Section: General Surgery

Original Research Article

A STUDY TO EVALUATE PRE-INSTITUTIONAL RISK FACTORS AND POST SURGICAL BURDEN FOR WHOLE LOWER LIMB CELLULITIS- A PROSPECTIVE OBSERVATIONAL STUDY

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ABSTRACT

Background: Cellulitis is a common bacterial infection of the skin and subcutaneous tissues, most frequently affecting the lower limbs. Whole lower limb cellulitis is associated with significant morbidity, economic burden, and surgical workload. In the post-COVID era, an increase in incidence has been observed, with community-related factors contributing substantially to delayed presentation.

Materials and Methods: A prospective observational study was conducted at the Department of General Surgery, RIMS Hospital, Raichur, over one year. A total of 100 patients with unilateral whole lower limb cellulitis were enrolled. Data on pre-institutional risk factors, clinical presentation, management, and outcomes were collected using structured questionnaires and analyzed using descriptive and inferential statistics.

Results: The mean age of affected patients was 45 years, with male predominance (84%). Community-related factors such as self-medication, self-management, and traditional remedies were major contributors to delayed presentation. Neglected wounds and chronic NSAID use were additional risk factors. Post-COVID, there was a 20% rise in cases. Around 20–30% required surgical interventions such as debridement or fasciotomy, while few progressed to amputation. Prolonged hospital and ICU stays were noted, adding to healthcare and economic burden.

Conclusion: Whole lower limb cellulitis is a significant surgical and public health concern, with community practices and delayed hospital presentation being major risk factors. Post-COVID surge further amplified the burden. Public awareness, early recognition, and prompt medical intervention are essential to reduce morbidity, mortality, and healthcare costs.

Keywords: cellulitis, risk factors, burden.

INTRODUCTION

Cellulitis is non-suppurative infection of tissues which is related to point of injury.[2] It is characterized by pain, swelling, redness, warmth of affected area & systemic signs like malaise, fever, nausea, vomiting. Cellulitis affects lower limb in 88 %cases**.** Although it may affect any part of body Lower limb are involved more frequently.[3] Among the patients coming to institution with whole lower limb cellulitis the main risk factors for delayed arrival to hospital which are endangering in multiple ways include

Community factors like-Self medication, Self management, Influence by homemade traditional remedies, Neglected wounds. some patients needed debridement or fasciotomy. Post covid there is 20 % surge in cases. Early identification of preventable risk factors is vital to create awareness and improve holistic patient care.[7]

Objectives

- To study age and sex distribution of patients with unilateral whole lower Limb cellulitis
- To analyze various Risk Factors for unilateral whole Lower Limb Cellulitis
- To study short term outcomes
- To study surgical burden

MATERIALS AND METHODS

All patients presenting to the department of General Surgery RIMS Hospital with unilateral whole lower limb cellulitis. Total of 100 patients will be enrolled in the study.

Assessment of risk factor will be done on day 1 and surgical burden and outcome assessment will be done till Day of discharge

To each case Risk factors for cellulitis are charted in excel sheet**.**

Risk Factors

1. Community Factors
2. Neglected wounds
3. Chronic use of NSAIDs
4. Others

Community factors included

- Self medication
- Self management
- Homemade traditional remedies.

Data Collection: Through Google form, Questionnaire format Statistical Analysis; This can be expressed in terms of percentage using Likert scale-measures of

Central tendency like mean, median, and mode, measures of dispersion interquartile range, standard deviation and variants.

Inclusion Criteria

- All Patients admitted with unilateral whole Lower Limb Cellulitis

Exclusion Criteria

- Patients less than 18 years
- Patients with bilateral Lower Limb Cellulitis
- Patients with proven systemic cause of cellulitis

RESULTS

Total of 50 patients presented to institution with whole Lower Limb cellulitis

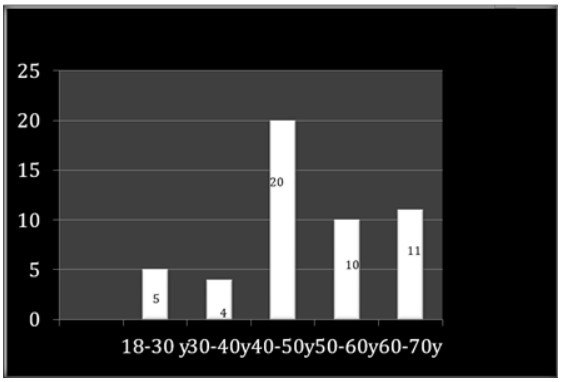

Figure 1: Based on age group- Mean age- 45 years

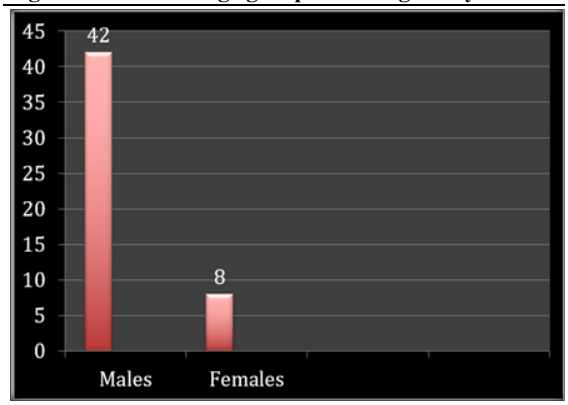

Figure 2: Based on Sex- 42 were males 8 were females

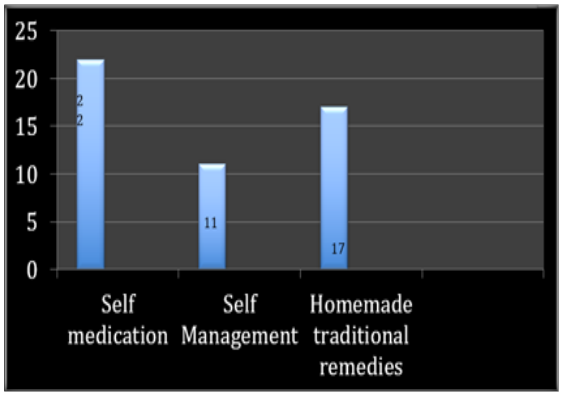

Figure 3: Community factors

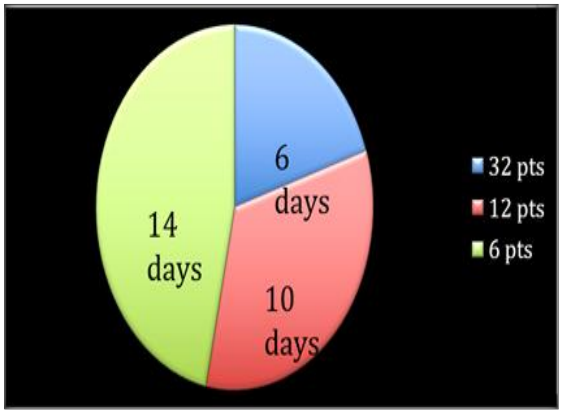

Figure 4: Time of presentation

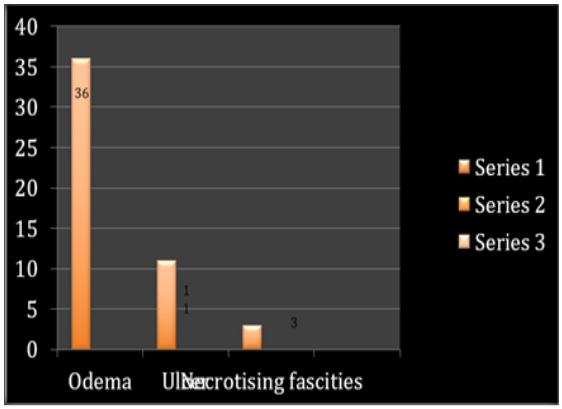

Figure 5: Presentation

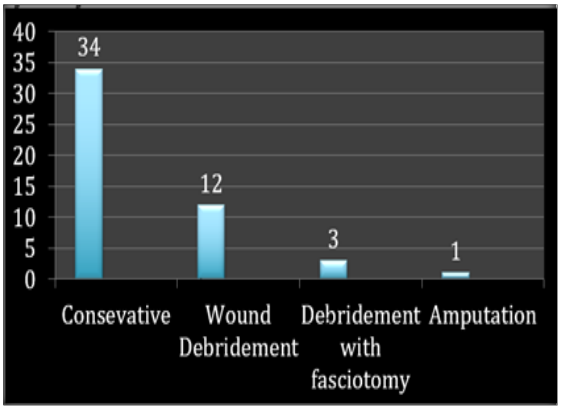

Figure 6: Management

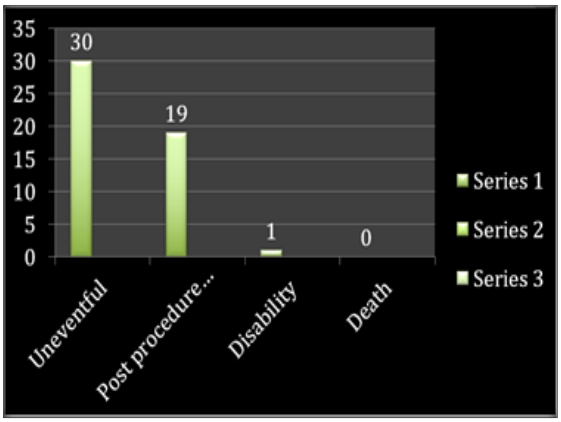

Figure 7: Outcome

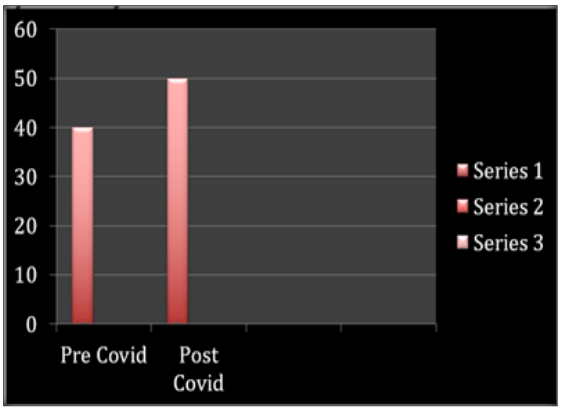

Figure 8: Post covid surge

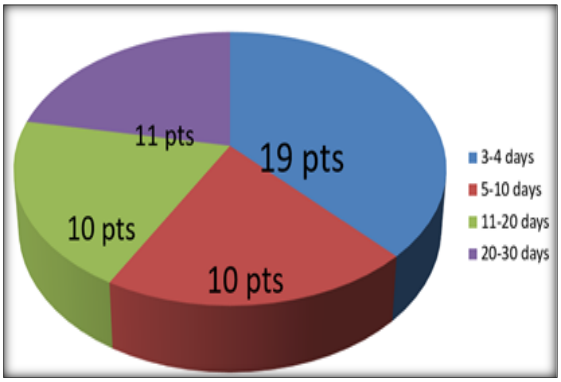

Figure 9: Total duration of hospital stay

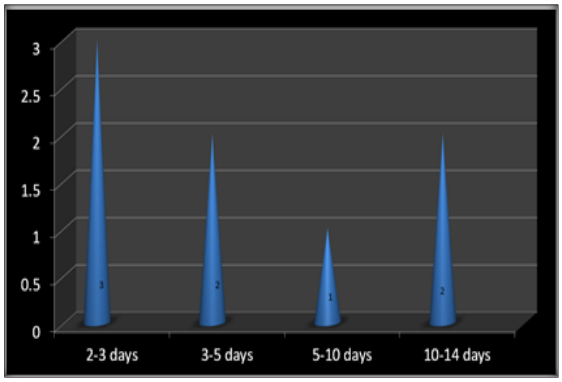

Figure 10: Duration of ICU Stay

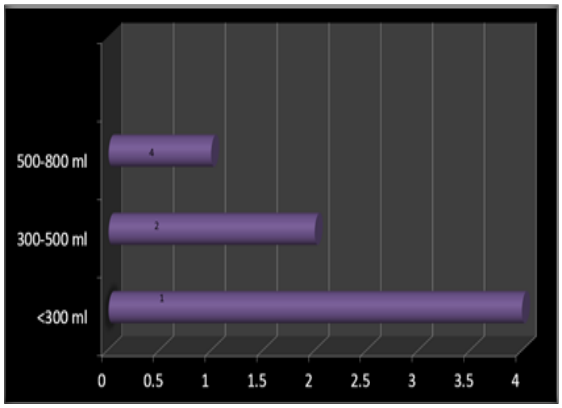

Figure 11: Based on Blood loss

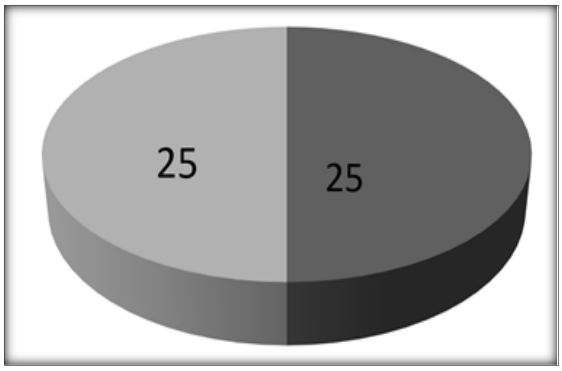

Figure 12: Need of Blood Transfusion

DISCUSSION

Lower Limb is main Locomotary Organ. It includes Pelvic girdle, buttocks, hips, thigh, Lower leg and foot.

Cellulitis is frequently diagnosed bacterial infection of skin that usually presents initially as inflammation, can progress to become potentially serious condition Cellulitis can occur anywhere on the body but most commonly encountered on Lower legs. Ascending cellulitis usually due to streptococcal/Staphylococcal infection, is always unilateral and typically starts at foot. The skin offers an extensive barrier, but small breaks or cuts make way for bacterial invasion. Lymphatic system, network of vessels and nodes are potential paths for spread of infection. Previous studies have shown

that Risk factors were Interdigital intertrigo, Lymphedema, Leg edema, leg eczema and sole abnormalities Our efforts were to look for the above in local population, as it is vital in our study there is male preponderance & susceptible age group is 40-50 years. It is mainly the community factors like self medication most commonly due to application of topical agents, self management, homemade traditional remedies. These factors are responsible for delayed arrival to hospital Most commonly presenting with Edema followed by ulcer These lead to complications and spread of infection 20-30 % patients needed debridement or fasciotomy. All patients in early stages were treated conservatively along with antibiotics

In advanced cases: debridement & fasciotomy Few cases landed in amputation. Post covid there is 20 % surge in cases under the influence of community factors which played a vital/major role Poverty reflecting low socio economic status and Illiteracy make people fall into trap of local quacks. The above factors led to addition of morbidity and mortality as well as economic loss to the patient and hospital Our study highlighted preventable risk factors Educating the people by creating awareness on preventable risk factors can significantly reduce hospitalization and sequelae.

CONCLUSION

Whole Lower limb cellulitis presented as major burden to hospital and incidence is increased by 10-20 % in post covid era, where community factors and neglected wounds are major pre institutional risk factors. Efforts to reduce primary episode of delay should be incorporated to decrease economic impact, morbidity and mortality. Awareness can play preventive role in this society. Encouraging People for early diagnosis and treatment may prevent prolonged hospital admissions, reduce health costs incurred for management of unilateral whole lower limb cellulitis. OVERALL REDUCING POST SURGICAL AS WELL AS SURGEON'S BURDEN.

REFERENCES

1. Williams N, Connell P, Andrew W. McCaskie. Bailey & Love's SHORT PRACTICE OF SURGERY. 27th Edition.
2. Yu-Chaun Chuang, Po-Yu Liu, Kuo-Lung Lai, Chien-Hao Tseng.Bilateral Lower Limb cellulitis: A Narrative Review of an overlooked clinical Dilema.International Journal of General Medicine.19 january, 2022
3. J. Cannon, G Rajakaruna, J. Dyer, J. Carpetis et al. Severe lower limb cellulitis: defining the epidemiology and risk factors for primary episodes in a population-based case-control study. Clinical microbiology and Infection 24(2018) 1089-1094
4. Leonel Tianyi, Clarence Mvalo Mbanga, Celestin Danwang et al. Risk factors and complications of lower limb cellulitis in Africa: a sytematic review.BMJ open 2018;8
5. Venkata Narayana Badipatla, Srinivasa Rao Gurugubelli, mallapragada Rama Chandra, Peela laxhmi Teja et al. A Clinical Study of Lower Limb cellulitis. International Surgery Journal.2022 Aug;9(8):1421-1425
6. Sigridur Bjornsdottuir, Magnus Gottfredsson, Anna S. Thorisdottir, Gunnar B. Gunnarson et al. Risk Factors for Acute Cellulitis of the lower limb: A prospective Case Control Study. CID 2005:41
7. Mary Eagle. Understanding cellulitis of the lower limb.Wound essentials, Volume 2.2007
8. Sarah Maitre. Cellulitis: definition, etiology, diagnosis and treatment. American Medical Association Journal of Ethics. Dec 2006, volume 8 Number 12: 831-833
9. Julio Collazos, Belen de le Fuente, Alicia Garcia, Helena Gomez. Cellulitis in adult patients: A large, multicenter, observational, prospective Study of 606nepisodes and analysis of the factors related to the response to treatment. PLoS ONE 13(9).September 27 2018.
10. Miriam Santer, Anna Lalonde, Nick A Francis, Peter Smart et al.Management of Cellulitis: Current practice & research questions. British Journal of General Practice, December 2018.