

EDITORIAL

How do you solve the problem of aortic dissection?

Bell R

Consultant Vascular Surgeon,
Freeman Hospital, Newcastle upon Tyne, UK

Corresponding author:

Miss Rachel Bell
Consultant Vascular Surgeon,
Freeman Hospital, Freeman Rd,
High Heaton, Newcastle upon Tyne, NE7 7DN, UK
Email: rachel.bell24@nhs.net

Received: 29th May 2022**Accepted:** 14th June 2022**Online:** 20th July 2022

"The tragedies of life are largely arterial" – Sir William Osler¹

Every vascular surgeon can remember stories of patients with aortic dissection having thrombolysis for a presumed myocardial infarction, or a V/Q scan and full anticoagulation for a likely pulmonary embolus. My most memorable story is of an international sports coach who developed tearing intrascapular chest pain during the first week of a grand slam tournament and presented to my hospital's Emergency Department twice and was sent home twice with a prescription for Gaviscon. He felt so unwell he telephoned his physician in the United States who told him he was having an aortic dissection and to immediately go to another hospital and tell the receptionist that he was having an aortic dissection. He survived to tell his story but, given that type A dissection has a 1–2% mortality per hour within the first 24 hours, it was luck rather than excellent healthcare that saved his life.² Whilst mortality rates are lower for acute type B dissection, they still reach 10% at 30 days.³ In short, aortic dissection is dangerous, carries a significant fatality rate and deserves a higher profile.

Stories from patients and relatives about their experience of aortic dissection are often a catalogue of delays in diagnosis, imaging and treatment. Add to that the patients who die from their pathology without ever meeting the specialists who might have been able to help them, and you realise that we have a problem that needs fixing.

Aortic dissection is the commonest aortic emergency, with an incidence of six cases per 100,000 per year. Whilst that might be the case, it seems that we don't educate medical students and doctors in a way that makes them remember that it is one of the differential diagnoses for acute chest pain. The patient charities have worked

hard to improve awareness with their 'THINK AORTA' campaign and have badgered and sent mailshots to every emergency department, Member of Parliament and Health Secretary for the last few years to try and get their message across. Aortic Dissection Awareness UK & Ireland and The Aortic Dissection Charitable Trust actively support patients and families affected with this condition and have campaigned tirelessly to drive change in the system to make it safer and more responsive.

As a medical professional who signed up to make people better, I have long thought that we could improve the care for this group of patients by being better educated, more aware and simply organising national pathways for acute aortic syndromes (type A dissection, type B dissection, non-A – non-B dissection, intramural haematoma and penetrating aortic ulcers). I know that the mention of system change in the NHS makes many clinician's blood run cold, mainly because it is damned hard work to effect change and that change is often poorly led and resourced. However, when it is done well, like with the organisation of major trauma services in England, it resulted in a 19% reduction in mortality despite an almost 50% increase in transfer time.⁴

The Acute Aortic Dissection Pathway Toolkit was published in March 2022 and is the result of collaboration between the Cardiac Getting it Right First Time (GIRFT) programme, Surgical Care Improvement Project (SCIP) for Cardiac Surgery, the Vascular Clinical Reference Group, NHSEI Specialised Commissioners and the patient groups mentioned above. The complexity and breadth of aortic dissection mean that you need a multidisciplinary team with participation and input from many specialties to produce a

Key words: acute aortic dissection, type B, type A, clinical pathways, diagnosis, inter-hospital transfer

comprehensive document. The toolkit recognises the main driver for change is published unwarranted variation around the UK in the provision of treatment for conditions of the thoracic aorta.⁵ The aim of the toolkit is to help regions work across organisations to ensure equity of access to specialist services and improve outcomes for patients. There are examples in the toolkit of teams that have already redeveloped their pathways and have seen operative mortality halve and length of stay reduce for acute type A aortic dissection.⁶

The document sets out seven important principles for the development and sustainability of a regional pathway for aortic dissection. They are regional governance and leadership, development of a multidisciplinary team and meeting, a published regional rota and single point of contact, timely and reliable image transfer, safe inter-hospital transfer, specialist treatment for all acute aortic dissections and development of a regional education programme. It empowers regions to develop a model for their area that works for their unique geography and workforce, hence the document is not prescriptive. The principles remain important and should underpin any proposed changes, the aims being to improve outcomes for patients by harnessing regional skill mix to benefit the maximum number of patients, improving governance, encouraging regular multidisciplinary team working and educating doctors and paramedics to equip them to diagnose acute aortic emergencies rapidly and consistently. Data collection and audit of performance and outcomes are part of the regional governance and will be the drivers for research and continuous improvement in the development of the service in the long term. One of the positives of the ongoing COVID-19 pandemic is that we are all familiar with video conferenced meetings and this will facilitate regional meetings for discussion and the setup of regional multidisciplinary meetings. Pragmatically, the toolkit comes with many examples of protocols that have been shared by different organisations and it encourages plagiarism and adaptation by regional groups for their own use to take away the pain of writing something from scratch, including the THINK AORTA campaign trigger cards which can be individualised for each aortic centre with the single point-of-contact phone number.

The nay-sayers amongst you will criticise that this is not a service specification, does not mandate the transfer of all patients

with acute type B dissection to a specialist centre, comes with no resource and no mechanism for ensuring the maintenance of good standards of care. These are valid points and may lead to further iterations of the toolkit once we have more data, particularly for those patients with type B aortic dissection who are treated medically and are currently difficult to count without a specific OPCS code.

This is a call to arms to ask you all to participate in developing a safe, comprehensive, responsive regional service for the management of patients presenting with aortic dissection. The Vascular Society and the Society for Cardiothoracic Surgery in Great Britain and Ireland fully support this project and are committed to making improving national aortic dissection pathways. So let's make it a good day everyday for these patients and their families. Call me an idealist, but I dream of a day where the patient reaches me within hours of a correct diagnosis, with seamless transfer of images and an ability to have an informed multidisciplinary conversation to determine their optimal treatment. Nirvana you may scoff, but this is a problem worth solving.

Get your copy of the Acute Aortic Dissection Pathway Toolkit here.

Conflict of Interest: None.

Funding: None.

References

1. Silverman ME, Murray TJ, Bryan CS, editors. *The Quotable Osler*. Deluxe edn. Philadelphia: American College of Physicians, 2008.
2. Coady MA, Rizzo JA, Goldstein LJ, Eleteriades JA. Natural history, pathogenesis, and etiology of thoracic aortic aneurysms and dissections. *Cardiol Clin* 1999; **17**(4):615–35; vii. [https://doi.org/10.1016/s0733-8651\(05\)70105-3](https://doi.org/10.1016/s0733-8651(05)70105-3)
3. Hagan PG, Nienaber CA, Isselbacher EM, *et al*. The International Registry of Acute Aortic Dissection (IRAD): new insights into an old disease. *JAMA* 2000; **283**(7):897–903. <https://doi.org/10.1001/jama.283.7.897>
4. Moran CG, Lecky F, Bouamra O, *et al*. Changing the system – major trauma patients and their outcomes in the NHS (England) 2008–17. *EclinicalMedicine* 2018;**2-3**:13–21. <https://doi.org/10.1016/j.eclinm.2018.07.001>
5. Bottle A, Mariscalco G, Shaw M, *et al*, and the UK Aortic Forum. Unwarranted variation in the quality of care for patients with diseases of the thoracic aorta. *J Am Heart Assoc* 2017;**6**(3):e004913. <https://doi.org/10.1161/JAHA.116.004913>
6. Bashir M, Shaw M, Field M, *et al*. Repair of type A dissection – benefits of a dissection rota. *Ann Cardiothorac Surg* 2016;**5**(3):209–15. <https://doi.org/10.21037/acs.2016.05.09>