Neonatal Lower Extremity Gangrene

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Four neonates suffering from bilateral lower limb gangrene were referred to us for further management. Two neonates had no contributory etiology. All four received appropriate treatment thus avoiding mortality but morbidity could not be avoided. All four neonates recovered uneventfully.

Key words: *Gangrene, Lower Extremity, Neonate.*

Bilateral lower limb gangrene in neonates is a rare event of obscure etiology. It generally has a poor outcome. Early diagnosis and properly timed intervention may help in some cases where the etiology is known. Idiopathic gangrene with delayed treatment poses a challenge to Paediatric surgeons, as it is associated with increased morbidity and mortality.

Case Report

Table I details the clinical presentation, investigations, treatment, and outcome in four neonates with gangrene of both lower limbs.

Mothers of all these babies had received immunization at proper time. Antenatal sonography although done in later stages of pregnancies in all the mothers had revealed no abnormalities. None of the mothers were diabetic nor anyone had prolonged labour.

Three neonates were initially managed by giving intravenous antibiotics, flow enhancers, (heparin, vasodilators, lomodex, hyper baric oxygen, *etc.*) blood transfusions and regular dressings. Wounds were regularly cleansed by hydrogen peroxide. Eusol and salutyl ointment were used as slough removers. Local ointments like betadine and soframycin were used for regular dressings. Dry dressing was applied over gangrenous area. Inspite of conservative management for two weeks, ischemia progressed to form gangrene; line of demarcation appeared so formal amputations were done. Neonate with exposed bones was operated upon immediately; as to cover them with flaps was impossible. All four neonates had a smooth post-operative recovery.

Discussion

Bilateral idiopathic lower limb gangrene in neonates is extremely rare and very few cases have been recorded. Predisposing factors include prematurity hyper-coagulable state, umbilical artery cannulation, arterial thrombosis, intravenous hyperosmolar infusions, sepsis, thermal abnormality, in utero arterial thrombosis and maternal diabetes(1-3).

Abnormal fetal presentation can cause ischemia due to direct compression of an extremity *in utero*(1). Arterial occlusion due to normal obliteration of ductus arteriosus or umbilical arteries can lead to high incidence of gangrene in lower extremities(4). However, review of the available literature reveals that upper limb gangrene is more frequent as compared to lower limbs(1-5).

Management includes giving medications (systemic and local) and supportive care like

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TABLE I– *Clinical Profile of Neonatal Gangrenes.*

	Patient 1	Patient 2	Patient 3	Patient 4
Antenatal history	Uneventful	Uneventful	Uneventful	Uneventful
Mode of delivery	FTND	FTND	Low birth wt.	FTND
Day of presentation/ Sex	Day 1/M	Day 3/M	Day 5/F	Day 26/M
Predisposing factors	Exchange transfusion	None	Exchange transfusion	None
Gangrene onset	Day 3	Day 3	Day 4	Day 20
Hyperthermia	Present	Present	Present	Present
Anemia	Present	Present	Present	Present
Loss of soft tissue	Absent	Absent	Absent	Present (*Fig. 1*)
Line of demarcation	Absent	Absent	Absent	Present
Hemoglobin (g/dL)	10	11.4	10.8	8.1
Total WBC counts	20700	18700	15800	26700
C-reactive protein	Raised	Raised	Raised	Raised
Blood culture	Staph. aureus	No growth	*Staph. aureus*	No growth
X rays of lower limbs	No bony abnormality	No bony abnormality	No bony abnormality	No bony abnormality
Doppler studies	Absent blood flow beyond popliteal artery	Absent blood flow beyond popliteal artery	Absent blood flow beyond popliteal artery.	—
Initial Management	Blood transfusion Flow enhancers Antibiotics Dressings	Blood transfusion Flow enhancers Antibiotics Dressings	Blood transfusion Flow enhancers Antibiotics Dressings	Blood transfusion Flow enhancers Antibiotics Dressings
Progression to gangrene	Present	Present	Present	
Definitive management	Amputation	Amputation	Amputation	Amputation
Postoperative recovery	Smooth	Smooth	Smooth	Smooth

heparin, vasodilators, lomodex, hyperbaric oxygen, sympathectomy, preventing trauma and sepsis(1, 2). Early surgical intervention is indicated in presence of severe or progressive ischemic changes. More often there has been progression to spontaneous slough or autoamputation(3). Amputation was done following appearance of demarcation line. Care was taken to preserve the growing epiphyseal end so as to achieve a good stump length for prosthetic fitting in the later age. A high index of suspicion and timely treatment is highly decisive in treating septicemia in neonates(5).

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Fig. 1. Photograph showing neonate with loss of soft tissue of both lower limbs with exposed bones.

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Oral Alendronate in Osteogenesis Imperfecta

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We report a case of Osteogenesis Imperfecta (OI) in an eight-year-old boy who was admitted with complaints of recurrent long bone fractures. With oral alendronate treatment significant increment occurred in the bone mineral density and the number of fractures decreased. The usage of oral bisphosphonates is inexpensive and easy to administer in selected cases of OI. This case report supports the usage of oral alendronate treatment as an alternative treatment in OI.

Keywords: *Alendronate, Osteogenesis imperfecta.*

Osteogenesis imperfecta (OI) is a heritable disorder characterized by either a reduction in the production of normal type I collagen or the synthesis of abnormal collagen as a result of mutations in the type I collagen genes. Affected patients tend to have fragility fractures from the mildest trauma. Other common symptoms are progressive skeletal deformities, varying degrees of short stature, blue sclerae, dentinogenesis imperfecta, joint laxity and the onset of deafness in adulthood(1,2).

There is no effective medical treatment for OIs. Bisphosphonates are synthetic analogues of pyrophosphate that inhibit bone resorption by their action on osteoclasts. In recent years, bisphosphonates have been used in children for treatment of a growing number of disorders associated primarily with generalized or

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