch morphology, even in asymptomatic patients.



**Figure 3:** Chest x-rays obtained on post-operative day 11 (A and B) as compared to those obtained seventeen months after implantation (C and D). The yellow lines trace the wires from the epicardial patches back to the generator and demonstrate a change in configuration from the immediate post-operative period. This resulted in tension in the wire and was suspected to be the cause of the noted patch deformation.

## References:

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