

Correspondence

The co-existence of type A aortic dissection and pulmonary embolism

From Oscar M P Jolobe

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Dear Sirs,

In response to the article by Acharya and Mariscalco on the diagnosis and acute management of type A aortic dissection,¹ I would like to expand on the role of pulmonary embolism (PE). The differential diagnosis of type A aortic dissection includes, not only PE, as stated by the authors in table 2 of the article,¹ but, also, the co-existence of PE and dissecting aneurysm of the aorta (DAA).²⁻¹⁴

A literature search in Pubmed and Google scholar disclosed 13 examples of the association of type A aortic dissection and PE (table 1).²⁻¹⁴

Combination of DAA and PE stigmata suggestive of co-existence of DAA and PE

What seemed to be the most likely combination of DAA stigmata and PE stigmata indicative of the co-existence of DAA and PE was documented in the following patients:

- A patient who had chest pain, back pain, and deep vein thrombosis.⁶

- A patient who had chest pain, back pain, inter-arm blood pressure difference, breathlessness and haemoptysis, as well as mediastinal enlargement.⁸
- A patient who had back pain, mediastinal enlargement and deep vein thrombosis.⁹
- A patient who had chest pain, aortic regurgitation, breathlessness and deep vein thrombosis.¹⁰
- A patient who had back pain, mediastinal enlargement, breathlessness, and floating right heart thrombus.¹⁴

Caveats and diagnostic traps

In Bhat *et al.*, a 21-year-old man presented with severe chest pain and mild dyspnoea. Computed tomographic angiography (CTA) showed, not only stigmata of DAA, but, also, apparent filling defects in the right and left pulmonary arteries. However, during operative repair of the aorta, the pulmonary arteries were also opened and explored, and were found to be completely free of thrombus. In this instance, the angiographic signs suggestive of PE were, in fact, attributable to DAA-related compression of the pulmonary artery.¹⁵

Conversely, in Neri *et al.*, DAA-related compression of the pulmonary artery did result in thrombotic occlusion of the pulmonary artery.

Table 1. Co-existence of aortic dissection and pulmonary embolism

First author	Age	Sex	CP	BKP	ARG	PRP	BPD	MDS	SOB	HPTY	DVT	EFF	ARP	Antithrombotic treatment
Cruz ²	71	F	✓	–	–	✓	–	–	✓	–	✓	–	–	OAC
Radwan ³	66	F	✓	–	–	–	–	–	–	–	–	–	✓	Information not available
Kagawa ⁴	71	F	–	✓	–	–	–	✓	–	–	✓	✓	–	IVC filter, UFH, OAC, elastic stocking
Herera ⁵	47	F	–	–	✓	–	–	–	✓	–	✓	–	✓	IVC filter, OAC
Fernandes ⁶	81	M	✓	✓	–	–	–	–	–	–	✓	–	✓	LMWH
Ramponi ⁷	75	M	✓	✓	✓	–	–	✓	✓	–	–	–	✓	Pulmonary embolectomy, OAC
Bodian ⁸	66	M	✓	✓	✓	–	✓	✓	✓	✓	–	–	–	None
Morimoto ⁹	60	M	✓	✓	–	–	–	✓	–	–	✓	✓	–	IVC filter
Tudoran ¹⁰	70	M	✓	–	✓	–	–	–	✓	–	✓	–	✓	UFH, OAC
Volovitch ¹¹	73	F	✓	–	–	–	–	–	–	–	–	–	✓	Pulmonary embolectomy, OAC
Thiam ¹²	31	F	✓	–	–	–	–	✓	✓	✓	–	–	–	OAC
Leu ¹³	59	F	–	–	–	–	–	–	✓	–	–	–	–	Heparin
Fukuizumi ¹⁴	81	F	–	✓	–	–	–	✓	✓	–	–	–	–	Embolectomy, IVC filter, OAC

Key: ✓ = presence of that parameter; – = absence of that parameter; ARG = aortic regurgitation; ARP = aortic repair; BKP = back pain; BPD = inter-arm blood pressure difference; CP = chest pain; DVT = deep vein thrombosis; EFF = pleural effusion; F = female; HPTY = haemoptysis; IVC = inferior vena cava; LMWH = low-molecular-weight heparin; M = male; MDS = mediastinal enlargement; OAC = oral anticoagulants; PRP = paraplegia paraparesis; SOB = shortness of breath; UFH = unfractionated heparin

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Subsequent operative intervention involved operative aortic repair as well as pulmonary artery thrombectomy.¹⁶

Treatment strategies for DAA

Seven patients were managed without aortic repair,^{2,4,8,9,12–14} three of whom subsequently died.^{8,12,13} Among the four survivors of conservative DAA management was an 81-year-old patient in whom co-existing thromboembolism was managed by surgical embolectomy involving extraction of a floating right heart thrombus located in the right atrium, and subsequent oral anticoagulation using warfarin.¹⁴ Also managed without aortic repair was a 71-year-old woman in whom PE was managed by insertion of an inferior vena cava filter followed by oral anticoagulation.⁴

Six patients were managed by aortic repair,^{3,5–7,10,11} two of whom died.^{6,10} Among the survivors were two patients who were managed by the combined operative strategy of aortic repair (for DAA) and pulmonary embolectomy (for PE).^{7,11}

Treatment strategies for PE

The range of treatment strategies included intravenous unfractionated heparin, vitamin K antagonists, insertion of inferior vena cava filter,

and pulmonary embolectomy. There was one patient who did not receive any of those treatment strategies. That patient died soon after the dual diagnosis of DAA and PE was made.⁸ In one other instance, information about prescription, or absence of prescription, of antithrombotic measures was not available.³

Take home message

Clinicians should be vigilant for the co-existence of DAA and PE so that measures can be taken to mitigate the risk of a potential PE-related fatal outcome.

Conflicts of interest

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Oscar M P Jolobe

Retired Geriatrician, Manchester

(oscarjolobe@yahoo.co.uk)

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