

CLINICO-EPIDEMIOLOGICAL STUDY OF PYODERMAS AT A TERTIARY HEALTH CENTRE IN NORTH KARNATAKA

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Abstract

Background: The pyodermas are one of the commonest clinical conditions encountered in dermatological practice. Various factors influence the incidence of pyodermas. Poverty, malnutrition, overcrowding, poor hygiene, climatic conditions like hot and rainy season have been stated to be responsible for its high incidence in the lower socio-economic strata in the developing countries.

Objective: To study the clinico-epidemiological Study of Pyodermas at a Tertiary Health Centre in North Karnataka. **Material & Methods:** The present cross sectional observational study was carried out in Department of Dermatology at our tertiary care centre, FOMS, KBNU, Kalaburagi, India during the study period from 2022 to February 2023 involving 150 cases of pyoderma. **Results:** Out of 115 cases of primary pyoderma, 26.7% had Impetigo contagiosa, 18.7% had folliculitis, 9.3% with bullous impetigo. Out of 35 cases of secondary pyoderma, 8% had infected scabies, 6% each had infected eczema and infected wounds. 70% had impetigo contagiosa and 85.7% bullous impetigo were from 0-10 years age group. 33.3% infected eczema from 11-20 years, 41-50 years and 51-60 years each. Gender wise distribution of primary pyoderma cases showed that 65% males had impetigo contagiosa, 57.1% males had folliculitis, 57.1% females had bullous impetigo, 65.1% males had furunculosis, 81.8% females had acute paronychia, all 100% males had carbuncle and 66.7% males had cellulitis. Gender wise distribution of secondary pyoderma cases showed that 83.3% males had infected scabies, 66.7% males had infected eczema, 55.6% males had infected wound and 60% males had infected ulcer. **Conclusion:** Commonly observed primary pyoderma in our study was Impetigo contagiosa 26.7%, folliculitis 18.7%. Commonly observed secondary pyoderma was infected scabies 8% and infected eczema 6%. Commonly affected age group was 0-10 years and commonly affected gender was male.

INTRODUCTION

The word pyoderma was derived from 'Greek' word 'Puon and Derma' which means pus and skin respectively. It has been used to denote any purulent skin disease since 1930. Any purulent skin disease is called pyoderma.^[1] In India, bacterial infections of skin constitute a large portion of skin disease, accounting for 17% of all clinic visits.^[2] Pyogenic

infection of the skin is one of the clinical presentations commonly seen in dermatology department and in general practice.^[3] Primary infections tend to have a characteristic morphology and course, are incited initially by a single organism and arise in normal skin. Secondary infections originate in diseased skin as a superimposed condition and the organism do not play a prominent role in initiating the disease but may be important in protracting or intensifying it.^[4]

The pyodermas are one of the commonest clinical conditions encountered in dermatological practice.^[5] Various factors influence the incidence of pyodermas. Poverty, malnutrition, overcrowding, poor hygiene, climatic conditions like hot and rainy season have been stated to be responsible for its high incidence in the lower socio-economic strata in the developing countries.^[6]

Hence, we carried out this study with the objective to study the clinico-epidemiological Study of Pyodermas at a Tertiary Health Centre in North Karnataka.

Objective

To study the clinico-epidemiological Study of Pyodermas at a Tertiary Health Centre in North Karnataka

MATERIALS AND METHODS

Study Setting: Department of Dermatology at our tertiary care center, FOMS, KBNU, Kalaburagi, India

Study Population: All cases of pyoderma both primary and secondary

Study Period: September 2022 to February 2023

Study Design: Cross sectional observational study

Sample Size: 150 cases

Sampling Technique: Simple Random sampling method

Inclusion Criteria

Patients presented with pyoderma from all the ages and both genders

Methods of Data Collection

This is a hospital based cross-sectional observational study. Ethical clearance was taken from the institution. Patients presenting with pyodermas belonging to various age groups and of either sex were included in the study. Patient who had taken either of systemic or topical antimicrobial treatment were excluded from the study. After taking informed consent from the patients a detailed history and clinical examination was done.

Statistical Analysis

Data was collected by using a structure proforma. Data entered in MS excel sheet and analysed by using SPSS 24.0 version IBM USA. Qualitative data was expressed in terms of proportions. Quantitative data was expressed in terms of Mean and Standard deviation.

RESULTS

Table 1: Sociodemographic information of study participants

| | | Number | Percent |
|--------------------|----------|--------|---------|
| Age group in years | 0 to 10 | 58 | 38.7 |
| | 11 to 20 | 26 | 17.3 |
| | 21 to 30 | 19 | 12.7 |
| | 31 to 40 | 15 | 10.0 |
| | 41 to 50 | 15 | 10.0 |
| | 51 to 60 | 10 | 6.7 |
| | >60 | 7 | 4.7 |
| | Total | 150 | 100.0 |
| | | Number | Percent |
| Gender | Male | 94 | 62.7 |
| | Female | 56 | 37.3 |
| | Total | 150 | 100.0 |

We included total 150 cases of pyoderma in our study. Out of 150 cases, majority were from 0-10 years i.e. 38.7% followed by 17.3% from 11-20 years, 12.7% from 21-30 years, 10% each from 31-40 and 41-50 years. 6.7% from 51-60 and 4.7% from above 60 years age group. Gender wise distribution showed that 62.7% were males and 37.3% were females.

Table 2: Distribution according to type of pyoderma

| Primary pyoderma | | Number | Percent |
|--------------------|---------------------|--------|---------|
| Primary pyoderma | Impetigo contagiosa | 40 | 26.7 |
| | Folliculitis | 28 | 18.7 |
| | Bullous impetigo | 14 | 9.3 |
| | Furunculosis | 13 | 8.7 |
| | Acute paronychia | 11 | 7.3 |
| | Carbuncle | 3 | 2.0 |
| | Cellulitis | 6 | 4.0 |
| Secondary pyoderma | | Number | Percent |
| Secondary pyoderma | Infected scabies | 12 | 8.0 |
| | Infected eczema | 9 | 6.0 |
| | Infected wound | 9 | 6.0 |
| | Infected ulcer | 5 | 3.3 |

We diagnosed 115 cases as primary pyoderma and 35 as secondary pyoderma. Out of 115 cases of primary pyoderma, 26.7% had Impetigo contagiosa, 18.7% had folliculitis, 9.3% with bullous impetigo, 8.7% had

furunculosis, 7.3% had acute paronychia, 2% had carbuncle and 4% had cellulitis. Out of 35 cases of secondary pyoderma, 8% had infected scabies, 6% each had infected eczema and infected wounds. 3.3% had infected ulcer.

Table 3: Age wise distribution of primary pyoderma cases

| Age group | Impetigo contagiosa | | Folliculitis | | Bullous impetigo | | Furunculosis | | Acute paronychia | | Carbuncle | | Cellulitis | |
|-----------|---------------------|------|--------------|------|------------------|-------|--------------|-------|------------------|-------|-----------|-------|------------|-------|
| | No | % | No | % | No | % | No | % | No | % | No | % | No | % |
| 0 to 10 | 28 | 70.0 | 12 | 42.9 | 12 | 85.7 | 1 | 7.7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 11 to 20 | 8 | 20.0 | 14 | 50.0 | 2 | 14.3 | 6 | 46.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 21 to 30 | 4 | 10.0 | 0 | 0.0 | 0 | 0.0 | 3 | 23.1 | 6 | 54.5 | 0 | 0.0 | 1 | 16.7 |
| 30 to 40 | 0 | 0.0 | 1 | 3.6 | 0 | 0.0 | 1 | 7.7 | 2 | 18.2 | 0 | 0.0 | 2 | 33.3 |
| 41 to 50 | 0 | 0.0 | 1 | 3.6 | 0 | 0.0 | 0 | 0.0 | 1 | 9.1 | 2 | 66.7 | 1 | 16.7 |
| 51 to 60 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 7.7 | 1 | 9.1 | 0 | 0.0 | 1 | 16.7 |
| >60 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 7.7 | 1 | 9.1 | 1 | 33.3 | 1 | 16.7 |
| Total | 40 | 100 | 28 | 100 | 14 | 100.0 | 13 | 100.0 | 11 | 100.0 | 3 | 100.0 | 6 | 100.0 |

Age wise distribution of primary pyoderma cases showed that 70% had impetigo contagiosa from 0-10 years, 50% folliculitis from 11-20 years, 85.7% bullous impetigo from 0-10 years, 46.2% furunculosis cases from 11-20 years, 54.5% acute paronychia cases from 21-30 years, 66.7% carbuncle cases from 41-50 years and 33.3% carbuncle cases from 30-40 years.

Table 4: Age wise distribution of secondary pyoderma cases

| Age group | Infected scabies | | Infected eczema | | Infected wound | | Infected ulcer | |
|-----------|------------------|-------|-----------------|-------|----------------|-------|----------------|-------|
| | No | % | No | % | No | % | No | % |
| 0 to 10 | 8 | 66.7 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 11 to 20 | 4 | 33.3 | 2 | 22.2 | 0 | 0.0 | 0 | 0.0 |
| 21 to 30 | 0 | 0.0 | 3 | 33.3 | 1 | 11.1 | 0 | 0.0 |
| 31 to 40 | 0 | 0.0 | 0 | 0.0 | 3 | 33.3 | 2 | 40.0 |
| 41 to 50 | 0 | 0.0 | 3 | 33.3 | 3 | 33.3 | 1 | 20.0 |
| 51 to 60 | 0 | 0.0 | 3 | 33.3 | 1 | 11.1 | 0 | 0.0 |
| >60 | 0 | 0.0 | 0 | 0.0 | 1 | 11.1 | 2 | 40.0 |
| Total | 12 | 100.0 | 9 | 100.0 | 9 | 100.0 | 5 | 100.0 |

Age wise distribution of secondary pyoderma cases showed that 66.7% infected scabies from 0-10 years, 33.3% infected eczema from 11-20 years, 41-50 years and 51-60 years each, 33.3% infected wound cases each from 30-40 and 41-50 years. 40% each of infected ulcer cases from 31-40 and above 60 years age group.

Table 5: Gender wise distribution of primary pyoderma cases

| Gender | Impetigo contagiosa | | Folliculitis | | Bullous impetigo | | Furunculosis | | Acute paronychia | | Carbuncle | | Cellulitis | |
|--------|---------------------|------|--------------|------|------------------|-------|--------------|-------|------------------|-------|-----------|-------|------------|-------|
| | No | % | No | % | No | % | No | % | No | % | No | % | No | % |
| Male | 26 | 65.0 | 16 | 57.1 | 6 | 42.9 | 8 | 61.5 | 2 | 18.2 | 3 | 100.0 | 4 | 66.7 |
| Female | 14 | 35.0 | 12 | 42.9 | 8 | 57.1 | 5 | 38.5 | 9 | 81.8 | 0 | 0.0 | 2 | 33.3 |
| Total | 40 | 100 | 28 | 100 | 14 | 100.0 | 13 | 100.0 | 11 | 100.0 | 3 | 100.0 | 6 | 100.0 |

Gender wise distribution of primary pyoderma cases showed that 65% males had impetigo contagiosa, 57.1% males had folliculitis, 57.1% females had bullous impetigo, 65.1% males had furunculosis, 81.8% females had acute paronychia, all 100% males had carbuncle and 66.7% males had cellulitis.

Table 6: Gender wise distribution of secondary pyoderma cases

| Age group | Infected scabies | | Infected eczema | | Infected wound | | Infected ulcer | |
|-----------|------------------|-------|-----------------|-------|----------------|-------|----------------|-------|
| | No | % | No | % | No | % | No | % |
| Male | 10 | 83.3 | 6 | 66.7 | 5 | 55.6 | 3 | 60.0 |
| Female | 2 | 16.7 | 3 | 33.3 | 4 | 44.4 | 2 | 40.0 |
| Total | 12 | 100.0 | 9 | 100.0 | 9 | 100.0 | 5 | 100.0 |

Gender wise distribution of secondary pyoderma cases showed that 83.3% males had infected scabies, 66.7% males had infected eczema, 55.6% males had infected wound and 60% males had infected ulcer.

DISCUSSION

We included total 150 cases of pyoderma in our study. Out of 150 cases, majority were from 0-10 years i.e. 38.7% followed by 17.3% from 11-20 years, 12.7% from 21-30 years, 10% each from 31-40 and 41-50 years. 6.7% from 51-60 and 4.7% from above 60 years age group. Gender wise distribution

showed that 62.7% were males and 37.3% were females. (Table 1)

Badabagni Pet al,^[7] reported that the age of the patients varied from 2 months to 72 years. The peak incidence of pyoderma was observed in first decade. This is similar to finding observed in other studies.^[8,9] Study by Bhaskaran et al noticed maximum cases of pyodermas in 11 to 30 years of age group.^[10] Males were affected more than females. The similar findings were reported by other authors.^[8,9,10] Ramani et al noticed female preponderance in their study.^[9]

We diagnosed 115 cases as primary pyoderma and 35 as secondary pyoderma. Out of 115 cases of primary pyoderma, 26.7% had Impetigo contagiosa, 18.7% had folliculitis, 9.3% with bullous impetigo, 8.7% had furunculosis, 7.3% had acute paronychia, 2% had carbuncle and 4% had cellulitis. Out of 35 cases of primary pyoderma, 8% had infected scabies, 6% each had infected eczema and infected wounds. 3.3% had infected ulcer. (Table 2)

Badabagni Pet al,^[7] reported that among 300 patients with pyogenic skin infections, 270 (90%) cases were primary pyodermas and 30(10%) cases were secondary pyodermas. Impetigo formed largest clinical group with 111cases of which 81 cases (27%) were impetigocontagiosa and 30 (10%) cases were bullous impetigo followed by folliculitis 66 (22%), furunculosis 30(10%), ecthyma 18 (6%), sychosis barbae 15 (5%), cellulitis 9 (3%), acute paronychia 9 (3%), periporitis 6(2%), and carbuncle 6 (2%). In case of secondary pyodermas, infected scabies 9 (3%) and infected eczema 9 (3%) formed the largest group followed by infected wound 6 (2%), infected pemphigus 3 (1%) and infected trophic ulcer 3 (1%). Age wise distribution of primary pyoderma cases showed that 70% had impetigo contagiosa from 0-10 years, 50% folliculitis from 11-20 years, 85.7% bullous impetigo from 0-10 years, 46.2% furunculosis cases from 11-20 years, 54.5% acute paronychia cases from 21-30 years, 66.7% carbuncle cases from 41-50 years and 33.3% carbuncle cases from 30-40 years. (Table 3)

Age wise distribution of secondary pyoderma cases showed that 66.7% infected scabies from 0-10 years, 33.3% infected eczema from 11-20 years, 41-50 years and 51-60 years each, 33.3% infected wound cases each from 30-40 and 41-50 years. 40% each of infected ulcer cases from 31-40 and above 60 years age group. (Table 4)

Bhaskaran et al,^[10] and Khare et al,^[11] however, reported the maximum cases of pyoderma in the age group of 21-30 years. High incidence of pyoderma in the first three decades may be consequent to a more active life.

Gender wise distribution of primary pyoderma cases showed that 65% males had impetigo contagiosa, 57.1% males had folliculitis, 57.1% females had

bullous impetigo, 65.1% males had furunculosis, 81.8% females had acute paronychia, all 100% males had carbuncle and 66.7% males had cellulitis. (Table 5) Gender wise distribution of secondary pyoderma cases showed that 83.3% males had infected scabies, 66.7% males had infected eczema, 55.6% males had infected wound and 60% males had infected ulcer. (Table 6)

Consistent with reports of many studies, in our study also primary pyodermas are more common than secondary.^[12]

CONCLUSION

Commonly observed primary pyoderma in our study was Impetigo contagiosa 26.7%, folliculitis 18.7%. Commonly observed secondary pyoderma was infected scabies 8% and infected eczema 6%. Commonly affected age group was 0-10 years and commonly affected gender was male.

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