Perioperative tetany induced by arm tourniquet

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To the Editor;

Tetany is a medical sign consisting of muscle cramps induced by increased neuromuscular excitability and irritability [1,2]. The etiology is mainly dependent on situations in which there is impairment of serum electrolytes, as seen in hypocalcemia, hypomagnesemia, hypokalemia or alkalemia [3,4,5]. Certain clinical situations may lead to tetany, such as hyperventilation, alcohol abuse or multiple vomiting [3] by disturbance of electrolytes. Tetany may develop when serum ionized calcium levels fall below 4.3 mg/dL (1.1 mmol/L) or serum total calcium levels are below 7.0 – 7.5 mg/dL (1.8 – 1.9 mmol/L[3]. Tetany may also be seen in decreased ionized calcium levels even if the total serum calcium concentration is between normal ranges [5]. Clinical presentation may change from mild circumoral and distal paresthesias [3] to life-threatening situations such as laryngospasm, seizures or myocardial function abnormalities [5]. Trousseau sign, a postural change of thumb [4,6]. Trousseau sign may be absent in hypocalcemia [4] and may be present in 1-4% of healthy individuals [7].

A 21-year-old male patient was admitted in our clinic with multiple deep lacerations on the forearm and hand caused by punching through the glass of a window. Hypoesthesia at the hand in the ulnar nerve sensory distribution region and total loss of extension at the second metacarpophalangeal joint was noted preoperatively. The operation was started under general anesthesia. Very soon after inflating the arm-tourniquet, Trousseau sign was observed. The serum total calcium level was 0.92 mmol/L in a venous blood-gas sample, thus indicating hypocalcemia. The tourniquet was deflated and 225 mg calcium gluconate in 1000 cc physiologic serum was given intravenously for one hour. The operation was then resumed under tourniquet ischemia. No repeat for Trousseau sign was noted and the operation was finished uneventfully. No complication was seen post-operatively. In conclusion, serum calcium levels should be checked preoperatively to avoid arm-tourniquet induced tetany, which may disturb the outcomes of vascular, nerve or tendon repairs in hand surgery.
References

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