

## INTRODUCTION

Purple glove syndrome (PGS) is a rare but severe adverse effect of phenytoin. PGS represents a clinical spectrum that ranges from mild disease with the triad of pain, swelling and discolouration at injection site with spontaneous resolution following conservative management, to the other extreme of limb-threatening compartment syndrome and limb ischaemia, often requiring surgical intervention.

## CASE DESCRIPTION

A 20 years old female with spastic dystonic cerebral palsy presented with seizure due to defaulted medication. She was given IV phenytoin loading infusion 500 mg (20 mg/kg) over 1 hour (8.3 mg/min) and started on maintenance dose 100 mg 8 hourly. She developed bluish-purplish discolouration at injection site with significant swelling 1 hour after administration of first maintenance dose. Local examination revealed purplish discolouration and oedema with bullae at the cannula site used for administration, from hand up to distal third forearm. Compartment of affected hand was tight with feeble radial pulse. Bedside Doppler revealed biphasic waveform of radial and ulnar arteries. Urgent CT angiography showed non-opacification of distal right ulnar and radial arteries, superficial and deep palmar arches, with inflammatory changes and oedema of hand dorsum with superficial haematoma. Diagnosis of acute limb ischaemia and compartment syndrome was made.



Heparin infusion was initiated and urgent fasciotomy was done. Intraoperatively, the interossei, adductor, thenar, hypothenar compartments were incised, haematoma over interossei compartment was encountered.

## DISCUSSION

Incidence rate of PGS ranges from 1.7-5.9%. Risk factors of PGS include older patients, administration of frequent or large doses (>15-20 mg/kg), IV rate being too high (>25 mg/min), female gender, known case of peripheral vascular disease, use of IV cannula <20G, chronic or acute debilitating illness, emaciation, hyponatremia, haemodynamic instability and sepsis. PGS happens due to vehicles added in phenytoin such as sodium hydroxide, propylene glycol and ethanol which are soft tissue irritant and lead to disruption of endothelial-interstitial junction. Extravasation, predisposed by risk factors also contributes to PGS. Phenytoin being a highly protein bound molecule increases oncotic pressure in interstitium, resulting in compartment syndrome. PGS can be prevented by adhering to infusion protocol, identifying patients at risk, using oral route, substituting with alternative drugs and good nursing care pre- and post-infusion. PGS is usually managed conservatively unless the limb is threatened, where more aggressive measures such as anticoagulation, fasciotomy or amputation may be necessary.

## CONCLUSION

Severe form of PGS is limb-threatening and debilitating, preventive measures must be employed to avoid significant morbidity.

## REFERENCES

1. Jorge G. Burneo, J. V. Anandan, and Gregory L. Barkley. A Prospective Study of the Incidence of the Purple Glove Syndrome 2001
2. Terence J. O'Brien et al. Incidence and clinical consequence of the purple glove syndrome in patients receiving intravenous phenytoin 1998

