International Journal of Medicine Research
ISSN: 2455-7404; Impact Factor: RJIF 5.42
www.medicinesjournal.com
Volume 1; Issue 2; May 2016; Page No. 18-19

Open fracture, diabetes and neglection: A recipe for gas gangrene – A case report

Dr. Ganesh Singh Dharmshaktu

M.S. (Orthopaedics), Assistant Professor, Dept. of orthopaedics, Government Medical College, Haldwani, Uttarakhand, India.

Abstract

Gas gangrene is a sinister infection that often results in serious limb morbidity and dismemberment of the extremity is the sole option in severe cases. The prevention and early, meticulous debridement may help modify the course of disease and prevent the condition in some instances. The knowledge of factors associated with increased risk is important to mitigate the problem of inappropriate assessment of the infection. The early decision of amputation, if salvage seems unlikely, proves critical in saving life of the patient. The associated condition of diabetes potentiates the presence of infection and compounds the problem. The occurrence of gas gangrene in the setting of fractures is limited to few reports or small series and as the incidence of the condition is on decline, its potential to occur in high risk group should not be taken lightly. We, hereby, present a case of severe gas gangrene of leg following fractures of both bones with small open wound that was neglected and led to fulminant infection with an untoward outcome.

Keywords: Gas Gangrene, Infection, Clostridia, Open Fracture, Diabetes, Complication, Amputation, Management

1. Introduction

Gas gangrene is potentially devastating condition caused by Clostridium species and Clostridium perfringens is common organism responsible for most cases. Proteolytic enzymes secreted by Clostridium species leads to extensive skin and soft tissue necrosis that may be fatal to limb, life or both [1]. Injuries and surgeries are major causative scenario linked to disease. There are, however, reports of cases of spontaneous myonecrosis [3]. Spontaneous cases usually arise in cases with underlying co-morbidity like chronic diseases or neoplastic conditions. Apart from it the true gas gangrene has been associated with underlying diabetes, atherosclerosis or peripheral vascular diseases among others [4]. The combination of more than one risk factors in singular case is rare association that not only aggravates the burden and magnitude of disease but also calls for early, definitive management.

2. Case Report

A 60 year old female patient was brought to us with alleged history of injury to her left leg. The accurate history was not properly recalled by the patient and collaborative history was given by accompanying relatives. She probably fell from certain height while collecting grass and vegetative fodder and returning home. As she was alone, she could not walk on her own following injury. She was diagnosed with diabetes 2 years back for which she was under treatment. She was brought by some passer-by after a delay of almost 13 hours to her home in semi-conscious state. There was bleeding wound with probable fracture of lower left leg that was supported in a wooden splint. She was dressed in a local facility next day and plaster back-slab was given. She took the treatment and after second day putrid odour from the damaged limb led her to visit the health centre before being referred to us. There was foul smelling odour from the wound suggestive of necrotic wound infection. The leg had blackened skin in almost circumferential lower third region. There was a grade 2 open fracture of both bones leg clinically noted. The radiographs of the affected leg showed the presence of fracture and black shadows in muscular planes delineating intra and inter-muscular planes extensively over leg (Fig.1). The characteristic gaseous shadows and extensive myo-necrosis in the event of history of trauma led to a diagnosis of probable gas gangrene. The routine blood investigations were drawn and patient was planned for emergent knee disarticulation after informed consent. The advance age, presence of co-morbidity like diabetes and condition of limb not favourable for salvage were factors considered in decision making.

The knee disarticulation was planned as per the extent of damage seen clinically and radiologically. The knee disarticulation was done in standard technique and healthy stump was obtained. A suction drain was placed before closure in layers followed by well-padded compressive dressing under a stump slab. An empiric broad spectrum therapy covering gram positive, negative and anaerobes was instituted till complete recovery. The post-operative wound healing was uneventful and patient was discharged with appropriate advices on physiotherapy and rehabilitation including prosthetic considerations.

Fig 1: The radiograph of the leg showing fracture and extensive sinewy gaseous shadows in myo-fascial planes suggestive of gas gangrene

3. Result

The residual stump in the follow up was good and a hinged prosthesis was made under expert guidance for a speedy recovery and patient gaining enough mobility for self-ambulation of short distances and basic self-care. There was no related or remote complication to surgical wound noted in long follow up.

4. Discussion

The association of fracture with gas gangrene is uncommon and in one article only 50 cases were reported in literature search by the author. Most of the cases who survived did so with amputation. Half of the cases were related to simple fracture and very few to open ones [5]. Radical amputation has been a good treatment option in cases with advanced disease with little hope for limb salvage [6]. The etiology of true gangrene or a spontaneous one could not be made as the patient had risk factors for both the neglected led to advanced stage not amenable to debridement or even below knee amputation. In cases of early presentation, limb salvage should be attempted and is successful in some cases. In a report, a literature review of salvaged cases of gas gangrene reported in English language literature showed 11 cases till June 2011 [7]. The author also present a detailed case of gas gangrene of arm in a drug abuser managed with surgical debridement and supportive care. Recently, use of vacuum assisted drainage has been found to be effective in curing gas gangrene in reports [8]. In our case, the attempt of limb salvage was considered futile and not cost-effective in the long run. The amputation in certain settings has been considered safer, economic option with early return to activity and vocation [9]. The adherence to practice holistic care considering overall health status of patient is paramount in decision making.

5. References

1. Cline K, Turnbull TL. Clostridial myonecrosis. Ann Emerg Med. 1985; 14(4):59-66.
2. Hart GB, Lamb RC, Strauss MB. Gas gangrene. J Trauma. 1983; 23:991-1000.
3. Rai RK, Londhe S, Sinha S, Campbell AC, Aburiziq IS. Spontaneous bifocal clostridium septicum gas gangrene. J Bone Joint Surg [Br]. 2001; 83-B:115-6.
4. Present DA, Meislin R, Shaffer B. Gas gangrene: a review. Orthopaedic Review. 1990; 19(4):333-344.
5. Ying Z, Zhang M, Yan S, Zhong Zhu Z. Gas Gangrene in Orthopaedic Patients. Case Rep Orthop, 2013.
6. Stevens DL, Bryant AE. The role of clostridial toxins in the pathogenesis of gas gangrene, Clinical Infectious Diseases 2002; 35(1):93-100.
7. John Aggelidakis J, Lasithiotakis K, Topalidou A, Koutroumpas J, Kouvidis G, Katonis P. Limb salvage after gas gangrene: a case report and review of the literature. World J Emerg Surg. 2011; 6:28.
8. Liu Z, Zhao D, Wang B. Improved vacuum sealing drainage in the treatment of gas gangrene. Int J Clin Exp Med. 2015; 8(10):19626-19628.
9. Heck R. General Principles of Amputations. In Campbell's Operative Orthopedics. 11 ed. Edited by: Canale ST, Beaty JH. Pensylvania: Mosby, Elsevier 2008, 562-566.