Abstract: In polytraumatized patients, traumatic rupture of the thoracic aorta is usually caused by blunt vascular injuries due to deceleration. The aortic injury is generally located distal to the left subclavian artery. Even without further thoracic lesions, a computer tomography should be performed in the emergency room, because a rupture can exist even in the absence of symptoms. The traditional therapeutic option is open, left thoracotomy followed by direct aortic reconstruction. Alternatively, endovascular implantation of a thoracic stent graft can be performed immediately in urgent situations or, with delayed priority, under systematically management of the blood pressure. In this article, not only the mechanisms of injury but also diagnostic and therapeutic options of traumatic rupture of the thoracic aorta are described. As depicted by two case histories, potential symptoms and prognosis of patients with this life-threatening vascular lesion depend on accompanying injuries. With rapid diagnosis and treatment, there is the possibility of good recovery from traumatic aortic rupture.