POSTPARTUM GANGRENE OF ALL FOUR LIMBS AND ERGOMETRINE USE

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**ABSTRACT**

The objective was to study a twenty year old hindu female with post partum gangrene of all four limbs and to assess the effect of ergometrine use. Complete history, clinical examination and relevant investigative support for confirmatory diagnosis were done. A 20 yrs. female Hindu lady presented to emergency department of Assam medical college & hospital (mrd no 46472/11) on 06.11.11, with history of child birth 10 days ago, and presented to us with pain and blackening of the skin in all four limbs for two days. On examination there was presence of pallor with mild rise of temperature with absence of peripheral arterial pulsations in all the four limbs. Lower limbs showed symmetrical gangrene distal to mid cuff, and upper limbs showed asymmetrical areas of gangrene from the mid arm downward with involvement of tip of the nose and its surrounding areas. The patient had a normal vaginal delivery conducted in a garden hospital and seven to eight days later she developed the above mentioned complications. The diagnosis made in the hospital was arterial gangrene of all four limbs probably due to medication use (? ergometrine) with septicemia. Ergot derivatives are not to be used in absence of clear clinical indications. Close monitoring should be done for early adverse reactions in the recipients and necessary measures to be undertaken. This drug should therefore be used only when its indications are clear and patients can be closely followed up, and harmful concomitant medications should be avoided.

**Key Words:** Arterial Gangrene and Ergometrine

**INTRODUCTION**

Symmetrical peripheral gangrene in medical practice is usually associated with underlying medical problems and is seldom seen in pregnancy. Sepsis though common in a setting of delivery by unskilled person is rarely accompanied by symmetrical gangrene.

**CASES**

We report a case of symmetrical peripheral gangrene which occurred in the post partum period triggered possibly by ergometrine use followed by sepsis. A strong clinical suspicion, early diagnosis and intervention with appropriate actions shall result in favorable outcome in such cases. We have searched the literatures about similar publications on postpartum peripheral gangrene from elsewhere including the internet and manually.

**RESULTS**

*History:* A 20 year female Hindu lady presented to emergency department of Assam Medical College & hospital (MRD no 46472/11) on 06.11.11, with history of child birth 10 days ago, and presented to us with pain and blackening of the skin in all four limbs for two days. *Clinical examination:* On examination there was presence of pallor with mild rise of temperature with absence of peripheral arterial pulsations in all the four limbs. Lower limbs showed symmetrical gangrene distal to mid cuff, and upper limbs showed asymmetrical areas of gangrene from the mid arm downward (Figures 1-4). There were also gangrenous changes in the tip of the nose and its surrounding areas. There was no past history of intermittent claudication, cold or heat intolerance, tobacco smoking, collagen vascular disease or similar family history.
Laboratory findings: The laboratory findings showed euglycaemia with evidence of septicemia in the form of high white cell count and Erythrocytic sedimentation rate (ESR). Radiological demonstration of arterial obstruction could not be made due to poor patients condition and logistic issues. Gynecologist and Surgeon examined the case and final diagnosis made in the hospital was arterial gangrene of all four limbs with involvement of the nose and its surrounding area due to medication use (Ergometrine) with septicemia. In spite of all possible treatment, the patient died on 08.12.2011. As Ergometrine derivatives are still in use in various hospitals in the peripheral areas in this part, for the control of post partum hemorrhages, the case was therefore thought to be an adverse

Figures 1-4: shows gangrene of all four limbs with involvement of the nose and surrounding area

No definite documentation of use of any medication in the post partum period was produced by the patient. The patient delivered normally in the garden hospital and seven to eight days later she developed the above mentioned complications.

outcome, due to its use alone or in combinations with other medications, in a susceptible individual like this patient. No other possible aetiology could be derived based on clinical and available laboratory aids. Therapy in the form of broad spectrum antibiotics, low molecular weight dextran and a hemorheologic agent, pentoxyphylline, was started. In spite of all kinds of medical & Gynaecological support the patient did not improve and finally succumbed to her illness.

DISCUSSION

Ergometrine is contraindicated in eclampsia or preeclampsia, and in cases of threatened spontaneous abortion & in severe or persistent sepsis. This drug is also contraindicated in patients with peripheral vascular disease or heart disease impaired hepatic or renal function and in patients with hypertension or a history of hypertension. Intravenous (IV) administration of Ergometrine produces serious adverse effects if the injections are not diluted and administered slowly. IV use of Ergometrine Injection should be limited to patients with severe uterine bleeding or other life-threatening emergency. IV doses should be
given slowly, over a period of at least 1 minute. Some clinicians recommend diluting the IV dose to a volume of 5ml with sodium chloride injection 0.9% before administration. There are other recognized interactions of these ergot derivatives with several commonly used antibiotic, antiviral and antifungal drugs. (Dorval: Novartis Pharmaceuticals Canada Inc, Jan 2003). Initially, European midwives used the drug therapeutically to hasten labour (with many untoward effects), ergot derivatives eventually found a life-saving role in the treatment of post-partum hemorrhage (De Costa C, 2002). Common adverse effects of ergotamine and dihydroergotamine are nausea, vomiting, abdominal pain, diarrhea, peripheral paresthesias, swollen fingers, generalized weakness, and peripheral and coronary vasoconstriction (Tfelt-Hansen, 2000) Ergotamine and dihydroergotamine are metabolized in the liver by the cytochrome P450 (CYP) 3A4 enzyme. Several medications (azole derivative antifungal drugs, protease inhibitors, antidepressants like fluoxetine, and fluvoxamine etc), like many are CYP 3A4 inhibitors and slow the metabolism of ergotamine, causing serious toxic effects, including stroke, gangrene and death. (Dresser et al., 2000; Tribble, et al., 2002). Other CYP 3A4 inhibitors, such as grapefruit juice, and drugs including heparin, cyclosporine, tacrolimus and ampicillin present at least the theoretical possibility of drug interactions (Eadie, 2001). The occurrence of symmetrical gangrene of all 4 extremities after the use of dopamine, subsequent to the administration of egomtine, is described. It is suggested that the concomitant use of these 2 agents should be avoided (Buchanan et al., 1977). Adverse reactions which have been observed following administration of ergometrine include: Gangrene (ergometrine shows less tendency to produce gangrene than ergotamine), headache, abdominal pain, allergic phenomena (including shock, hypertension, chest pain, palpitation, dyspnoea and bradycardia). Patients receiving ergot-related drugs should be advised to watch for persistent numbness, tingling, ice-cold limbs, muscle cramps and weakness, and to seek immediate medical attention if these occur. Ergometrine produces vasoconstriction, mainly of capacitance vessels; increased central venous pressure, elevated blood pressure, and, rarely, peripheral ischaemia and gangrene may result. Unlike other ergot alkaloids, ergometrine produces arterial vasoconstriction by stimulation of alpha-adrenergic and serotonin receptors and inhibition of endothelial-derived relaxation factor release. The drug has only slight alpha-adrenergic blocking activity and its vasoconstrictor effects are less than those of ergotamine. Sharma et al., (2012) reported a similar case of post partum gangrene in the winter months following single injection of Ergometrine use.

CONCLUSION
Ergot derivatives are not to be used in absence of clear clinical indications. Close monitoring should be done for early adverse reactions in the recipients and necessary measures to be undertaken. Due considerations are to be given for concomitantly used medications to minimize the side effects. The suggested individualized treatment is discontinuation of vasopressors, reversal of sepsis and DIC and anticoagulation. Treatment success has been reported for individual patients who received epoprostenol and tissue plasminogen activator infusion, sympathetic blockade, the combination of plasmapheresis, leukapheresis and antibiotics and anticoagulation with heparin and aspirin (Sharma, 2012). Amputation of the affected area may be required once demarcation develops and the patient is stable. This drug is already replaced from our reproductive and child health (RCH) program, but in spite of this these drugs are in use, with fatal outcome like in this patient, but why?? Is there any need to increase awareness by capacity building?

REFERENCES
Buchanan N, Cane RD and Miller M (1977). Symmetrical gangrene of the extremities associated with the use of dopamine subsequent to ergometrine administration, Intensive Care Medicine 3(2) 55-56.


