A spontaneous intercostal arterial rupture in patients without associated illness or trauma is extremely rare. We present a 58-year-old man with an idiopathic and spontaneous arterial rupture restrained by conservative management. He was admitted to our institute with an intermittent back pain lasting for 3 days. His past history included no notable diseases and chest trauma. An enhanced computed tomography revealed an effusion of blood around the descending aorta and hematoma from right 10th intercostal artery. Management of blood pressure and administration of tranexamic acid were performed and he was uneventfully discharged at 11 days after onset.

Keywords: intercostal arterial rupture, conservative management

Introduction
A spontaneous intercostal arterial rupture is a rare condition and sometimes can lead to fatal problems. It is generally observed in patients with particular disorders, such as neurofibromatosis type 1, systemic lupus erythematosus or coarctation of aorta. The occurrence in patients without associated illness or injury is extremely rare, and the optimal strategy of treatment is still unknown. We would like to present a case with an idiopathic and spontaneous intercostal arterial rupture restrained by conservative management.

Case Report
A 58-year-old man was admitted to our institute with the complaints of an intermittent back pain lasting for 3 days. His past history included no notable diseases and chest trauma. Progression of anemia and other remarkable findings was not seen in his laboratory and physical tests. A contrast-enhanced computed tomography (CT) revealed an effusion of blood around the descending aorta, esophageal and vertebrae and hematoma from right 10th intercostal artery (Fig. 1A). Pooling of contrast medium was revealed by three-dimensional CT (Fig. 1B). Since his symptom improved after arrival at the hospital, and the bleeding and effusion reduced in follow-up CT at the next day (Fig. 2A), conservative management (management of blood pressure and administration of tranexamic acid) was performed and he was uneventfully discharged at 11 days after onset. Follow-up CT at 1 month (Fig. 2B) and 1 year (Fig. 2C) after onset showed no recurrent rupture and gradual absorption of hematoma. We examined carefully his potential disease, however, notable findings were not obtained. Therefore, he was diagnosed as having an idiopathic and spontaneous bleeding of the intercostal artery.

Discussion
A spontaneous rupture of a major artery is extremely rare, and there are still few reports. The most common cause of spontaneous intercostal arterial bleeding was reported to be neurofibromatosis type 1. Neurofibromatosis type 1 is an autosomal dominant disorder with chromosome 17 and thought to influence...
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not only nerve tissue, but systemic tissues including vasculature tissue. However, the mechanisms of major arterial rupture in patients with neurofibromatosis type 1 are not determined. The cause and mechanism of spontaneous rupture in patients without associated illness or injury are also unknown. In the literatures, the most common location of spontaneous rupture is the 10th or 11th intercostal artery. Similarly, bleeding from right 10th intercostal artery was observed in our case, and the reason why the favorite site was seen in the 10th or 11th intercostal artery is not clarified.

The optimal strategy of treatment for spontaneous intercostal arterial bleeding is still controversial. Coil embolization is thought to be an effective option, but it is sometimes difficult to control an active bleeding from small vessels. Additionally, catheter manipulation may injure the fragile vessels. On the other hand, successful surgical repair was reported. Aizawa, et al. reported successful surgical repair of the 11th intercostal arterial massive and uncontrollable bleeding, though it was not easy to identify the bleeding point and postoperative paraplegia was a crucial issue. Dua, et al. reported surgical ligation of the 11th intercostal artery for patient with hemorrhagic shock due to spontaneous bleeding. In the present case, his symptom improved and the vital sign was stable, and the effusion and bleeding regressed by conservative management. Excluding uncontrollable and massive bleeding, conservative management may be one of the treatment options. When active and uncontrollable bleeding from intercostal artery is observed, embolization with microcatheters by an expert interventional radiologists or combination of embolization and surgical repair are considered as treatment options. Recent advancements in catheter technique may lead prompt treatment of bleeding and avoid paraplegia by protecting the regurgitation of embolic materials into the radicular and spinal arteries.

Conclusion

Spontaneous intercostal arterial bleeding was extremely rare, therefore, the mechanisms and optimal strategy of treatment are still controversial. Since it can lead critical hemorrhage, further evaluation is required. A case of spontaneous regression and cure of spontaneous rupture of the intercostal artery by conservative treatment was reported.
Disclosure Statement

We have no conflict of interest.

References