Leucocytoclastic Vasculitis After Citric Acid Intoxication

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Citation

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Abstract

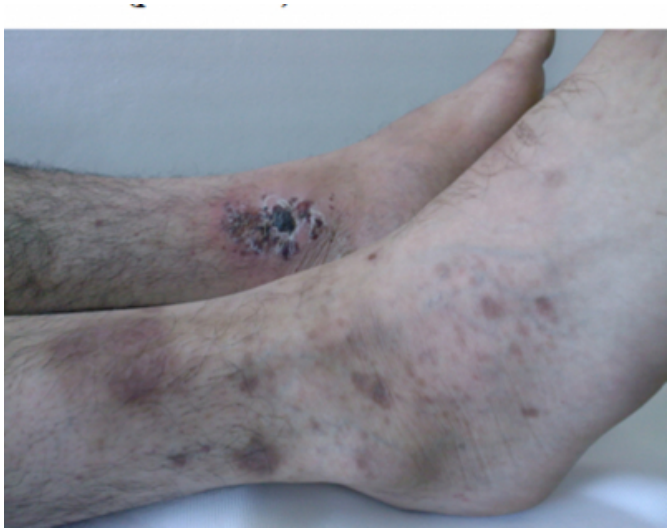
Background: Citric acid is widely used in detergent industry. Information about citric acid intoxication is limited. Its ingestion is a life-threatening condition that requires a multidisciplinary approach.Case report: A 44 year-old male patient arrived to the hospital after a suicide attempt by taking 150 ml of dishwasher polisher. Vomiting was induced by his relatives before coming to hospital 4 hours after. Arterial blood-gas and electrolytes evaluation revealed blood-pH and potassium to be 7.15 and 6.13 mg/dL, respectively, and an increased plasma anion gap. Two weeks later, bilateral vocal cord paralysis was diagnosed and tracheostomy was performed. Internal Medicine consultation revealed a initial diagnosis of vasculitis and he was admitted to Internal Medicine Department. There was a diffuse cutaneous petechial rash which was nonpalpable and the largest one was about 2 cm diameter. The pathological punch biopsy sample taken from the lower part of the left leg, where there was diffuse rash, revealed leucocytoclastic vasculitis. One mg/kg prednizolone was started after vasculitis was confirmed pathologically. Cutaneous lesions recovered dramatically. Discussion: Many drugs are indicated to cause leucocytoclastic vasculitis. Antibiotic, especially those of penicilin group and clarithromycin are reported to cause leucocytoclastic vasculitis and henoch-schönlein purpura. Other agents that may cause leucocytoclastic vasculitis development are non-steroid anti-inflammatory drugs, proplytiouracil, paracetamol, simetidin, streptokinase, metformin and acenocumaral. There's no other case in literature as ours who took foreign substances such as citric acid for suicidal purposes rather than treatment purposes. The only case found in literature about citric acid had metabolic acidosis with high level of anion gap, which recovered after ionized calcium infusion; however, its follow up do not report a leucocytoclastic vasculitis similar to our case.

CASE REPORT

A 44 year-old male patient tried to commit suicide by taking 150 mL of dishwasher polisher. Vomiting was induced by his relatives before coming to the hospital 4 hours after. His discharge report described that at admission he presented hypotension and deterioration of general appearance at physical examination. Arterial blood-gas and electrolytes evaluation revealed blood-pH and potassium to be 7.15 and 6.13 mg/dL, respectively, and an increased plasma anion gap. Metabolic acidosis was diagnosed and ionized calcium infusion was administered. Metabolic acidosis recovered and he was discharged to be followed-up by psychiatry service. Two weeks later, the patient presented to psychiatry out-patient clinic complaining of difficulty to swallow and breath. Bilateral vocal cord paralysis was diagnosed and tracheostomy was performed by Otorhinolaryngologists. He also presented a diffuse rash in skin (picture-1) and edema in lower extremities.

Figure 1

Picture 1: Diffuse skin rash in lower extremities

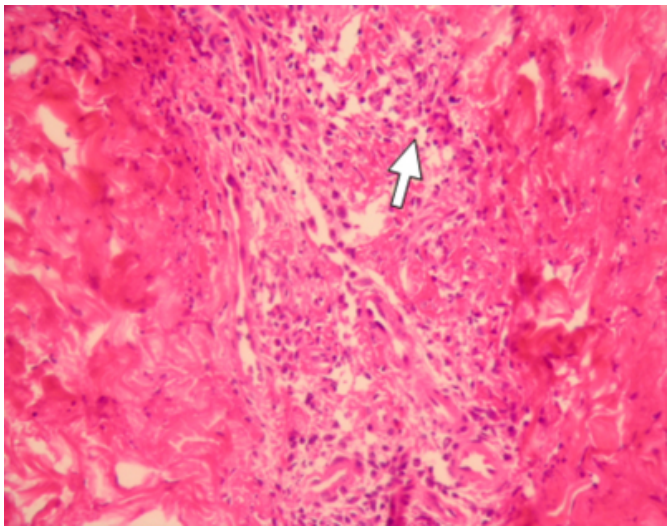


Internal Medicine consultation revealed a pre-diagnosis of vasculitis and he was admitted to Department of Internal

Medicine. There was diffuse nonpalpable cutaneous petechial rash, the largest one was about 2 cm diameter and edema in lower extremities. Physical examination was otherwise normal. Biochemistry examinations were ; fibrinogen: 755 ng/mL, Urea: 84 mg/dL, Creatine: 1.65 mg/dL, alanine aminotransferase (ALT): 54 U/L, aspartate aminotransferase (AST): 46 U/L, Na:122 mmol/L, protein: 5.8 gr/dL, albumin: 2.6 gr/dL, white blood cell (WBC): 19,000/mm ^{3} , hemoglobin: 12.8 gr/dL, hemotocrit: 37.6%, platelet: 271000/mm ^{3} , erythrocyte sedimentation rate (ESR): 94 mm/hour. In urinalysis, there were 200 mg/dL proteinuria and +1 hemoglobinuria. Serologic tests were determined as negative (Antinuclear antibody (ANA): 0.280, hepatitis B surface antigen (HBsAg), hepatitis C virus antibody (Anti HCV), Cytomegalovirus/Epstein-Barr virus/Herpes simplex virus type 1-2 immunglobin M). Whole abdominal ultrasonography was normal. The pathological punch biopsy sample taken from the lower part of the left leg, where there was diffuse rash, revealed leucocytoclastic vasculitis (picture 2). One mg/kg prednizolone was started after vasculitis was ensured pathologically. Biochemical abnormalities and cutaneous lesions recovered dramatically. Corticosteroid dose was gradually decreased and withdrawn in 1.5 months. There was not any rash in the controls of physical examinations.

Figure 2

Picture 2: Punch biopsy sample taken from lower extremities; arrow shows dense perivascular inflammatory infiltration predominantly consisting neutrophils around the vessels. (L.eucocytoclastic vasculitis, Hematoxylen-Eosin, X200).



DISCUSSION

Citric acid is widely used in detergent industry. There are no reports about an intoxication due to polisher ingestion, and no other report in the literature like this in which somebody intentionally ingested a liquid containing citric acid for suicidal rather than for treatment purposes. The only case found in the literature about citric acid ingestion, reports metabolic acidosis with high level of anion gap, which recovered after ionized calcium infusion [$_{15}$]; however, its follow up do not report a LCV as in this case report. In this case report, there is some information suggesting that some laboratory findings may indicate systemic organ involvement [$_{15}$]. In another study, the mean 4.9±3.5 years follow-up of 64 patients diagnosed with LCV, 10 patients had visceral involved (15.6%). (3 gastrointestinal, 7 renal involved) [$_{16}$]. The other LCV cases were limited to the skin. Systemic involvement was nonetheless higher in patients with history of drug use and high ESR values, the detected difference was not statistically significant. In this case, there was slightly decreased kidney function with proteinuria and hematuria. Laboratory tests showed ESR value to be 94 mm/h without an infectious condition. This data supports the information in literature that systematic involved may be observed more frequently in patients related with drug use and high ESR levels. Many LCV cases recover after withdrawing active drug and rare cases need corticosteroid treatment. In our case, clinical findings appeared at a later time and existed for a long time. Therefore, corticosteroid treatment was started and soon became successful, and then withdrawn.

This case has some deficiencies. Skin biopsy gave findings supporting LCV; however, immunohistochemical examination of Ig A tissue accumulation to confirm HSP diagnosis, which may occur with some drugs, would have been possible. However, non-existence of gastrointestinal findings and abdominal pain does not sustain from that approach. Another issue in the discussion of this case is that kidney biopsy was not performed. Kidney biopsy might have paved the way for determination of systemic vasculitis and glomerulonephritis particularly for the non-drug reasons to obtain the injury and to form the treatment. Patient’s kidney involvement was mild and responded quickly to corticosteroids, therefore kidney biopsy was not considered appropriate.

CONCLUSION

Dishwasher polisher is of acidic property because of its citric acid content. Polishers also have accumulating compounds and there is no previous information that these compounds may cause the symptoms reported in our case. It is hard to

decide why LCV and nephrologic findings appeared 2 weeks after citric acid intake. Patient was hospitalized and followed by Emergency Department, Otorhinolaringology and Internal Medicine; therefore, we have no doubt that patient did not used any substance other than citric acid that causes LCV. Because, during this time period, patient was not allowed to be alone or to take any chemical. Only IV fluids and ionized calcium infusion were administered.

Citric acid intoxication is a life-threatening condition that requires a multidisciplinary approach involving Intensive Care, Otorhinolaringology, and Internal Medicine. In this context, this case report is the first in the literature.

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