A 64-year-old man presented to our emergency department with sudden onset of severe back pain 1 h ago. He had been physically well without history of hypertension or other systemic diseases. On physical examination, a significant difference between blood pressure in the upper and lower limbs was noticed (183/93 and 183/99 mmHg in the right and left upper extremity; 148/98 and 163/104 mmHg in the right and left lower extremity, respectively). Chest radiography showed a prominent aortic knob. Chest computed tomography revealed a Stanford type B aortic dissection associated with an aortic coarctation and persistent left superior vena cava [Figure 1]. Furthermore, the coarctation was found to coexist with tubular arch hypoplasia [Figures 2 and 3]. Considering the extreme age and high risk for surgery, medical treatment with angiotensin receptor blocker was given. The patient was in good physical condition after a 6-month follow-up.

Aortic coarctation is an uncommon congenital luminal narrowing of the aortic arch which is commonly associated with cardiovascular abnormalities. Moreover, the persistent left superior vena cava is a rare vascular anomaly which is most commonly seen in isolation and could also be associated with coarctation of aorta [1]. By morphology, aortic coarctation is divided into two main types: discrete coarctation and tubular arch hypoplasia. These two types may coexist [2]. The average survival age of un repaired aortic coarctation was 35 years of age with high mortality in advanced age. Without correction, coarctation resulted in high morbidity and mortality from hypertension, coronary heart disease, aortic dissection, heart failure, aortic rupture, and infective endarteritis [3].

Aortic dissection, especially type B, is rarely associated with coarctation. To the best of our knowledge, only 13 cases of aortic coarctation with type B dissection were reported with patients’ ages ranging from 25 to 56 years [4-16]. The locations of coarctations were mostly distal to the left subclavian artery except one which was located between left carotid and subclavian arteries [15]. All the reported coarctations were discrete coarctations. Our case is unique not only of its extreme age but also of its discrete coarctation coexisting with tubular arch hypoplasia and persistent left superior vena cava.

Although uncomplicated type B dissection is well established to be treated conservatively, adult aortic coarctation is still considered a surgical candidate in the presence of peak-to-peak coarctation gradient >20 mmHg. The treatment for aortic coarctation included surgical repair, balloon angioplasty, and stenting [17]. While balloon angioplasty is the preferred treatment for discrete coarctation in infants and children between 4 months and 5 years of age (<25 kg), stenting is the first choice for larger patients (>25 kg). In the presence of complex coarctation anatomy such as arch hypoplasia, the decision to use balloon angioplasty or stenting versus surgical approach is made on a case-by-case basis. However, for the elderly concerning about the tissue integrity of the paracoarctation region with subsequent risk from complications of interventions, continued medical therapy with goal
of controlling pressure gradient using beta-blocker, angiotensin-converting enzyme inhibitors, or angiotensin receptor inhibitors may be an acceptable option [18].

Declaration of patient consent

The authors certify that the patient have obtained appropriate patient consent form. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initial will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Goyal SK, Punnam SR, Verma G, Ruberg FL. Persistent left superior vena cava: A case report and review of literature. Cardiovasc Ultrasound 2008;6:50.
2. Matsui H, Adachi I, Uemura H, Gardiner H, Ho SY. Anatomy of coarctation, hypoplastic and interrupted aortic arch: Relevance to interventional/surgical treatment. Expert Rev Cardiovasc Ther 2007;5:871-80.
3. Jenkins NP, Ward C. Coarctation of the aorta: Natural history and outcome after surgical treatment. QJM 1999;92:365-71.
4. Kassaia SE, Abbasi K, Mousavi M, Sahebjam M. Endovascular treatment of acute type B dissection complicating aortic coarctation. Tex Heart Inst J 2013;40:176-81.
5. Yanase Y, Kawaharada N, Hagiwara T, Nakazawa J, Maeda T, Koyanagi T, et al. Surgical treatment for aortic coarctation with chronic type B dissection: Report of a case. Ann Vasc Dis 2011;4:353-5.
6. Rodríguez-Garcia J, García Reyes ME, Sambola A, Cortés Sánchez E, Fernández-Valenzuela V, García-Dorado D. Endovascular treatment of a complicated acute type B aortic dissection in a patient with aortic coarctation. Rev Esp Cardiol (Engl Ed) 2017;70:595-6.
7. Senaha S, Uezu T, Shimoji M, Akasaki M. Stanford type B aortic dissection associated with coarctation of the aorta. Kyobu Geka 2015;68:184-7.
8. Li Y, Fan Z, Huang L, Xue Y, Sun L. A novel approach for hybrid repair of type B aortic dissection associated with coarctation of the aorta. J Vasc Surg 2014;59:1425-5.
9. Di Eusanio M, Pilato E, Pantaleo A, Di Bartolomeo R. Type B aortic dissection complicating an isthmic coarctation in a Turner patient. J Cardiovasc Med (Hagerstown) 2012;13:225-8.
10. Marque N, Gibault-Genty G, Galuscan G, Goudot B, Georges JL, Normand JP. Acute type-B aortic dissection associated with isthmic coarctation in adult. Ann Cardiol Angeiol (Paris) 2011;60:300-3.
11. Kato W, Ueda Y, Akihiko T, Oshima H, Shimomura T. Type B aortic dissection associated with coarctation of the aorta. Gen Thorac Cardiovasc Surg 2007;55:302-4.
12. Shin JS, Sun K, Shim WJ, Kim KT, Kim HM. Acute descending aortic dissection associated with coarctation in adult. Asian Cardiovasc Thorac Ann 2002;10:354-5.
13. Bhan A, Agarwal S, Sharma R, Venugopal P. Juxtaductal coarctation with type B dissection of the aorta: A new operative technique. J Thorac Cardiovasc Surg 2002;123:365-7.
14. Milano A, De Carlo M, Gigoni R, Bortolotti U. Acute type-B aortic dissection in association with isthmic coarctation. Tex Heart Inst J 2001;28:152-3.
15. Katsumata T, Westaby S. Operation of mid-arch coarctation. Ann Thorac Surg 1999;67:1386-90.
16. Yamaguchi A, Adachi H, Kamio H, Murata S, Okada M, Adachi K, et al. A combination of preductal aortic coarctation and type B dissection: Report of a case. Surg Today 1998;28:435-7.
17. Suradi H, Hijazi ZM. Current management of coarctation of the aorta. Glob Cardiol Sci Pract 2015;2015:44.
18. Khan AN, Carter W, Mousa AY. Medical management of aortic coarctation is feasible & durable in selected patients: A case report & literature review. W V Med J 2015;111:18-21.