



E-ISSN: 2616-3470
P-ISSN: 2616-3462
© Surgery Science
www.surgeryscience.com
2019; 3(1): 537-539
Received: 20-08-2018
Accepted: 24-09-2018

Dr. Robindera Kour
In Charge Consultant Surgery,
Govt. Hospital Sarwal, Jammu,
Jammu and Kashmir, India

Dr. Gurpreet Kour
Medical Officer, Acharya Shri
Chander College of medical
Sciences, Jammu, Jammu and
Kashmir, India

Dr. Iqbal Singh
Assistant Professor, Public Health
Dentistry, Indira Gandhi
Government Dental College,
Jammu, Jammu and Kashmir,
India

Dr. Nipun Kslosotra
Consultant Orthopedics, Govt.
Hospital Sarwal, Jammu, Jammu
and Kashmir, India

Dr. Rajiv Sharma
Medical superintendent, Govt.
Hospital Sarwal, Jammu, Jammu
and Kashmir, India

Correspondence
Dr. Robindera Kour
In charge Consultant Surgery,
Govt. Hospital Sarwal, Jammu,
Jammu and Kashmir, India

International Journal of Surgery Science

Determining the clinico-demographic-etiologic profile of lower limb cellulitis in non-diabetics: a cross sectional study

Dr. Robindera Kour, Dr. Gurpreet Kour, Dr. Iqbal Singh, Dr. Nipun Kslosotra and Dr. Rajiv Sharma

DOI: <https://doi.org/10.33545/surgery.2019.v3.i4i.379>

Abstract

Objective: To determine the clinico-demographic-etiologic profile of lower limb cellulitis in non-diabetics

Methods: This prospective study was conducted among 38 non-diabetic patients with lower limb cellulitis attended the Department of General Surgery of Government Hospital Sarwal, Jammu, India. The severity of cellulitis was graded as per the CREST guidelines.

Results: Mean age of the study population was 46.21 years. Cellulitis was more common in females (55.3%) and old age group. It was more unilateral (73.7%) and resulted more from post bite wounds (26.3%). 44.7% of the patients required wound debridement alone followed by of them wound debridement with fasciotomy (21.1%), while (5.3%) of patients required amputation.

Conclusions: Non-diabetic elderly patients are at higher risk of development of cellulites. Recognition of cellulites in early stages can minimize hospital admission and expenditure.

Keywords: Cellulitis, lower limb, non-diabetic

Introduction

Cellulitis is defined as the non-necrotising cutaneous inflammatory condition also involving the subcutaneous tissue, manifests with erythema, warmth, pain and swelling, the process actually related to the acute infection^[1].

In classical considerations, it is the inflammatory process without the formation of abscess or purulent discharge, or involvement of the underlying muscle, fascia or bones. But the recent texts define cellulitis along with its overlapping complications like frank abscess formation, ulcerations, involvement of the underlying fascia and the muscles^[2].

Lower limbs are the most commonly involved sites as the skin over there is much susceptible to the injuries mentioned^[3]. As commonly known, diabetics are the most susceptible population for the lower limb cellulitis primarily because of the fact they have more incidence of foot ulcers (due to the neuropathy and vasculopathy which ensues in the form of sensory loss and poor distal circulation) and also because they are immunocompromised^[4].

Poor glycemic control aids the growth of organisms in the ulcers which develop and eventually results up in cellulitis. Yet, there is a significant section of the population who are non-diabetics and also more prone to the development of lower limb cellulitis and its complications^[5].

Early cellulitis in the Non diabetics can be managed in out-patient unit with oral antibiotics, analgesics and treating the primary cause. But cellulitis of higher grades, with its complications like blisters, myositis, and fasciitis needs hospital admission, parenteral antibiotics, and surgical management^[6].

Cellulitis is more common in patients with Diabetes and its co-morbidities. But many non-diabetics have lower limb cellulitis that have a better prognosis than diabetic patients. But this group is often overlooked and studies on cellulitis are sparse in the Indian setup. This study was instigated to find out the etiologic and demographic profile of lower limb cellulitis in non-diabetics.

Materials and methods

Study Design

This prospective case series study includes 38 non-diabetic patients, who got admitted for lower limb cellulitis at Department of General Surgery of Government Hospital Sarwal, Jammu, India.

Ethical approval and Informed consent

The study protocol was reviewed by the Ethical Committee of the Hospital and granted ethical clearance. After explaining the purpose and details of the study, a written informed consent was obtained.

Inclusion criteria

- Patients who had completed 18 years
- Those willing to give informed consent

Methodology

Patient demographics and general condition were recorded in the preformed questionnaire. All patients had relevant blood investigations along with the bacterial culture of the wounds. Doppler studies and X-rays were performed where necessary and patients were managed according to the severity. The severity of limb involvement was graded as per the CREST guidelines for cellulitis [7].

Statistical Analysis

The recorded data was compiled and entered in a spreadsheet computer program (Microsoft Excel 2010) and then exported to data editor page of SPSS version 19 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics included computation of percentages.

Results

Table 1: Demographic distribution of the study population

Age	N	%
<40	8	21.1
41-60	12	31.6
>60	18	47.3
Mean \pm SD	46.21 \pm 2.18	
Sex		
Female	21	55.3
Male	17	44.7
Total	38	100

Table 2: Distribution according to involvement of the limb in the study population

Limb involvement	N	%
Unilateral	28	73.7
Bilateral	10	26.3
Total	38	100

Table 3: Distribution of etiology of cellulitis in the study population

Etiology	N	%
Post bite	15	39.5
Space infection	11	28.9
Traumatic ulcer	7	18.4
Unknown	3	7.9
Immunocompromised	2	5.3
Total	38	100

Table 4: Distribution of management outcome in the study population

Management	N	%
Conservative	11	28.9
Wound debridement	17	44.7
Wound debridement with fasciotomy	8	21.1
Amputation	2	5.3
Total	38	100

Discussion

Infectious cellulitis is a common disease seen by a variety of physicians in both outpatient and hospital practice [8, 9]. Some patients with cellulitis require multiple hospital admissions because of the recurrent nature of this infection [10, 11]. Cellulitis is thought to be associated with limited mortality. Nevertheless, this infection involves an increasing number of elderly and debilitated patients. Recent studies dealing with cellulitis have analyzed predisposing factors, causative pathogens, and the usefulness of microbiological investigations and diagnostic imaging methods [12-17]. However, comprehensive information regarding medical outcomes for patients hospitalized for this infection is lacking.

In the present study most of the patients were in the elder age group which showed that as the age increases, the incidence of cellulitis increases. This result was similar to the result obtained in the study conducted by Rongey C *et al.* [18] observed mean age of 48.8 years in the cellulitis group but lower than the mean age (66.7 years) obtained by Sigridur *et al.* [19] It was also found that as the age of the patient increases, the severity of cellulitis also increases. In the present investigation females were more affected group 55.3% while males were more affected in the previous studies [18, 19].

In the present study, we have observed that 73.7% of the patients had unilateral lower limb involvement and 26.3% of the patients had bilateral lower limb involvement, but according to the study conducted by Smith *et al.* he observed the incidence of bilateral lower limb involvement is extremely rare [20].

Cellulitis superimposed on lower limb resulting post-bite cellulitis followed by traumatic ulcers space infections constituted a considerable proportion of the present study. This is supported by the study by Roujeau *et al* who showed that onychomycosis and dermatophyte infection in the web space can be a risk factor for cellulitis [21]. Also, in about 3 patients the exact cause responsible for the cellulitis was unknown which shows that patients had a very trivial injury, or the organisms were not cultivable by routine aerobic cultures. It was observed that 44.7% of the patients required wound debridement alone followed by of them wound debridement with fasciotomy (21.1%), while (5.3%) of patients required amputation.

Conclusion

In the present study concluded that Non-diabetic elderly patients are at higher risk of development of cellulites for that they have to be motivated to take care of their feet as the diabetic patients, as neglect of minor trauma or bites can lead to morbid illness necessitating major treatment like skin grafting. Recognition of cellulites in early stages can minimize hospital admission and expenditure.

References

1. Stevens DL, Bisno AL, Chambers HF, Everett ED, Dellinger P, Goldstein EJ *et al.* Practice guidelines for the diagnosis and management of skin and soft-tissue infections. *Clin Infect Dis.* 2005; 41(10):1373-406.
2. Clinical Research Efficiency support Team guidelines on the management of cellulitis in adults ISBN 1-903982-12-X.
3. Lazzarini L, Conti E, Tositti G, De Lalla F. Erysipelas and cellulitis: clinical and microbiological spectrum in an Italian tertiary care hospital. *J Infect.* 2005; 51:383-9.
4. Dupuy A, Benchikhi H, Roujeau JC, Bernard P, Vaillant L, Chosidow O *et al.* Risk factors for erysipelas of the leg (cellulitis): a case-control study. *BMJ.* 1999; 318:1591-4.
5. Eriksson B, Jorup-Ro'nstrom C, Karkkonen K, Sjo'blom AC, Holm SE. Erysipelas: clinical and bacteriologic spectrum and serological aspects. *Clin Infect Dis.* 1996;

- 23:1091-8.
6. Lipsky BA, Berendt AR, Deery HG. Diagnosis and treatment of diabetic foot infections. *Clin Infect Dis.* 2004; 39(7):885-910.
 7. Guidelines on the management of cellulitis in adults. Clinical Resource Efficiency Support Team (CREST) June 2005; 2(3):560-5.
 8. Bisno AL, Stevens DL. Streptococcal infections of skin and soft tissues. *N Engl J Med.* 1996; 334:240-245.
 9. Baddour LM. Cellulitis syndromes: an update. *Int J Antimicrob Agents.* 2000; 14:113-116.
 10. Baddour LM, Bisno AL. Recurrent cellulitis after saphenous venectomy for coronary bypass surgery. *Ann Intern Med.* 1982; 97:493-496.
 11. Kremer M, Zuckerman R, Avraham Z, Raz R. Long-term antimicrobial therapy in the prevention of recurrent soft-tissue infections. *J Infect.* 1991; 22:37-40.
 12. Dupuy A, Benchikhi H, Roujeau JC, Bernard P, Vaillant L, Chosidow O *et al.* Risk factors for erysipelas of the leg (cellulitis): case-control study. *BMJ.* 1999; 318:1591-594.
 13. Brewer VH, Hahn KA, Rohrbach BW, Bell JL, Baddour LM. Risk factor analysis for breast cellulitis complicating breast conservation therapy. *Clin Infect Dis.* 2000; 31:654-59
 14. Brook I, Frazier EH. Clinical features and aerobic and anaerobic microbiological characteristics of cellulitis. *Arch Surg.* 1995; 130:786-92.
 15. Semel JD, Goldin H. Association of athlete's foot with cellulitis of the lower extremities: diagnostic value of bacterial cultures of ipsilateral interdigital space samples. *Clin Infect Dis.* 1996; 23:1162-1164.
 16. Perl B, Gottehrer P, Raveh D, Schlesinger Y, Rudensky B, Yinnon AM. Cost-effectiveness of blood cultures for adult patients with cellulitis. *Clin Infect Dis.* 1999; 29:1483-88.
 17. Schmid MR, Kossman T, Duester S. Differentiation of necrotizing fasciitis and cellulitis using MR imaging. *AJR Am J Roentgenol.* 1998; 170:615-20.
 18. Ronney CA, Runyon B. Cellulitis in patients with cirrhosis and edema: an under-recognized complication more common than spontaneous bacterial peritonitis. *Am J Gastroenterol.* 2003; 290-4.
 19. Björnsdóttir S, Gottfredson M, Thórisdóttir AS. Risk factors for acute cellulitis of the lower limb: a prospective case-control study. *Clin Infect Diseases.* 2005, 1416-22.
 20. Smith SR, Reed JF. Prevalence of mixed infections in the diabetic pedal wound: a perspective based on a national audit. *Int J Lower Extremity Wounds.* 2002; 1(2):125-8.
 21. Roujeau JC, Sigurgeirsson B, Kortring HC, Kerl H, Paul C. Chronic dermatomycoses of the foot as risk factors for acute bacterial cellulitis of the leg: a case-control study. *Dermatol.* 2004; 209:301-7.