CARDIOLOGIE TUNISIENNE

CASE REPORT

TEVAR for aortic isthmus rupture following overlooked blunt traumatism: a case report

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Summary

Aortic isthmus rupture, once dire, now sees promise with thoracic endovascular aortic repair (TEVAR). We detail a case of multidisciplinary management for aortic isthmus rupture post-overlooked thoracic trauma.

A 46-year-old male presented with escalating chest pain for two weeks, radiating to the right upper limb, interscapular region, and lumbar area. Despite prior acute coronary syndrome, initial assessments were inconclusive. Computed tomographic angiography unveiled a grade 2 aortic isthmus rupture, attributed to a preceding unnoticed road traffic injury.

Urgent TEVAR intervention ensued, with successful stent graft deployment and subsequent discharge following satisfactory imaging. Discussion emphasizes recognizing atypical aortic injury presentations and highlights TEVAR's efficacy and safety in aortic injury management, stressing consideration of aortic pathology post-thoracic trauma.

This report contributes to supporting TEVAR as a preferred intervention for traumatic thoracic aortic injuries, ensuring optimal patient outcomes.

Keywords

TEVAR; Endovascular; Chest pain; Traumatic

Résumé

Rupture de l'isthme aortique : une solution prometteuse grâce à la réparation endovasculaire de l'aorte thoracique. Un homme de 46 ans a consulté pour des douleurs thoraciques croissantes depuis deux semaines. Malgré un syndrome coronarien aigu antérieur, les premiers examens n'ont pas été concluants. Une angiographie par tomodensitométrie a révélé une rupture de l'isthme aortique de grade 2, attribuée à un accident de la route passé inaperçu. Une intervention TEVAR a été réalisée en urgence, avec déploiement réussi de l'endoprothèse et sortie de l'hôpital après une imagerie satisfaisante. La discussion met l'accent sur la reconnaissance des lésions aortiques atypiques et souligne l'efficacité du TEVAR dans la prise en charge des lésions aortiques.

Mots-clés

TEVAR; Endovascular; Chest pain; Traumatic

Correspondance

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INTRODUCTION

Once dismal, the prognosis of aortic isthmus rupture has completely shifted since the introduction of thoracic endovascular aortic repair(TEVAR). We report the case of a multidisciplinary approach to an aortic isthmus rupture following an overlooked thoracic traumatism.

CASE DESCRIPTION

A 46-year-old male presented to the emergency department with a two weeks history of gradually worsening chest pain.The pain radiated to the right upper limb, interscapular region, and lumbar area.

The past medical history included an acute coronary syndrome in 2014 due to a distal occlusion of the right coronary artery (RCA).He was put under best medical treatment.

Initial physical exam showed no abnormalities and the electrocardiogram (ECG) recorded normal sinus rhythm at a rate of 70 beats per minute, with no abnormal repolarization. Troponin level was normal.

A transthoracic echocardiogram (TTE)was performed and showed a normal left ventricular ejection fraction (LVEF) with normal wall motions and no valvular disease.

Acute aortic syndrome was suspected, therefore computed tomographic (CT) angiography was performed and revealed the presence of intramural hematoma formation, just distal to the origin of the left subclavian artery defining a grade 2 aortic isthmus rupture. (Figure 1 and 2)

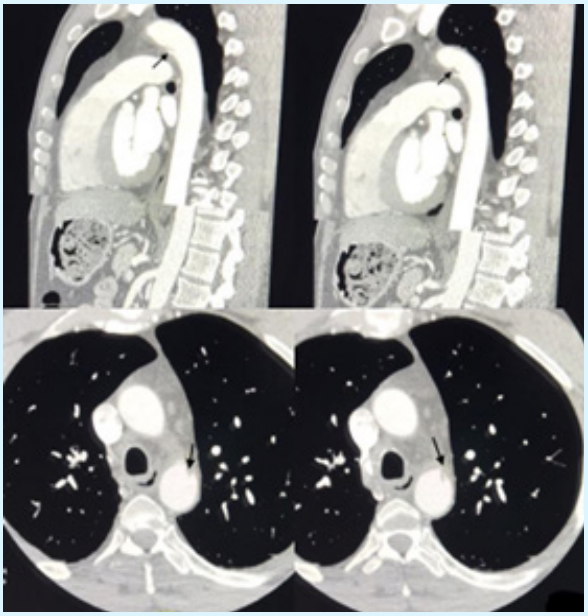

Figure 1 + 2. Intramural hematoma formation of the aortic isthmus

Upon thorough history retaking, the patient mentioned a two weeks prior road traffic injury with chest impact traumatism on the steering wheel that went unnoticed.

The Vascular team was alerted and the patient underwent urgent TEVAR. A 32*28*100 stent graft was selected after careful sizing and deployed via both left femoral and left radial access, with optimal angiography controle.

The patient was discharged two days after the procedure following satisfactory CTA control (Fig3).

DISCUSSION

Aortic isthmus rupture is a critical medical condition, classified into four types by the Society for Vascular Surgery based on the nature of the condition: type 1, characterized by intimal tear; type 2, involving intramural hematoma; type 3, presenting as a pseudoaneurysm; and type 4, involving outright rupture (1).

Most of the injuries reported in the literature are caused by high speed deceleration mechanisms (2).

Few patients, such as the case presented here, exhibit progressive or delayed onset of aortic injuries, predominantly aortic dissections. However, timely and appropriate diagnosis and treatment can effectively manage these conditions (3).

The atypical presentation of aortic isthmus rupture underscores the need to pay attention to apparently 'normal' observations in certain populations. These patients may appear hemodynamically stable following trauma despite significant injury, owing to factors like polypharmacy, underlying medical conditions, or limited physiological reserve.

This observation also underscores the significance of prompt history taking and the importance of a multidisciplinary approach to management, involving cardiologists, vascular surgeons, radiologists, anesthesiologists, and emergency physicians.

The patient was expedently transferred to a vascular surgery department where they underwent treatment with TEVAR. A retrospective study conducted between 2010 and 2018, focusing on patients who underwent TEVAR for traumatic aortic isthmic rupture at the cardiovascular surgery department of La Rabta University Hospital, demonstrated the efficacy of this approach. It proved to be a reliable method for treating subacute traumatic thoracic aortic injuries, yielding satisfactory results in short and mid-term follow-up (4).

CONCLUSION

TEVAR has proved itself to be a safe and reliable treatment following aortic injury. The latter should not be excluded even after disregarded thoracic traumatisms.

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