

## **A case of essential thrombocythemia complicated with spontaneous chest wall hematoma**

**Toshihiko Yoshizawa MD., Kouhei Ishikawa MD., Ikuto Takeuchi MD., Kei Jitsuiki MD., Hiromichi Ohsaka MD. PhD., Kazuhiko Omori MD. PhD., Manabu Sugita MD. PhD., Youichi Yanagawa MD. PhD.**

Department of Acute Critical Care Medicine, Shizuoka Hospital, Juntendo University, Japan

\*Department of Emergency and Critical Care Medicine, Nerima Hospital, Juntendo University, Japan

### **\*Corresponding author**

Youichi Yanagawa

Email: [yyanaga@juntendo.ac.jp](mailto:yyanaga@juntendo.ac.jp)

---

**Abstract:** A 66-year-old female noticed right thoracic back pain when she woke up in the morning in 5 days. This gradually deteriorated and called an ambulance. She did not have any episode of trauma. She had a history of essential thrombocythemia, cerebral infraction and was prescribed aspirin, clopidrogel, ethyl icosapentate and hydroxyurea. Upon arrival, she was in a state of shock. The physiological finding was a subcutaneous mass at the right thoracic back. After the rapid infusion, she smoothly obtained stable circulation. Truncal enhanced computed tomography depicted a right chest wall mass with extravasation of contrast medium without evidence of tumor or vascular malformation. The platelet count was  $304 \times 10^4/\text{mm}^3$ . She was treated by embolization. After confirmation of shrinkage of the hematoma on CT and a decrease to under  $100 \times 10^4/\text{mm}^3$  in the platelet level with a prescription of hydroxyurea, she restarted her aspirin prescription and was discharged on foot on foot on the 12th hospital day. This is the first case of spontaneous chest wall hematoma induced by essential thrombocythemia and/or the second case induced by side effects of antiplatelet drugs. Given that hematological disease can cause hematoma in the soft tissue, physicians should consider the formation of a life-threatening hematoma when a patient who might have hemorrhaging induced by drugs or hematological disease complains of pain in the soft tissue.

**Keywords:** hematological disease; antiplatelet drug; hemorrhagic shock.

---

### **INTRODUCTION**

A chest wall hematoma is commonly induced by trauma [1, 2]. Rarely, spontaneous chest wall hematoma has been associated with neoplasms and arteriovenous malformations [3-6]. We herein report a case of essential thrombocythemia complicated with spontaneous chest wall hematoma.

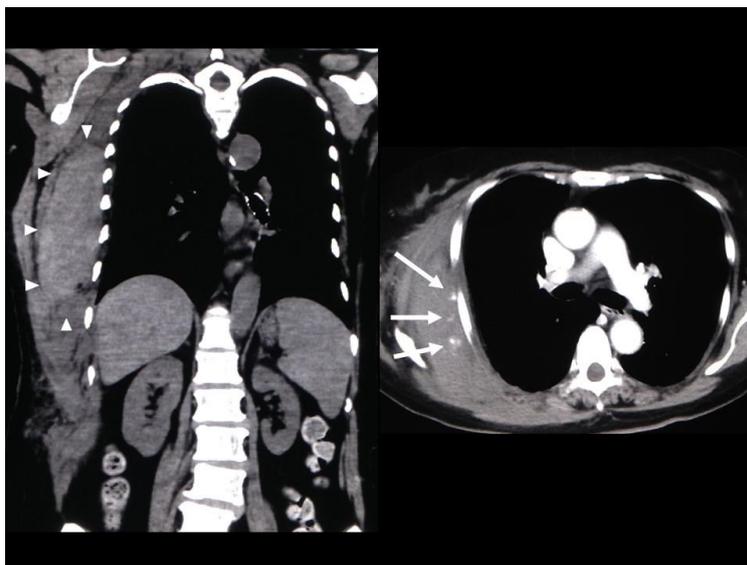
### **CASE PRESENTATION**

A 66-year-old female noticed right thoracic back pain when she woke up in the morning 5 days prior to her arrival at our department. She did not have any episode of trauma. She had a history of essential thrombocythemia at 52 years old, cerebral infraction at 54 years old and cerebral aneurysmal neck clipping at 63 years old and was prescribed aspirin, clopidrogel, ethyl icosapentate and hydroxyurea. The right thoracic back pain gradually deteriorated, and she underwent a medical examination in orthopedics the day before her arrival at our department. The medical examination revealed a subcutaneous mass at the right thoracic back, but she opted against a magnetic resonance imaging (MRI) examination and returned home for the time being. The next day, she could not walk due to severe pain in her back and called an ambulance. Upon arrival, her Glasgow Coma Scale score was 15. Her systolic blood pressure was 80 mmHg, her heart rate was 111

beats per minute (BPM), her respiratory rate was 20 BPM, her SpO<sub>2</sub> level was 96% under room air, and her temperature was 36.5 °C. The physiological finding was a subcutaneous mass at the right thoracic back. Her chest roentgen showed a right subcutaneous mass. An electrocardiogram was negative. After the rapid infusion of 500 ml of lactated Ringer's solution, she smoothly obtained stable circulation. Truncal enhanced computed tomography (CT) depicted a right chest wall mass with extravasation of contrast medium without evidence of tumor or vascular malformation (Figure 1). The main results of a blood analysis were white blood cell count, 55,300/mm<sup>3</sup>; hemoglobin, 9.1 g/dl; platelet count,  $304 \times 10^4/\text{mm}^3$ ; lactate dehydrogenase, 328 I/L; prothrombin time 15.5 (12.0) sec, activated partial thromboplastin time, 38.2 (26.5) sec; fibrin degradation product, 2.1 µg/ml. She received a diagnosis of spontaneous chest wall hematoma with active bleeding. Urgent intercostal angiography revealed extravasations, and these were treated by embolization (Figure 2). The prescriptions of aspirin, clopidrogel and ethyl icosapentate were temporarily stopped. After receiving a transfusion, her vital signs and hemoglobin level remained stable during hospitalization. She was complicated with erythromelalgia in the right ankle and left forearm separately, and these symptoms were spontaneously alleviated. MRI of the mass had

coincidence with the intensity of the hematoma. After confirmation of shrinkage of the hematoma on CT and a decrease to under  $100 \times 10^4/\text{mm}^3$  in the platelet level

with a prescription of hydroxyurea, she restarted her aspirin prescription and was discharged on foot on foot on the 12th hospital day.



**Fig-1: Truncal computed tomography (CT) on arrival. CT showed a right chest wall mass with extravasation of contrast medium (arrow) without evidence of tumor or vascular malformation. (left, plain; right, enhanced)**



**Fig-2: Urgent intercostal angiogram. Intercostal angiography revealed extravasation (arrow)**

## DISCUSSION

As the present case did not have any traumatic episodes before she noticed her back pain, she was diagnosed with spontaneous chest wall hematoma. She had been prescribed aspirin, clopidogrel and ethyl icosapentate, which all have platelet coagulation-inhibiting activity [7,8]. Clopidogrel in particular is strongly associated with hemorrhaging as a complication [7]. Given that Bevan *et al.* reported a case of a large spontaneous latissimus dorsi hematoma in a patient receiving clopidogrel and aspirin therapy, the antiplatelet function of these drugs may cause spontaneous hematomas [9]. While thrombocytosis is a known risk factor for thrombosis, it is commonly a

concern for ischemic stroke and myocardial infarction, similar to the present case. However, studies have shown that hemorrhaging can be present in patients with essential thrombocythemia [10-12]. In essential thrombocythemia, the overall risk of bleeding and thrombosis is 0.33% and 6.6% per patient-year, respectively [10]. In addition, a platelet count outside of the normal range in essential thrombocythemia was associated with an immediate risk of major hemorrhaging [13]. Furthermore, aspirin was reported to have a synergistic hemorrhagic effect, unmasking the bleeding tendency of patients with extreme thrombocytosis [14]. These previous findings suggest that drugs and/or essential thrombocythemia may have

caused the formation of spontaneous hematoma in the present case.

To our knowledge, this is the first case of spontaneous chest wall hematoma induced by essential thrombocythemia and/or the second case induced by side effects of antiplatelet drugs. Given that hematological disease can cause hematoma in the soft tissue, physicians should consider the formation of a life-threatening hematoma when a patient who might have hemorrhaging induced by drugs or hematological disease complains of pain in the soft tissue [15].

## REFERENCES

1. Yu PC, Yang TH, Katakwar A, Cheng YJ, Chang PC; Angiographic embolization in chest wall hematoma due to handlebar injury-a rare case report. *Am J Emerg Med*, 2015; 33(9):1328.e3-5.
2. Sridhar SK1, Sadler D, McFadden SD, Ball CG, Kirkpatrick AW; Percutaneous embolization of an angiographically inaccessible pulmonary artery pseudoaneurysm after blunt chest trauma: a case report and review of the literature. *J Trauma*, 2010; 69(3):729.
3. Stember JN, Thakral C, Shiau MC; A case of colorectal cancer with metastasis to the chest wall and subsequent hematoma formation. *J Radiol Case Rep*, 2013; 7(1):18-24.
4. Zhang K, Song J, Xiong W, Li Z, Cao D, Jiang T, Liu W; Massive spontaneous hemorrhage in giant type 1 neurofibromatosis in soft tissue of chest wall. *J Thorac Cardiovasc Surg*, 2012; 144(3):e92-3.
5. Chao CT, Yang SY; Huge haematoma causing chest wall compression from rupture of arteriovenous fistula. *Acta Clin Belg*, 2011; 66(3):242.
6. Nakamura H, Miwa K, Miyoshi K, Adachi Y, Fujioka S, Taniguchi Y; Cavernous hemangioma with hematoma in the chest wall due to penetration from the anterior mediastinum. *Gen Thorac Cardiovasc Surg*, 2007; 55(4):184-6.
7. Takao T, Toshiyuki S, Kaori K, Yasushi O; Aspirin- and Clopidogrel-associated Bleeding Complications: Data Mining of the Public Version of the FDA Adverse Event Reporting System, AERS. *Int J Med Sci.*, 2012; 9(6): 441-446.
8. Oikawa S; Ethyl icosapentate. *Medicina* 2012; 49: S269-S309. In Japanese.
9. Bevan P, Menon A, Bunton R; Spontaneous chest wall hematoma with dual antiplatelet therapy. *Can J Cardiol*, 2014; 30(2):247.e1-2.
10. Charles M, Fontoura R, Sugalski G; Early recognition of intraventricular hemorrhage in the setting of thrombocytosis in the emergency department. *Open Access Emerg Med*, 2016; 8:29-33.
11. Randi ML, Stocco F, Rossi C, Tison T, Girolami A; Thrombosis and hemorrhage in thrombocytosis: evaluation of a large cohort of patients (357 cases). *J Med*, 1991; 22(4-5):213-23.
12. Michiels JJ1, van Genderen PJ, Lindemans J, van Vliet HH; Erythromelalgic, thrombotic and hemorrhagic manifestations in 50 cases of thrombocythemia. *Leuk Lymphoma*, 1996; 22 Suppl 1:47-56.
13. Campbell PJ, MacLean C, Beer PA, Buck G, Wheatley K, Kiladjian JJ, et al.; Correlation of blood counts with vascular complications in essential thrombocythemia: analysis of the prospective PT1 cohort. *Blood*, 2012; 120(7):1409-11.
14. Finazzi G, Carobbio A, Thiele J, Passamonti F, Rumi E, Ruggeri M, et al.; Incidence and risk factors for bleeding in 1104 patients with essential thrombocythemia or prefibrotic myelofibrosis diagnosed according to the 2008 WHO criteria. *Leukemia*, 2012; 26(4):716-9.
15. Kheterpal S, Sayegh F, Cader A; A case of polycythaemia vera presenting with intramuscular chest wall haematoma. *Postgrad Med J*, 1992; 68(799): 381-2.