Spontaneous Rupture of Inferior Thyroid Artery in a Uremic Patient on Maintenance Hemodialysis

Key words: uremia, inferior thyroid artery, hemorrhage


To the Editor Recently, a spontaneous spinal epidural hematoma in a hemodialysis patient was reported by Deger et al (1). We also encountered a hemodialysis patient with spontaneous bleeding over a rare site, the inferior thyroid artery, which to date had not been reported in the current literature. This 40-year-old uremic woman was admitted due to bacterial pneumonia. After one-year of hemodialysis, she received renal transplantation with good graft function. Unfortunately, pneumonia progressed and she became ventilator dependent. Tracheostomy and regular hemodialysis were performed. One month later, suddenly, neck swelling occurred with dyspnea, tachycardia (120/min) and drop of blood pressure to 100/60 mmHg. Neck swelling soon became a pulsatile mass (10 cm) with bruit. Hemoglobin dropped from 9.3 g/dL to 7.5 g/dL. Urgent computed tomography angiography (CTA) disclosed a large hematoma with active bleeding over the right inferior thyroid artery (Fig. 1). Trans-arterial embolization (TAE) was done immediately to stop the bleeding.

Rupture of thyrocervical branches is rare and only 26 cases were reported in the literature since 1959 (2-4). There were 14 cases with vascular aneurysm (4). Trauma-related rupture included tracheostomy (1 case), central venous catheter (2 cases), thyroid procedures (2 case), and seat belt (1 case). Spontaneous rupture is even rarer with only 2 cases: excessive Valsava maneuver (2) and chronic asthma (3). The present patient had received tracheostomy and insertion of double-lumen endotracheal tube one month previously with a smooth procedure, and thus direct vascular injury was thought unlikely. Further, CTA revealed that the active bleeder was on the inferior thyroid artery. Finally, chest CT one year previously did not disclose aneurysm. Together, these findings suggest that this was a most recent event.

A history of 25 years of chronic kidney disease (CKD) made her susceptible to bleeding. Although rare, spontaneous bleeding may occur in the liver, iliopsoas muscle and choroids. This is the first patient with spontaneous bleeding of the inferior thyroid artery in uremia with two clinically significant factors: the rarity and the potential for life-threatening event due to airway compression. Pusatile “tumor” prompted us to perform CTA and TAE which have been proven to be effective in previous reports (4).

Heparinization during dialysis may precipitate bleeding. Fluctuation of intracranial pressure has been found during hemodialysis which is a risk factor for intracranial hemorrhage (5). The present case represents the third case of spontaneous rupture of this artery and it is the first case with uremia (2, 3). The two prior cases might have had elevated intrathoracic pressure (ITP) which may increase the intra-arterial pressure of thyrocervical vessels. Positive pressure ventilation with positive end-expiratory pressure inevitably elevated ITP in the present patient.

Therefore, due to the potential life threat, a rapidly swelling pulsatile neck mass should prompt search of the complication and timely management in high risk patients.

The authors state that they have no Conflict of Interest (COI).

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References