

IN THE NAME OF GOD

RV thrombosis in ALP poisoning

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# CASE PRESENTATION

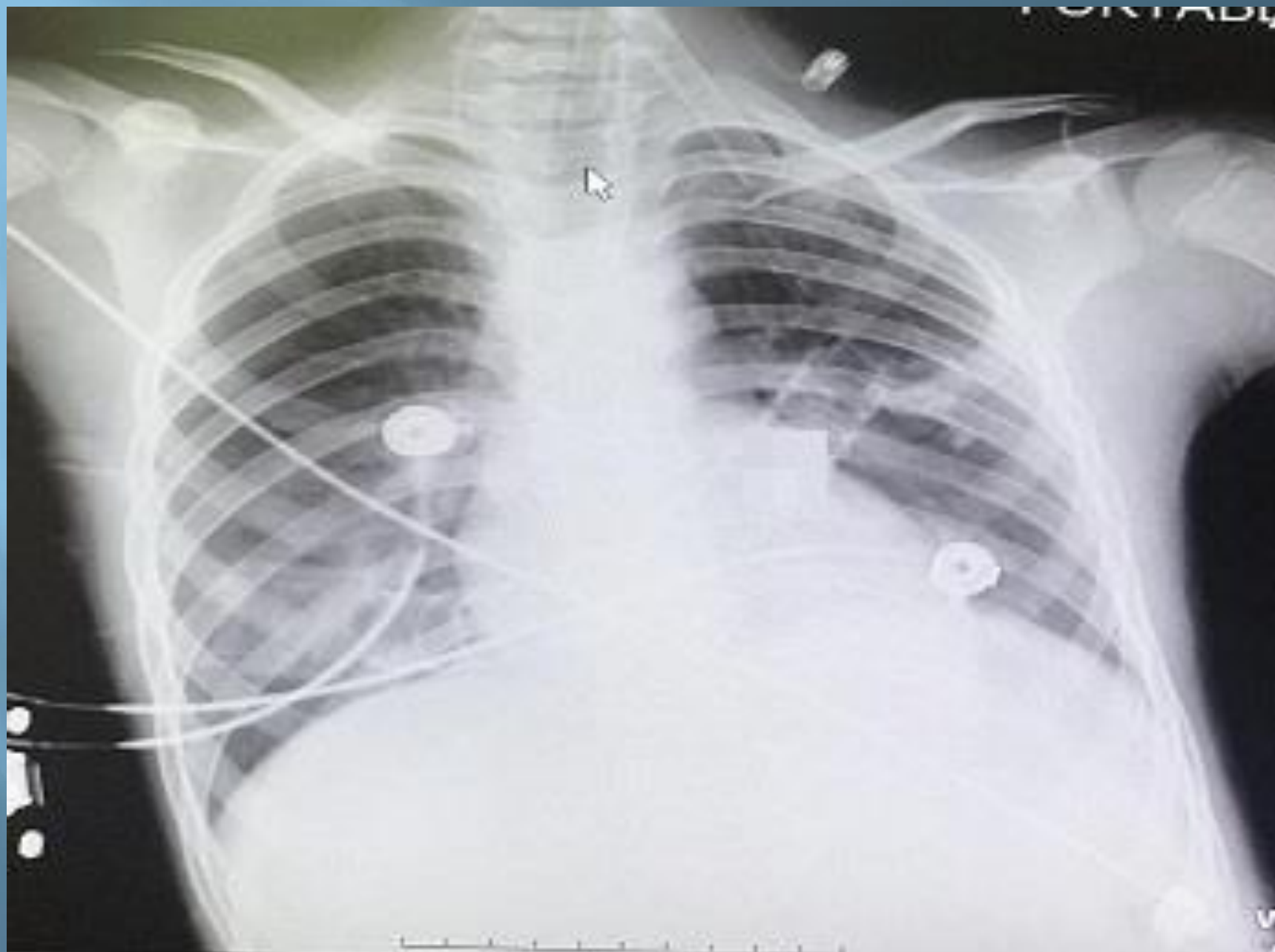
- ▣ An 11-year-old boy referred to our hospital after suicidal ingestion of a 3-gram ALP tablet( rice tablet)
- ▣ 10 hours after ingestion. He has been intubated by Emergent Medical Service (EMS) due to unstable hemodynamic .
- ▣ Vital signs on arrival to our hospital were: blood pressure : 70 mmHg / pulse, heart rate: 136 beats/minute, respiratory rate : 35 / minute and oxygen saturation percentage equal to 93%.
- ▣ Bilateral lung examination was normal, and pupils were mydriatic and reactive to light. The peripheral pulses of the limbs were very poorly palpable.

# CASE PRESENTATION

- ▣ Initial supportive care was started and Treatment was continued with bicarbonate , high dose epinephrine infusion, L - carnitine, calcium gluconate , magnesium and high dose insulin infusion( with glucose and potassium)

# Patient's test results on admission

WBC (cell/mm <sup>3</sup> )	27000	4800-10800
NEUT	71%	
Lymph	29%	
PLT (cell/mm <sup>3</sup> )	413000	150000-450000
HB gr/dl	14	13/5-17/5
MCV( FL)	84	80-100
CPK (U/L)	125	25-195
CKMB (U/L)	23	<24
VBG:		
PH: 7.14	7/144	7/31-7/44
P CO2:42.6 meq/L	42/6	38-52
PO2:73.6	73/6	24-40
HCO3:14.3 meq/L	14/3	22-28
LDH(U/L)	634	Up to 746
FDP(mcg/ml)	10	<0/35
D-Dimer(mcg/ml)	2/3	<0/4
Fibrinogen(mg/dl)	396	200-400



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- ▣ After initial treatment, the patient clinical condition improved and BP reached to 100/60 mmHg
- ▣ Due to unilateral edema in right upper extremity Doppler ultrasound performed and deep vein thrombosis was reported in radial and cubital veins .
- ▣ Heparin was started with a therapeutic dose of 20 unit/kg.hr.
- ▣ Cardiology consultation and echocardiography were done due to low BP
- ▣ Echocardiography showed severe LV dysfunction (EF: 25%), moderate right ventricular (RV) dysfunction and a large (2.5cm) mobile thrombus in RV attached to chorda tendineae



# CASE PRESENTATION

- ❑ Coagulation profiles were sent to investigate the possible thrombophilia.
- ❑ Surgical thrombectomy or catheter directed thrombectomy was not possible for the patient due to lack of enough facility in our hospital and also unstable hemodynamics and critical clinical condition. That made the patient's transfer very high risk.
- ❑ The patient was treated with Alteplase infusion at a dose of 0.03 mg / kg / h for 12 hours and during the treatment with Alteplase the dose of heparin was reduced by half (units / kg / h). PT, PTT and CBC tests were performed every 6 hours and the results was within acceptable level



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- ▣ On the fifth day of hospitalization, the patient was extubated. Patient's EF had reached to 45% and RV function improved. There was no evidence of previous DVT on color Doppler ultrasound of the right upper limb. Finally, the patient was treated with oral rivaroxaban and discharged on day12

# INTRODUCTION

- ▣ Aluminum phosphide is a highly toxic inorganic compound used as a rodenticide, insecticide, and fumigant for stored cereal grains
- ▣ Sometimes it uses for suicidal or criminal purpose , due to low cost and availability of this tablet
- ▣ Cardiovascular involvement is common and is the leading cause of death in these patients
- ▣ Intra-cardiac thrombosis is rare and more common in the left ventricle following a decrease in ejection fraction.

# ALP poisoning & thrombosis

- ▣ Cardiac Involvement in ALP poisoning is prevalent .Myocardial damage reported in 60-100 % of patients.
- ▣ Thrombotic complications were reported in some case reports and may be due to myocardial and vascular damage in ALP poisoning .
- ▣ Intra-cardiac thrombosis is a rare complication
- ▣ RV thrombosis may be in transit from deep vein thrombosis or develop in the right ventricle .
- ▣ More than 90% of patients with RV thrombosis have concomitant pulmonary thromboembolism (PTE).
- ▣ Mortality is high and reported to be 27-45% if treated appropriately and up to 100% in untreated patients, while PTE mortality is 2.5% in patients without RV thrombosis.

# Treatment options for RV thrombosis

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- ▣ Anticoagulation, systemic thrombolysis, surgical thrombectomy and percutaneous interventional embolectomy
- ▣ There is no clear guideline
- ▣ Appatan et al. in 2015 reported 37% mortality in patients whom had been treated with anticoagulation alone compared to 18% and 13% mortality in surgery and thrombolysis groups respectively

# Indications for thrombolytic therapy:

- ▣ Arterial thrombosis with tissue ischemia
- ▣ Phlegmasia alba
- ▣ PE with hypotension or shock
- ▣ SVC
- ▣ Bilateral renal vein thrombosis
- ▣ Large mobile right atrial thrombosis(>2cm)
- ▣ Cerebral sinovenous thrombosis with neurologic impairment & no improvement with anticoagulant or progress

# Treatment options for RV thrombosis

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- ▣ It seems that surgical thrombectomy is theoretically the most definite and classic management of RV thrombosis but surgery is an invasive procedure and not available in many centers
- ▣ Some guidelines recommend surgical thrombectomy when thrombolysis is contraindicated or ineffective
- ▣ Thrombolysis is a simple, rapid and effective treatment, may administer bedside and don't need patient's transfer or special equipments. The main concern about thrombolysis is thrombus dislodgement and embolization to pulmonary arteries

# Treatment options for RV thrombosis

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- ▣ In the previous studies a low-dose(0/01-0/06mg/kg/hr , max2mg/hr) Alteplase infusion and a high-dose(0/1-0/5mg/kg/hr max2mg/hr) Alteplase regimen have been described, with low-dose therapy showing equivalent efficacy to high-dose regimens, considering the advantage of potentially less risk of bleeding at lower doses

# References

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با سپاس از توجه شما