Reminder of important clinical lesson

Arterial embolism of axillary artery secondary to atrial fibrillation

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Summary

An 89-year-old woman was admitted with a fall. She had severe dementia and was on no medication. She was mobile with carers visiting her at home twice daily. While her stay in the hospital, she was diagnosed with atrial fibrillation. Her rate was controlled with bisoprolol and was already given aspirin after risk assessment for stroke and CT scan of head. Several days into admission, she complained of sudden onset of weakness of her right upper limb with pain. On examination, there were absent brachial and radial pulses on the side along with weakness and decreased sensation below right elbow. She underwent urgent CT angiogram which revealed absent flow beyond right subclavian artery. She was treated with heparin infusion and then warfarin with regular vascular team follow-up. Further issues such as duration of warfarin therapy including possible substitution with direct thrombin inhibitor such as dabigatran etexilate is under consideration.

BACKGROUND

Arterial embolism in upper limbs from atrial fibrillation is a well recognised but uncommon complication. The seriousness of this condition and eventual prognosis is poor and requires early recognition of complications.

CASE PRESENTATION

An 89-year-old woman was admitted with a fall resulting in laceration of frontal head. Patient had severe dementia and as such was not able to recall the incident. She was independent of her activities of daily living with carers visiting her at home twice daily. During her stay in the hospital, routine observations revealed irregular pulse and subsequent ECG confirmed atrial fibrillation. Her rate was controlled with bisoprolol and was given aspirin after risk assessment for stroke with CHADS2 score and CT head.

Her routine blood tests including thyroid function tests were within normal range. Transthoracic echocardiography showed good left ventricular function with normal size left atrium and no aneurysms or clots. Patient refused transoesophageal echocardiogram.

Several days into admission, she complained of sudden onset of weakness of her right upper limb with pain. On examination, there were absent brachial and radial pulses on the right side along with significant weakness that is, MRC grade 3/5. Sensation was reduced below right elbow with capillary refill time of 5 s. The rest of her neurological and cardiovascular system was consistent with previous examination.

INVESTIGATIONS

CT angiogram of right arm was done and technique was enhanced scans in the arterial phase which showed occlusion of the right axillary with very little collateral flow. The distal upper and forearm has not been demonstrated. The heart size is enlarged with four chamber enlargement (figure 1).

CT scan of head showed no evidence of intracerebral bleed.

DIFFERENTIAL DIAGNOSIS

Arteritis, thoracic outlet obstruction and aneurysms need to be considered.

TREATMENT

Heparin infusion for 72 h followed by warfarin therapy with target international normalised ratio between 2 and 3. Vascular team after further discussions opted for conservative management without surgical intervention.

OUTCOME AND FOLLOW-UP

The patient is on warfarin and tolerating treatment well. There continues to be gradual and progressive disuse in the right upper limb despite therapy. Pain in the limb was controlled with opiates. Vascular surgical follow-up to monitor further complications and investigations which include CT angiogram or arterial duplex. Duration of anticoagulant therapy with risks and benefits will be discussed with patient. At her 3-month follow-up, she continues to be on warfarin with no further complications.

DISCUSSION

Atrial fibrillation prevalence reaches up to 9% at age 80–89 years in general population.¹ Complications such as upper limb embolism are more common in female and older population.² The risk of embolisation remains even in stable atrial fibrillation.³ Majority of patients with arterial embolism are likely to have co-existing atrial fibrillation and even more likely to have associated ischaemic heart disease or recent myocardial infarction.⁴ Anticoagulation with both heparin and warfarin is acceptable treatment for patients suitable for surgery.^{5 6} Several risk factors have

Figure 1 (A,B) CT angiogram of right arm was done showing occlusion of the right axillary with very little collateral flow. (C) CT angiogram slices.

been identified with risk of embolism and are useful in early treatment of this condition.⁷

Learning points

- ▶ Antiplatelet therapy such as aspirin may not be enough to prevent serious complications of atrial fibrillation.
- ▶ Predictors of arterial embolism, such as previous stroke, ischaemic heart disease, etc does not always prevent the condition.
- ▶ The affected area can be permanently damaged which may require amputation in certain cases with possibility of recurrence after successful treatment.

Competing interests None.

Patient consent Obtained.

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