

Case Report

Ecthyma gangrenosum over face of a diabetic patient : a rare case report

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Ecthyma gangrenosum is a rare condition observed in immunocompromised patients. It is caused by severe and invasive infection most commonly with *Pseudomonas aeruginosa* and rarely by *Klebsiella pneumoniae*. It has been related to life-threatening septicemia and high mortality.

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Key words : Ecthyma gangrenosum, diabetic ulcer, pseudomonas infection, cutaneous ulcer.

Ecthyma gangrenosum is a rare invasive cutaneous infection caused by *Pseudomonas aeruginosa*, most commonly seen in immunocompromised patients, autoimmune disorders, patients with underlying malignancy¹. It is usually associated with *Pseudomonas* bacteremia and life threatening septicemia². It is also caused by certain fungi and other bacterias such as *Proteus*, *E coli*, *Klebsiella*. Presence of Ecthyma Gangrenosum in a healthy patient may demand for thorough work up for immunodeficiency and underlying malignancy that may result in fatal outcome⁴. Neutropenia, septic shock, abdominal sepsis, diabetes, malignancy, resistant microorganisms are poor markers associated with Ecthyma Gangrenosum⁴. So high index of suspicion, early diagnosis, thorough immunological evaluation and aggressive treatment can result in reduced mortality rate and better prognosis.

CASE REPORT

A 75 year old male, presented to the hospital with altered sensorium, responding to oral commands and deep painful stimulus. Patient had red macular and popular lesions over nose, cheeks, oral cavity and scalp (Figs 1&2). His blood sugar was 400 mg/dl, with normal vitals.

Patient was resuscitated and admitted in intensive care unit and was thoroughly investigated. His haemoglobin was 4.5 gm%; total count – 13,000cells/cumm; differential count – neutrophil 82%, lymphocytes 14%, eosinophils 3%, and monocytes 1%; ESR – 110 mm after 1 hour; blood urea – 113 mg/dl; serum creatinine – 3.6 mg/dl; urine examination showed presence of ketone bodies. His fundus examination showed proliferative diabetic retinopathy.

Patient was started on insulin drip and broad spectrum intravenous antibiotics. Patient developed similar skin lesions over arms and popliteal fossa. Over a period of few days the red macules progressed to form vesicles and the pustules, which then ruptured to form gangrenous ulcers with a dark eschar surrounded by a halo.

Culture of the discharge and blood, and biopsy from the edge of the ulcer were sent. Histological examination showed necrotic haemorrhagic vasculitis with gram negative rods in the medial and adventitial walls of blood vessels, with sparing of intima. Pus culture

revealed growth of *Pseudomonas aeruginosa*. Blood culture was sterile.

Antibiotics were changed according to sensitivity report, and the necrotic lesion was surgically debrided, followed by regular dressings. The lesions resolved over a 3 week period following glycaemic control.

DISCUSSION

Ecthyma gangrenosum is a characteristic cutaneous manifestation of severe and invasive infection caused by *Pseudomonas aeruginosa*, and rarely by *Klebsiella pneumoniae* and other *Pseudomonas* species, eg, *Pseudomonas maltophilia*, *Pseudomonas burkholderia (cepacia)*¹. It occurs in 30% of patients with *Pseudomonas aeruginosa* septicemia², but rarely it develops without bacteremia.

It had been considered to be pathognomonic of pseudomonas sepsis until it was described in cases of infections by *Group A Streptococcus*, *Aeromonas hydrophila*, *Staphylococcus aureus*, *Serratia marcescens*, *Citrobacter freundii* and *Escherichia coli*³. Ecthyma gangrenosum lesions characteristically begin as painless red macules that evolve into papules and later into haemorrhagic bullae. These ruptures produce gangrenous ulcers with a grey-black eschar. In classical bacteraemic ecthyma gangrenosum, the lesions are a blood-borne metastatic seeding of the pathogens to the skin.

However, there are several reports that describe ecthyma gangrenosum unaccompanied by bacteraemia or systemic infection^{4,5}. The absence of bacteraemia is associated with the best outcome.

Dissolution of the elastic lamina of the blood vessels by *Pseudomonas* elastase allows for liberation of the bacilli into the subcutaneous tissues⁶. Further prolific multiplication of the



Fig 1 — Lesions over the face

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Fig 2 — Lesions over scalp (after clipping the hairs)

organism in the subjacent tissue with elaboration of endotoxin A and proteases leads to the ulcerative lesion which is characterized by haemorrhage, encircled by a rim of reactive erythema⁷.

Condition may mimic pyoderma gangrenosum, necrotizing vasculitis or cryoglobulinemia, from which it

should be differentiated to start early and effective treatment.

Treatment should include prompt recognition of the skin lesion, appropriate antibiotic therapy for *Pseudomonas aeruginosa*, and surgical debridement. Clinicians should be aware of the skin manifestations of ecthyma gangrenosum to avoid fatal septicemia in

immunocompromised patients.

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