We report a case of a middle-aged woman who took rivaroxaban and exhibited a dramatic deterioration in lower extremity motor function after being assaulted, during which she sustained injury to her face but not to her back or other areas of her body. She had atrial flutter and had been taking rivaroxaban for 3 years, but denied history of coagulopathy and spinal vascular malformation.
Preoperative lumbar spine magnetic resonance imaging demonstrated a massive spinal subdural hematoma (SDH), extending from the lower thoracic to the upper lumbar spine (Fig. 1). Gadolinium-enhanced T1-weighted imaging showed a region of contrast extravasation on the ventral aspect of the spinal cord, suggesting a rupture of an anterior spinal artery. Emergent total laminectomy was performed to decompress the affected spinal cord region, but the patient showed no improvement of her paraplegia.

According to a commonly recognized theory proposed by Rader, the occurrence of spinal SDH is presumed to occur due to the rupture of a spinal vessel. The mechanism proposed by this theory is that a sudden increase of pressure in the thorax or abdomen results in an increase in pressure in a spinal vessel fed by the radiculomedullary artery, and that this pressure increase leads to vessel rupture, resulting in spinal SDH. To the best our knowledge, the present case is the first to suggest the feasibility of Rader’s theory by showing compatible radiological findings. Additional concerns in the context of the present case are the hazards of chronic rivaroxaban therapy. There are only 3 cases of spontaneous rivaroxaban-associated spinal SDH reported in the literature. This report suggests the possibility that severe spinal SDH can occur through physical trauma to non-spinal areas of the body, due to rupture of an anterior spinal artery, possibly caused by an abrupt increase in intra-abdominal pressure, in patients using an anticoagulant medication like rivaroxaban.

REFERENCES