



Image courtesy of Dr Sebastian Seah, Radiopaedia.org

## **Improving the diagnosis and management of aortic dissection in a UK emergency department – education and process changes are the foundation**

Charles Gallaher<sup>1</sup>, Peter Holt<sup>2</sup>, James Millington<sup>1</sup>, Will Glazebrook<sup>1</sup>

<sup>1</sup> Emergency Department, St George's University Hospitals NHS Foundation Trust

<sup>2</sup> Department of Vascular Surgery, St George's University Hospitals NHS Foundation Trust;  
Professor of Vascular Surgery, St George's University of London

**Aims, objectives and background:** Aortic dissection (AD) is an uncommon emergency department (ED) diagnosis (~1200 hospital admissions/year UK-wide). However, it is frequently misdiagnosed (in 16-39% of cases) or mismanaged. Death may result from inappropriate discharge or from delays in potentially life-saving treatments (meticulous heart rate/blood pressure control +/- surgery – mortality in unoperated Stanford type A AD is 1-3% per hour). The impetus for this quality improvement project (QIP) was the death of a young man from AD after he attended the ED complaining of chest pain. This was the third death from AD following a missed diagnosis of the disease at our ED in <3 years.

**Method and design:** We used a combination of education (intensive, comprehensive and multipronged) and process changes (including new SOPs for the triage of patients with 'aortic pain', and for AD management) to try to achieve our project aims: no further missed diagnoses of AD in our ED; a 20% increase in median self-reported confidence in diagnosing and managing AD among ED staff; and a 20% improvement in median score in a quiz on AD taken by ED staff. PDSA was our improvement model.

**Results and conclusions:** See also graphs composite, below. To the authors' knowledge, no cases of AD were missed in our ED during the 3-month period of the QIP; however, the success or failure of this aim can only fairly be judged over the longer term. We were unable to improve median self-reported confidence in diagnosing and managing AD among ED staff, or median score in a quiz on AD taken by ED staff. Mean scores, however, showed a trend towards improvement. In conclusion, a QIP which aims to improve diagnosis and management of AD in the ED is a worthwhile patient safety initiative, and our educational documents better equip ED clinicians to diagnose and manage AD.



### **Interested in improving your skills in aortic dissection diagnosis and management?**

We have a range of ED-specific resources to improve your knowledge which we'd love to share with you (brief and detailed primers available, as well as a fun quiz to test your skills).

### **Interested in doing an aortic dissection QIP in your department?**

We have SOPs and experiential learning which we'd love to share with you.

**Please do get in touch - we want to hear from you!**

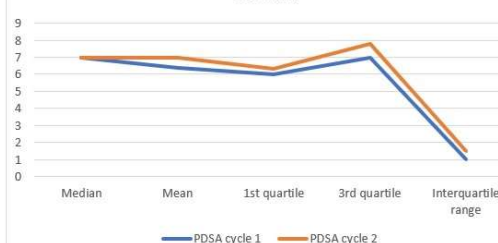
Charles.Gallaher@nhs.net



Self-reported confidence (given as a score out of 10) of ED staff in their ability to diagnose and treat aortic dissection



Score in a 9-question quiz on AD completed by ED staff



Missed diagnoses of aortic dissection in the ED

