Original Research Article

The clinico-demographic and etiologic profile of lower limb cellulitis in non-diabetics: a hospital based study

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Abstract

Aim: studied the clinico-demographic-etiologic profile of lower limb cellulitis in non-diabetics.**Materials and Methods:** This prospective study was conducted among 41 non-diabetic patients with lower limb cellulitis attended theDepartment of General Surgery of IGIMS, Patna, Biharfrom January 2015 to Dec 2015.The severity of cellulitis was graded as per the CREST guidelines. **Results:**Mean age of the study population was 45.01 years. Cellulitis was more common in females (53.6%) and old age group. It was more unilateral (70.7%) and resulted more from post bite wounds (39.0%). 43.9% of the patients required wound debridement alone followed by of them wound debridementwith fasciotomy (21.9%), while (4.7%) 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 nondiabetics 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 oralantibiotics, 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 thathas 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 clinio-demographic and etiologic profile of lower limb cellulitis in non-diabetics.

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Materials and methods

Study Design -This prospective study was conducted among 41 non-diabetic patients with lower limb cellulitis attended the Department of General Surgery of IGIMS, Patna, Bihar from January 2015 toDecember 2015. The severity of cellulitis was graded as per the CREST guidelines.

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 and exclusion 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	9	21.9
41-60	11	26.8
>60	21	51.3
Mean±SD	45.01±2.38	
Sex		
Female	22	53.6
Male	19	46.3
Total	**41**	**100.0**

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

Limb involvement	**N**	**%**
Unilateral	29	70.7
Bilateral	12	29.3
Total	**41**	**100.0**

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

Etiology	**N**	**%**
Post bite	16	39.0
Space infection	12	29.3
Traumatic ulcer	8	19.5
Unknown	3	7.3
Immunocompromised	2	4.9
Total	**41**	**100**

Table 4: Distribution of management outcome in the study population

Management	**N**	**%**
Conservative	12	29.3
Wound debridement	18	43.9
Wound debridement with fasciotomy	9	21.9

Amputation	2	4.9
Total	**41**	**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 53.6% while males were more affected in the previous studies[18,19]. In the present study, we have observed that 70.7% of the patients had unilateral lower limb involvement and 29.3% 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 43.9% of the patients required wound debridement alone followed by of them wound debridementwith fasciotomy (21.9%), while (4.9%) 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.

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