

## CASE IMAGE

# May-Thurner syndrome due to abdominal aortic aneurysm compression

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**Key Clinical Message**

May-Thurner syndrome (MTS) can be caused by abdominal aortic aneurysm (AAA) compressing the left common iliac vein against the lumbar vertebra. We reported a rare case of MTS due to AAA Compression successfully treated with anticoagulation.

**KEYWORDS**

abdominal aortic aneurysm, iliac compression syndrome, may-Thurner syndrome

## 1 | CASE HISTORY

A 95-year-old woman with a history of hypertension presented with a one-month history of progressive edema of the left lower leg. Although she was treated with nifedipine for hypertension, she had no history of edema. She denied dyspnea and trauma. Her body weight was only 34 kg. Physical examination revealed left leg edema (Figure 1A), Homan's sign, and a pulsatile mass in the lower abdomen. Laboratory results showed no elevation of inflammatory markers, but a significant elevation of D-dimer ( $>15 \mu\text{g}/\text{mL}$ ). Enhanced computed tomography confirmed the left popliteal vein thrombosis (Figure 1B), abdominal aortic aneurysm (AAA), and right iliac artery aneurysm. The size of the AAA was  $42 \times 35 \text{ mm}$  (Figure 1C), whereas the size 3 years earlier was  $37 \times 29 \text{ mm}$ . Also, AAA compressed the left common iliac vein (LCIV) against the lumbar vertebra (Figure 1D). In our case, the right common iliac artery aneurysm was also observed adjacent to the abdominal aortic aneurysm, but as the images showed, the left iliac vein was mainly compressed around the site where the iliac artery bifurcated from the abdominal aorta. She was diagnosed with May-Thurner syndrome (MTS) due to AAA

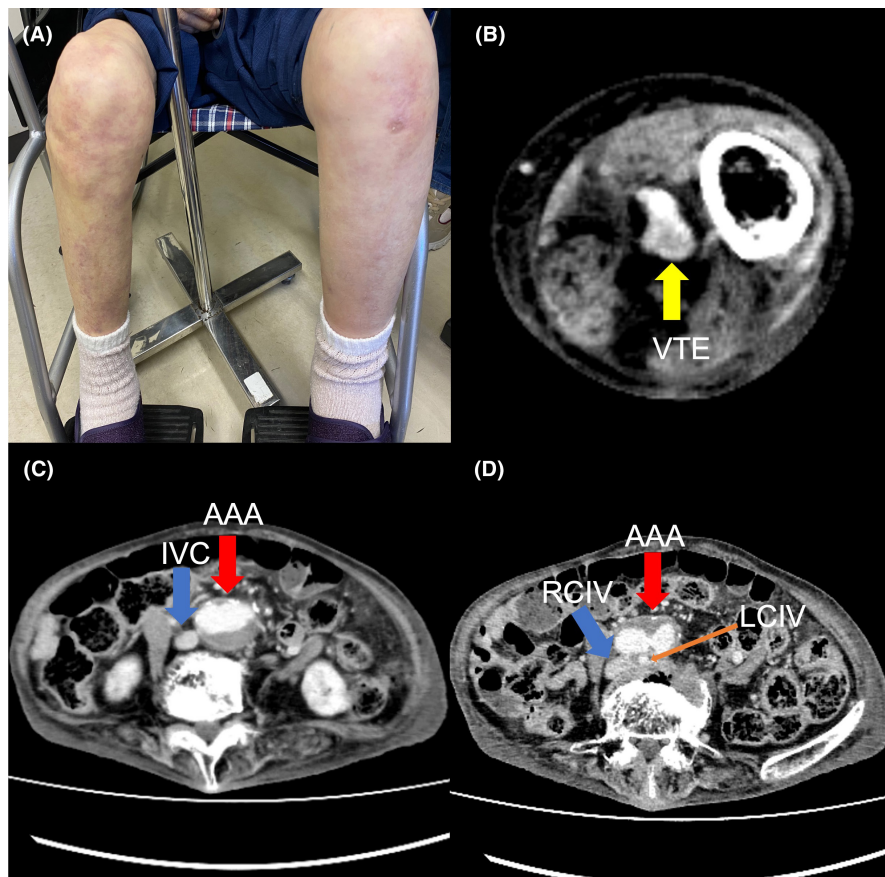
compression. She was treated with edoxaban, and her edema subsided 1 month after the treatment. Because of her advanced age, she did not hope to undergo the treatment for the AAA.

## 2 | DISCUSSION

MTS, also known as iliac compression syndrome, is defined as a compression of the LCIV by the artery against the underlying lumbar vertebra that results in decreased flow in the vein of the left lower extremity.<sup>1</sup> However, the compression by the right iliac artery is the most common cause of MTS, and AAA is an extremely rare etiology of MTS.<sup>2</sup> Among 173 patients with MTS, only two cases (1.2%) of right common iliac artery aneurysm or left common iliac artery aneurysm were reported as the cause of MTS; however, no coexistence of MTS and AAA was reported.<sup>2</sup> Our patient was so thin that the AAA was in contact with the spine, which was the main etiology of the MTS. Regarding anticoagulation, it is recommended for venous thromboembolism, but anticoagulation strategies for abdominal aortic aneurysm thrombus are still scarce,

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**FIGURE 1** (A) Physical examination revealing left leg edema. (B) Enhanced CT showing the left popliteal vein thrombosis (yellow arrow indicating VTE). (C) The size of the AAA was  $42 \times 35$  mm in the enhanced CT image (blue and red arrows indicating IVC and AAA, respectively). (D) Enhanced CT showing AAA compressing the LCIV against the lumbar vertebra (blue, red and orange arrows identifying RCIV, AAA, and LCIV, respectively). AAA, abdominal aortic aneurysm; CT, computed tomography; LCIV, left common iliac vein; RCIV, right common iliac vein; VTE, venous thromboembolism.

and there is no treatment evidence for the coexistence of venous thromboembolism and AAA. Although our case was successfully treated with anticoagulant, we should always consider the balance between the risk of bleeding and thrombosis. Physicians should know that AAA can be a possible cause of venous thromboembolism.

#### AUTHOR CONTRIBUTIONS

**Ryohei Ono:** Conceptualization; data curation; methodology; writing – original draft. **Yoshio Kobayashi:** Conceptualization; supervision; writing – review and editing.

#### FUNDING INFORMATION

None.

#### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

#### CONSENT

Written patient consent has been signed and collected.

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#### REFERENCES

1. Poyyamoli S, Mehta P, Cherian M, et al. May-Thurner syndrome. *Cardiovasc Diagn Ther.* 2021;11(5):1104-1111.
2. Park JY, Park KM, Cho SG, Hong KC, Jeon YS. Atypical iliac vein compression in patients with symptomatic May-Thurner syndrome. *Diagn Interv Radiol.* 2021;27(3):372-377.

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