

INTRODUCTION

Minoxidil is a potent directly acting vasodilator previously used in treatment resistant hypertension. It possesses several serious side effects including fluid retention, worsening of heart failure, reflex tachycardia, angina, myocardial infarction, pericardial effusion and hypotension [3]. It is currently reserved for treatment of alopecia and readily available over the counter as a topical formulation. Intentional/accidental ingestion of topical minoxidil can cause refractory circulatory shock requiring aggressive hydration and vasopressor support [1,2,4,5]. We present a case of a young female with accidental ingestion of minoxidil leading to severe circulatory shock and acute pulmonary edema.

CASE PRESENTATION

A 17-year-old female without prior medical history was admitted to the emergency department due to chest pain following accidental ingestion of 60mL of 5% topical minoxidil (3000 g), reportedly mistaking it for cold medicine. She was hypotensive and tachycardic but had normal physical examination. Lab results indicated lactic acidosis and initial chest x-ray was normal [Fig. 1]. Toxicology recommended conservative management. She was admitted to ICU and initiated on phenylephrine and bicarbonate drip. She was eventually weaned from phenylephrine and maintained on midodrine. Initial EKG showed ST-segment depression in V3-V6 with T-wave inversion in V1-V6. Troponin was elevated, peaking at 0.63. Findings were suggestive of type II myocardial infarction from tachycardia and hyperdynamic state. From day two, patient began having worsening dyspnea. Repeat chest x-ray showed pulmonary edema and bilateral pleural effusions [Fig. 1]. Transthoracic echocardiography showed hyperdynamic left ventricle with LVEF of 70%. Fluid overload improved rapidly with furosemide. She was eventually weaned off of midodrine and discharged after five days without further complications.

DISCUSSION

Minoxidil toxicity has been associated with severe cardiovascular complications. Our patient's case was complicated by acute pulmonary edema and circulatory shock. A similar case report highlighted successful minoxidil toxicity management using midodrine after initial vasopressor administration. [1] These results were mirrored in our patient by transitioning to midodrine after phenylephrine use. Pulmonary edema was likely worsened by aggressive hydration and resolved with diuresis. She also had severe reflex tachycardia with troponin leak and EKG changes which were indicative of subendocardial ischemia and normalized upon resolution of tachycardia.

CONCLUSION

Minoxidil, a common hair loss treatment, is highly dangerous if ingested. Immediate identification and treatment are crucial, involving fluid resuscitation and vasopressors for severe circulatory shock. Midodrine, an alpha-adrenergic agonist, can reduce ICU stay by shortening IV vasopressor usage.

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6. Prolonged hypotension induced by ingesting a topical minoxidil solution: analysis of minoxidil and its metabolites Satoshi Kikuchi,1Yuji Fujita,1,2Makoto Onodera,1Yasuhisa Fujino1and Yoshihiro Inoue11Department of Emergency Medicine, Iwate Medical University School of Medicine, and2Poisoning and Drug Laboratory Division, Critical Care and Emergency Center, Iwate Medical University Hospital, Morioka, Iwate,Japan

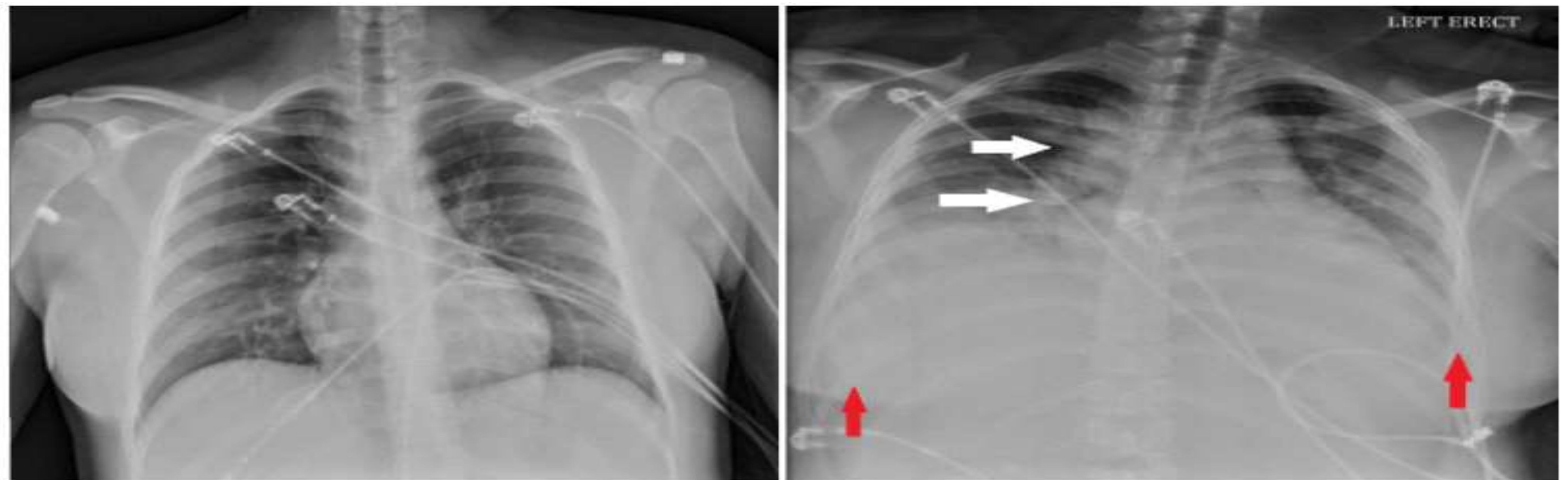


Figure 1. Normal chest X-ray on admission (Left) and Day 2 chest X-ray (Right) notable for pulmonary edema (white arrows), and bilateral pleural effusions (red arrows) with cardiomegaly