

A Clinical Study of 50 Patients of Cellulitis Treated in our Hospital

Reina Khadilkar^a, Anuradha Dnyanmote^a, Siddharth Khadilkar^b, Shahaji Chavan^c

^aAssociate Professor ^bIntern ^cProfessor, Department of General Surgery, Dr. D.Y. Patil Medical College, Pimpri, Pune, Maharashtra, 411018, India.

Abstract

Cellulitis is an inflammation of skin and subcutaneous tissue following a trivial trauma to the skin. Lower limb cellulitis is the commonest site for this inflammation. Cellulitis can occur anywhere on the body, but is most commonly encountered on the lower legs, especially near the shins and ankles. Under normal circumstances, the skin provides an effective barrier against invasion by micro-organisms that live on the skin or that are present in the environment. *Methods:* In our study, we studied 50 patients of cellulitis admitted to our hospital. Patients of cellulitis were diagnosed and given the standard treatment protocol. admission to hospital, All routine investigations, USG of the affected limb, Abdomen where necessary. Conservative management. In one case, patient had to be shifted to ICU and surgical intervention. *Results:* In this study of 50 patients, 35 were male and 15 were female patients. Out of these 50 patients 47 patients presented with lower limb cellulitis, 2 patients with upper limb cellulitis and 1 patient with abdominal wall cellulitis. Out of 50 patients 45 patients had co-existing Diabetes mellitus, 17 patients were grossly anaemic and 16 patients were found to have hypoproteinemia. 48 patients were treated conservatively, 2 required surgical debridement. 1 patients developed necrotising fasciitis and needed ICU management. No fatalities were recorded. *Conclusion:* Cellulitis is more common in lower limbs. In the lower socio-economic strata, anaemia and hypoproteinemia add to the development of cellulitis. Diabetes is a major comorbid condition that predisposes to cellulitis after trivial trauma. Conservative management helps if

started early

Keywords: Cellulitis; Debridement; Magsulf dressings; IV antibiotics; Diabetes; Emergency care.

Introduction

Cellulitis is an inflammation of skin and subcutaneous tissue following a trivial trauma to the skin. Cellulitis arises following bacterial infection of the skin. It presents as a swollen, red area that feels hot and tender, and which may spread rapidly. Lower limb cellulitis is the commonest site for this inflammation. Cellulitis can occur anywhere on the body, but is most commonly encountered on the lower legs, especially near the shins and ankles [1].

Under normal circumstances, the skin provides an effective barrier against invasion by micro-organisms that live on the skin or that are present in the environment. It is a first line defense that stops micro-organisms from entering the body and multiplying. A bacterial infection occurs when bacteria successfully invade the soft tissues through small wounds/abrasions on the skin surface or through existing conditions, e.g. leg ulceration or tinea pedis (athlete's foot) [3].

The common symptoms of cellulitis, which may result in skin changes affecting its colour, sensation and temperature are redness of the skin: presents as either red streaking or broad areas of redness. It may be difficult to diagnose cellulitis from observation in people with darker skin, therefore it is important to recognise other clinical symptoms as they present [2].

Swelling, pain or tenderness, area of heat (hot/warm), tender, erythematous swelling in tissues surrounding an existing wound a tender, swollen limb with

Corresponding Author: Anuradha Dnyanmote, Associate Professor, Department of General Surgery, DR. D.Y. Patil Medical College, Pimpri, Pune, Maharashtra, 411018, India. E-mail: adnyanmote@gmail.com

Received on 13.09.2017, Accepted on 25.09.2017

generalised erythema may be accompanied by fever [3].

Other predisposing conditions are grazes, abrasions, cuts, puncture wounds, Varicose eczema, leg ulceration, circulatory problems such as inadequate blood flow to the limbs, Peripheral vascular disease and Lymphatic insufficiency, or poor lymphatic drainage. Diabetes, Chronic venous insufficiency, chronic recurrent fungal infection of feet and toes, lipodermatosclerosis, poor hygiene, hypoproteinemia, anaemia predispose to rapid spread of cellulitis to deeper structures like muscles [5].

It is important to diagnose cellulitis in early stage and start emergency management on war-footing to prevent its rapid spread. Co-morbid conditions need to be identified and treated along with cellulitis problem.

Methods

Patients of cellulitis admitted to this hospital were diagnosed and given the standard treatment protocol.

Table 1: Region involved

Sr. No.	Region Involved	Male	Female	Total
1	Lower Limb	32	15	47
2	Upper Limb	2	0	2
3	Abdominal Wall	1	0	1

Table 2: Associated co-morbidities

Sr. No	Co-Morbidity	Male	Female	Total
1	Diabetes Mellitus	39	6	45
2	Anemia	2	15	17
3	Hypoproteinemia	1	15	16

conservatively. One patient developed necrotising fasciitis and needed ICU management. No fatalities were recorded. In our study we found cellulitis of lower limb was commonest and was found in more number of males than in females. This table shows that diabetes mellitus was the commonest co-morbidity associated with cellulitis. Second and third being anaemia and hypoproteinaemia.

Discussion

In our study we found that lower limb cellulitis is the commonest presentation of cellulitis. Rarely other sites such as upper arm or abdominal wall may be

Admission to Hospital

All routine investigations including RFT, BSL and Chest X-Ray, X-Ray of the affected limb, USG Abdomen in one case who came with cellulitis of the abdominal wall.

IV Antibiotics, IV fluids, Limb elevation, BSL control by Inj. Insulin, Magsulf dressing application.

Antibiotics were changed as per requirement, Magsulf dressing was changed once a day and wrinkling was noted daily.

In one case, patient had to be shifted to ICU and needed massive debridement and fasciotomy as he developed necrotising fasciitis.

Results

In this study of 50 patients, 35 were male and 15 were female patients, 47 patients presented with lower limb cellulitis, 2 with upper limb and 1 with abdominal wall cellulitis.

Forty-five patients had co-existing Diabetes mellitus, 17 were grossly anaemic and 16 were found to have hypoproteinemia. 49 patients were treated

involved where it can be challenging to diagnose [4].

Cellulitis can occur anywhere on the body, but is most commonly encountered on the lower legs, especially near the shins and ankles [1].

Diabetes is a major co-morbid condition and uncontrolled glycemic levels result in rapid spread of cellulitis whereby it can become life threatening or fatal necrotising fasciitis as in one case [3].

Presenting signs of Necrotizing Fasciitis (NF) are often non-specific and may resemble cellulitis, All clinicians must be alert to the clinical signs of NF and if suspected, avoid delay in appropriate treatment with urgent surgical exploration and antibiotics [5, 8].

In our hospital we cater to patients from low socio-economic conditions and encounter higher percentage of anaemia and hypoproteinemia as an associated co-morbidity [7].

Our protocol is standard and IV antibiotics, limb elevation, magsulf dressings is the routine care procedure. In our study, out of 50 patients, 47 were treated conservatively, two required surgical debridement and one patient died of necrotising fasciitis inspite of ICU management and surgical treatment. Despite the size of the problem, there is a relative lack of good evidence-based literature for the management of patients with cellulitis.

There is only one published set of guidelines using a systematic approach [5]. Although cellulitis affects the skin and subcutaneous tissues and looks harmless.

It is potentially life threatening especially if accompanied by serious co-morbid conditions like local limb problems due to venous or arterial insufficiency, fungal infections of the skin systemic diseases like diabetes and immunodeficiency diseases [10].

General measures include rest, elevation of any affected limbs, and analgesia. The area of cellulitis should be clearly marked and reviewed daily for progression or regression to assess the efficacy of the antibiotic regimen [11].

However, there is still uncertainty regarding the optimal antibiotic choice, duration, and route of antibiotic therapy, and the use of corticosteroids.

A recent Cochrane review could not draw any definitive conclusions on the optimal antibiotics, duration, or route of administration from an analysis of 25 randomised controlled trials, as no two trials had compared the same antibiotics [12].

Conclusion

In our study we found that cellulitis affects lower limbs most commonly, it is more common in males and extremely common in diabetics especially those who have neglected proper treatment for glycemic control. Cellulitis is potentially a serious problem and must be diagnosed and treated at the earliest. Conservative management with hospital admission and IV antibiotics helps. Undiagnosed, uncontrolled Diabetes can lead to fulminant necrotising fasciitis

and therefore it is imperative to control blood glyceic levels with Insulin during the early management of cellulitis. Anaemia and hypoproteinemia is often detected in patients of low socio-economic strata, especially female patients and must be kept in mind while treating cellulitis.

References

1. Cox N, Lawrence CM. Diagnostic Problems in Dermatology. Mosby, London: 1998;146-7.
2. Bailey IS, Karran SE, Toyn K, Brough P, Ranaboldo C, Karran SJ. Community surveillance of complications after hernia repair. *Br Med J* 1992;304(6825):469-71.
3. Brothers, T. E., Tagge, D.U., Stutley, J. E. et al. Magnetic resonance imaging differentiates between necrotizing and non-necrotizing fasciitis of the lower extremity. *J Am. Coll. Surg.* 1998;187:416-421. 23.
4. Moore Z, Cowman S. Effective wound management: identifying criteria for infection. *Nurs Stand* 2007;21(24):68-76.
5. CREST- Clinical resource efficiency support team guidelines on the management of cellulitis in adults June 2005.
6. Gilchrist B. Wound infection. In: *Wound Management Theory and Practice*. 1999.
7. Kremer, M., Zuckerman, R., Avraham, Z., Raz, R. Long term antimicrobial therapy in the prevention of recurrent soft-tissue infections. *J. Infection* 1991;22:37-40.
8. Majeski, J., Majeski, E. Necrotizing faciitis; improved survival with early recognition by tissue biopsy and aggressive surgical treatment. *Southern Medical Journal* 1997;90(11):1065-8.9. 9. Rowland B (2002) *Gale Encyclopedia of Medicine*. The Gale Group Inc Gale, Detroit, USA.
10. Vinen J, Hudson B, Chan B, et al. A randomized comparative study of once-daily ceftriaxone and 6-hourly flucloxacillin in the treatment of moderate to severe cellulitis. Clinical efficacy, safety and pharmaco-economic implications. *Clin Drug Invest*; 1996;12:221-5.
11. Clinical Resource Efficiency Support Team (2005) Guidelines on the management of cellulitis in adults. Crest, Belfast. <http://www.acutemed.co.uk/docs/Cellulitis%20guidelines,%20CREST,%2005.pdf>.
12. Kilburn SA, Featherstone P, Higgins B, Brindle R. Interventions for cellulitis and erysipelas. *Cochrane Database Syst Rev* 2010;6:CD004299.