

INTRAVENOUS SELF-INJECTION OF HYDROCHLORIC ACID: CASE REPORT

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SUMMARY

Abuse of parenteral substances is a common problem in the emergency departments. Sometimes, injection of chemical substances other than drugs can be seen, especially if the patient has a mental problem. Poisoning with hydrochloric acid is a common environmental problem, but we didn't find intravenous self-injection of this acid in the literature. In this case report, we tried to present this rare poisoning with its small regional complication.

Key word: intravenous, injection, hydrochloric acid, suicide

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ÖZET

Parenteral olarak maddelerin kötüye kullanımı acil servislerde sık karşılaşılan bir problemdir. Özellikle mental problemi olan hastalarda bazen ilaçlar dışında kimyasal maddelerin enjeksiyonu da görülebilir. Hidroklorik asit ile zehirlenme yaygın bir çevresel sorun olmasına rağmen literatürde bu asiti kendi kendine intravenöz olarak enjekte eden bir olguya rastlanmamıştır. Bu sunumda nadir görülen bu zehirlenmeyi ve küçük bölgesel komplikasyonunu sunmayı amaçladık.

ANAHTAR KELİMELER: intravenöz, enjeksiyon, hidroklorik asit, suisid

INTRODUCTION

Abuse of parenteral substances is a common problem in the emergency departments. Our knowledge about these events is still limited because they are seen very rarely^(1,2). Lethal poisoning due to injection of toxic agents is an unusual method of suicide⁽³⁾.

We are presenting here an unusual case of self-injection of hydrochloric acid (HCl) into cephalic vein for suicidal attempt, because it has not been previously reported in the English medical literature.

CASE REPORT

A 27-year of female patient working as a nurse, was brought to emergency department due to self-injection of HCl into cephalic vein for suicidal attempt. Her blood pressure was 80/60 mmHg, pulse rate was 110/minutes and respiration rate was 32/minutes. The antecubital region of right upper limb was hyperemic, edematous and tender. During the follow up of the patient hyperventilation developed and according to blood gas analysis: pH: 7.454, pCO₂: 24.2 mmHg, pO₂: 59 mmHg, HCO₃: 17.0 mmol/L, BE: -7.1 and oxygen saturation was %92.1. Her leukocyte count was 23,600. Because of the metabolic alkalosis we thought of pulmonary embolism and performed ventilation-perfusion scintigraphy. It was evaluated as normal. And

also she had no pathologic lung examination finding. According to venous Doppler ultrasonography of right upper limb, there was no flow in the cephalic vein and it was dilated. At 12th hour of follow up, her blood gas analysis findings and vital signs returned to the normal by itself and no treatment was given to the patient for these abnormal findings. During the emergency department follow up, necrosis developed in the injection site (figure-1). Because necrosis was very small, the injured area was leaved to secondary healing (figure-2).

DISCUSSION

Poisoning with HCl is a common environmental emergency. It usually occurs by the way of inhalation, oral and dermal ways. Rarely, injection of different substances other than drugs can be seen as in this case, especially if the patient has a mental problem. It was also reported that the majority of the deceased are medical doctors and nurses^(1,3). In our case also the patient was in a deep depression and she was a nurse in accordance with the literature.

When the acid is injected into an artery, the most dramatic characteristic was the rapidity with which it spreads from a local area of penetration to involve very extensive areas of superficial and deep structures. Because destructive



Figure-1. Beginning of necrosis



Figure-2. Anterior view of the cephalic vein and necrosis around

damage from chemical agent tends to persist until the removal of the agent, early and aggressive debridement with substantial volumes of saline gains importance (4). In our case, acid was injected intravenously, so it didn't affect the deep structures other than the vein and a small area of surrounding structures was affected. Because local necrosis in our case was very small, we waited for the secondary healing; we didn't need debridement. And we detected that she had injected the HCl without dilution, as a result acid directly injured the vein and stopped the blood flow. This was proven with the Doppler ultrasonographic examination. That is why we didn't see any systemic complication.

Our patient also had some abnormal blood gas analysis findings and abnormal vital signs on admission. This may be due to the leakage of small amount of HCl to the systemic circulation. The body had already compensated these findings and all returned to the normal at 12th hour of follow up in the emergency department. We presented here an unusual case of self-injection of HCl into cephalic vein for suicidal attempt. We think that in this case HCl did not caused systemic complications but the physicians must be alert about the systemic complications of any kind of acids administered.

REFERENCES

- 1) Buchman MT. Upper extremity injection of household insecticide: A report of five cases. *J Hand Surg* 2000; 25: 764-7.
- 2) Guven M, Unluhizarci K, Goktas Z, Kurtoglu S. Intravenous organophosphate injection: an unusual way of intoxication. *Hum Exp Toxicol* 1997; 16: 279-80.
- 3) Peschel O, Betz P, Eisenmenger W. Injection of toxic agents: an unusual cause of death. *Forensic Sci Int* 1995; 75: 95-100.
- 4) Hsieh CH, Lin GT. Corrosive injury from arterial injection of hydrochloric acid. *Am J Emerg Med* 2005; 23: 394-6.