CASE REPORT

Spontaneous Right Lower Limb Gangrene in A Neonate: A Case Report

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ABSTRACT

Background: Gangrene is the term used to describe the death or decay of tissue due to lack of blood supply. Spontaneous lower limb gangrene in neonates is a rare entity. Most often, the aetiology remains unidentified. Case summary: I report a case of Spontaneous lower limb gangrene which developed soon after birth. No aetiology was identified. My Patient was managed with supportive care that included antibiotics and antithrombotics, and developed auto amputation at the ankle, which was refashioned to knee disarticulation.

Key words:

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Introduction

Gangrene is the term used to describe the decay or death of a tissue or organ caused by lack of blood supply. It is called dry gangrene when it results from a sudden loss of arterial blood supply to the tissue, typically in distal areas such as limbs and toes. It is called wet gangrene when the tissue is infected by a saprogenic microorganism (Staphylococcus species, Streptococcus species, Klebsiella, Clostridium perfringens) which thrives in areas (tissues and organs) with reduced blood supply. [1,8]

Date Submitted 24th February, 2025
Date Accepted 20th May, 2025
Date Published 30th June, 2025

Access this article online	
QuickResponse Code	
	website:www.bornomedicaljournal.com
	DOI: 10.31173/bomj.bomj_2504_22

Spontaneous limb gangrene in neonates is a rare entity, and varying predisposing factors implicated include: prematurity, dehydration, sepsis, umbilical artery catheterisation, hypercoagulable state, maternal hypertension and diabetes. [1-4]

In many cases, no aetiological factors are demonstrated. Therefore, the management is generally based on the use of antibiotics, heparinisation and surgical amputation after it has demarcated.[2-5]

Case Report

A 2.8 kg term female baby born via spontaneous vaginal delivery was referred to us from another health facility with two days history of dusky discoloration of the right foot and lower leg which was noticed few hours after delivery. The perinatal period was said to be uneventful.

Examination showed a normal left lower limb, dry gangrene of the right foot extending up to the lower 1/3 of the leg with a line of demarcation between the normal and abnormal parts. Femoral and popliteal pulses were palpable. Other systemic examinations were essentially normal. The patient showed no evidence of sepsis and was generally preserved. A diagnosis of right leg (dry) gangrene in a neonate at risk of sepsis was made.

Preliminary Laboratory investigation results are shown in Table 1 below. Doppler ultrasound showed essentially normal findings. Blood culture could not be done due to logistic issues in the facility and the absence of clinical evidence of sepsis.

Table I. Investigation Results

INVESTIGATION	RESULT
Haemoglobin(Hb)	20g/dl (14-24g/dl)
White blood count(WBC)	11,000/mm3 (9,000-30,000/mm3)
Platelets	320,000/mm3 (150,000-450/mcl)
Sodium(Na)	153mmol/L (135-145 mmol/L)
Potassium(k)	5.4mmol/L (3.6-6.0 mmol/L)
Urea	3mmol/L (3-13mg/dl)
Creatinine	26.5µmol/L (27-106µmol/L)
Prothrombin time(PT)	14 seconds (10-24 seconds)
International normalize ratio(INR)	1.2 (0.9-1.3)
Activated partial thromboplastin time(PTTK)	45 Seconds (28-46seconds)

The patient received intravenous fluids, intravenous antibiotics, analgesic/anti-inflammatory agents, subcutaneous enoxaparin at 2mg/kg/day and wound care.

Two weeks into admission, the level of gangrene was still at the same level as at presentation, while the dusky part turned darker and mummified. The parents were counselled for knee disarticulation, which they declined and left against medical advice.

The child was readmitted 4 weeks later with auto-amputation of the leg, exposing the distal ends of the tibia and fibula and evidence of sepsis. She was resuscitated (including blood transfusion) and subsequently had knee disarticulation.

Patient did well initially, however, had a wound breakdown one week post- operative, for which wound care and antibiotics were continued and was discharged home on the parents' request (two weeks post - op) to continue wound care as an outpatient. Patient is on follow-up, and will be referred to a physical rehabilitation centre while the parents were referred to a mental health specialist.

Figure 1: Limb on first day of admission showing gangrene involving the right foot and the distal third of the right leg.

Figure 2: Limb on the first day of re-admission, showing auto amputation of the foot and distal leg just above the ankle joint.

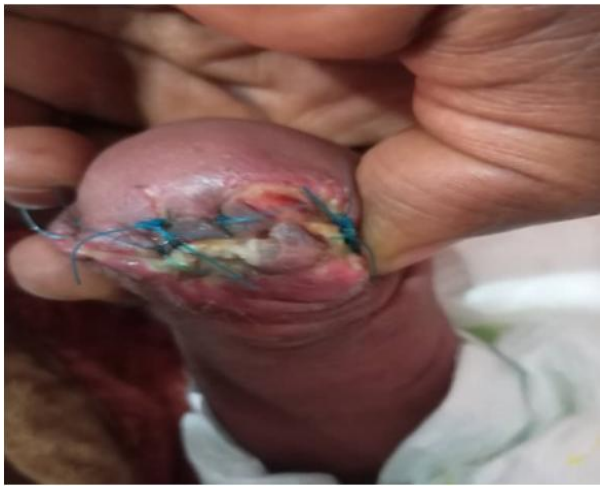

Figure 3: Stump at two days post op showing an intact stump

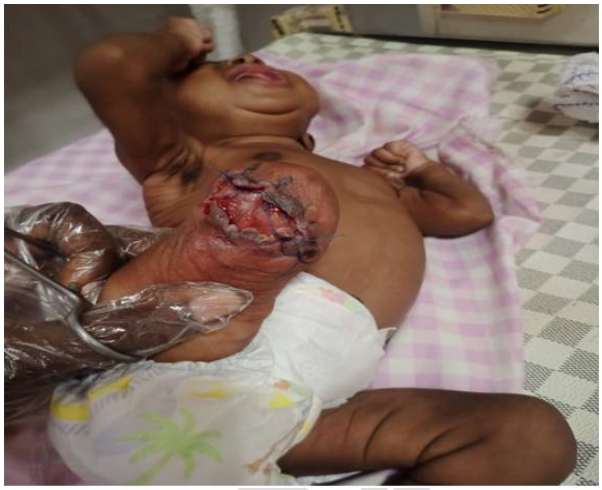

Figure 4: Stump at one week post op (showing a wound breakdown)

Discussion

Spontaneous gangrene in the lower limb of neonates is extremely rare. First described by Martini in 1828. [3] Acute ischaemia of the limbs is most commonly caused by thrombo-embolic phenomenon.[3,4]

While the exact cause still remains unidentified in many cases,[4,5,6,7] the following risk factors have been cited and reported in the literature, these include: maternal gestational diabetes, congenital heart disease, obstetric trauma, polycythaemia, sepsis and placenta-related thrombo-embolic events.[3,4,5,6,7]

In the index case, no cause was identified as the prenatal period was uneventful, the child is a product of a term pregnancy, and no history of birth trauma was given.

There was no evidence of polycythemia and no findings suggestive of sepsis or clotting abnormality. Nevertheless, the child developed features of limb ischaemia a few hours after delivery, which could suggest a likely peri-partum event such as placenta-related embolus or birth trauma.

As no exact identifiable aetiology is implicated in this case, as in most other cases, treatment was generally that of rehydration, antibiotics, antithrombotics and wound care while waiting for resolution or demarcation, thrombectomy [9], negative pressure therapy VAC [10] or with subsequent auto-amputation or surgical amputation[4,6,7]

The index case was treated similarly with the same regime.

There was no further ascent of the level of gangrene, but the tissues got darker and drier by the day.

The parents' initial decline of informed consent may not be unconnected with the psychological trauma of the precious child losing a limb at this tender age.

Nature took its course and resulted in an auto-amputation of the foot just above the ankle joint. This is similar to what is obtained in other cases where dry gangrene is left unattended.[6,7]

Informed consent of knee disarticulation was offered to the parents, which they subsequently consented and the patient did well initially; however had wound breakdown and was discharged to outpatient wound care on parents' request and to follow up at the clinic.

Conclusion

Spontaneous limb ischaemia of the lower limb is a rare condition. The aetiology may be ascertained sometimes after proper investigation, however, the cause still remains unidentified for many cases.

Supportive care with antibiotics and antithrombotics plus rehabilitation and parental support, remains the bottom line of management. Auto-amputation is usually the end result if not amputated surgically after demarcation.

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Cite this Article as: Shamsuddeen M. Spontaneous Right Lower Limb Gangrene in A Neonate: A Case Report. **Bo Med J** 2025; 22 (1):1-4 **Source of Support**: Nil, **Conflict of Interest**: None declared