



Infectious Dermatoses in Ziguinchor (Senegal): Epidemiological, Clinical and Evolutionary Particularities

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Authors' contributions

This work was carried out in collaboration among all authors. All the authors participated in the design and writing of this work. All authors read and approved the final manuscript.

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ABSTRACT

Introduction: Infectious dermatoses are common in tropical countries. Their prevalence varies, with fungal causes predominating. Their severity is linked to the risk of life-threatening systemic complications. We aimed to describe the epidemiological, clinical and evolutionary aspects of infectious dermatoses.

Methodology: This was a retrospective cross-sectional study conducted over a period of 08 months. It included all the records of patients treated for infectious dermatoses in the dermatology department of the Ziguinchor regional hospital. Data entry and analysis were performed using Epi Info software version 7.2.4.0. and SPSS 13.0 software. Descriptive studies have been carried out by calculating frequencies, proportions and confidence intervals for qualitative variables. And for quantitative data, by calculating averages with their standard deviation. Analytical study using

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cross-tabulations. To compare frequencies, we used the Chi-square test² or the Fisher test. The significance level was $p < 0.05$.

Results: We collected 220 cases of infectious dermatoses, representing a hospital prevalence of 30.3%. The mean age of patients was 30.35 years (107 men and 113 women). Underlying conditions were diabetes in 23cases and HIV 1 infection in 13cases. A high prevalence of mycotic dermatoses has been noted in 50.7% (n=112), dominated by dermatophytosis in 22.7%. Viral dermatoses have been noted in 28.5% (n=63), with herpes zoster predominating in 6.3%, Bacterial dermatoses have been noted in 25.4% (n=56), represented mainly by non-necrotizing dermohypodermatitis in 7.2% (n=16). Parasitic dermatoses have been noted in 11.8% (n=26) and were dominated by scabies in 17.7% (n=40). All patients received etiological and symptomatic treatment. The outcome was favorable in 69.5% (n=153), although mortality was 2.27% (n=5).

Conclusion: Infectious dermatoses are a frequent request for care in tropical Africa, particularly in Ziguinchor. They have been dominated by mycotic and viral infections in children. In adults, diabetes and HIV infection are the major contributing factors. Mortality is linked to necrotizing bacterial dermohypodermatitis. Early diagnosis and management can improve prognosis.

Keywords: Epidemiology; infectious dermatoses; Ziguinchor; Senegal.

1. INTRODUCTION

Infectious dermatoses are cutaneous-mucosal manifestations associated with an infectious parasitic, fungal, bacterial or viral agent [1]. Their epidemiology is varying in tropical Africa, and they often pose a public health challenge [2]. They are a frequent and under-appreciated health problem in Senegal. These infectious dermatoses represent 64.7% of dermatological emergencies in Senegal [2]. Bacterial dermohypodermatitis are predominant and constitute the first reason for hospitalization with a mortality rate of 14.7% [3]. The main contributing factors reported were age, the existence of a skin break-in, lymphedema and immunosuppression (diabetes, HIV, cancer, immunosuppressive treatments) [3]. Delays to come to consult are a constant feature, with populations finding it difficult to access to specialized care. Severity is linked to complications such as septic shock and multi-visceral failure due to the immunosuppression they cause. These infectious dermatoses are often the circumstances in which chronic diseases such as diabetes, HIV infection and cancer have been discovered [1,2]. The aims of this study were to describe the epidemiological, clinical and evolutionary profile of infectious dermatoses in the Ziguinchor region.

2. MATERIALS AND METHODS

We had carried out a retrospective cross-sectional study over an 08-month period from January 01, 2019 to August 31, 2019 on the records of patients followed up in the

dermatology department of the Ziguinchor regional hospital for infectious dermatosis. The department of Ziguinchor covers an area of 1153 km². It is bordered to the north by the department of Bignonia, to the east by the department of Sedhiou, to the west by the department of Oussouye and to the south by the Republic of Guinea-Bissau (Fig. 1). The climate is continental, sometimes influenced by the sea. The various winds that blow are the monsoon to the south-north and the maritime trade winds to the north-east and south-west. The population of the commune of Ziguinchor has been estimated at around 621,171. Its ethnic make-up includes diolas, Mandingos, peulhs, wolofs, manjacques, bainoucks, mancagnes and balantes. Administratively, the department of Ziguinchor is divided into 2 arrondissements (Niaguis and Nyassia). In terms of decentralized administration, Ziguinchor is divided into six municipalities (Niaguis, Adeane, Boutoupa, Camaracounda, Nyassia and Enampore). The regional hospitals border Gambia, Guinea Conakry, Guinea Bissau and Mali. They are home to the two leading dermatology departments in Casamance. We included in the study all patient records followed for infectious dermatosis. The diagnosis of an infectious dermatosis was based on clinical aspects and/or confirmed by complementary bacteriological, mycological, parasitological and virological examinations. We excluded incomplete or unusable files from the study.

Data entry and analysis were performed using Epi Info software version 7.2.4.0. and SPSS 13.0 software. Descriptive studies have been carried out by calculating frequencies, proportions and

confidence intervals for qualitative variables. And for quantitative data, by calculating averages with their standard deviation. Analytical study using cross-tabulations. To compare frequencies, we used the Chi-square test² or the Fisher test. The significance level was $p < 0.05$.

3. RESULTS

We identified 220 files of patients followed for an infectious dermatosis. During the study period, 726 patient files were collected in dermatology department. The frequency of infectious dermatoses during our study period is 30.3%. The average age of patients was 30, with extremes ranging from 01 to 84 years. Fig. 2 shows the age distribution of patients. The patients were male in 107 cases (51%) and female in 113 cases (49%), i.e. a sex ratio of 1.04. The therapeutic itinerary of the patients has been illustrated in Table 1. There was a medical history in 69 cases. It was diabetes in 23 cases, high blood pressure in 16 cases, HIV infection in 13 cases, tuberculosis in 7 cases, nephropathy in 5 cases and cardiomyopathy in 2 cases.

Infectious dermatoses were mycotic in 112 cases (50.7%), viral in 63 cases (28.5%), bacterial in 56 cases (25.4%) and parasitic in 26 cases (11.8%). Table 2 illustrates the different causes of infectious dermatoses. Mycotic dermatoses were represented by dermatophyties (Fig. 3), scalp ringworm (Fig. 4), onychomycosis, oral and genital candidiasis and pityriasis versicolor. A case of actinomycotic mycetoma of the nose in a grower of Guinean origin has been noted (Fig. 5). Viral dermatoses were represented by intercostal shingles, molluscum contagiosum, varicella and genital condyloma (Fig. 6). Bacterial dermatoses were dominated by erysipelas, impetigo (Fig. 7) and furuncle. Parasitic dermatoses included scabies, cutaneous larva migrans and pediculosis pubis. HIV serology was positive in 13 cases (5%), and the dermatoses concerned were necrotizing dermohypodermatitis in 2 cases, ringworm in 2 cases, ringworm of the scalp in 1 case, candidiasis in 4 cases, pediculosis pubis in 1 case, and intercostal shingles in 3 cases.

Cutaneous histopathology confirmed Kaposi's disease in 2 cases and tuberculoid leprosy in one. All patients have been treated according to etiology. Favorable progression was in 153 cases (71%), but patients were lost to follow-up in 56 cases (24%). Death occurred in 5 cases (2%).

4. DISCUSSION

We report 220 cases of infectious dermatoses in Casamance, representing a hospital frequency of 30.3%. This frequency varies throughout the world and is estimated at between 35.42% and 82% in Africa [4] and 52.3% in the United States [5]. Lack of hygiene, promiscuity and insalubrity were the main contributing factors. Children under 9 years of age have been most affected by these infectious dermatoses. These results are similar to those have been reported in the literature [6,7,8]. Table 3 represents the epidemiological profile of infectious dermatoses according to country. There is a predominance of infectious dermatoses in children in the majority of African series contrary to our study [1,6,8,] but also in Brazil [9] and Saudi Arabia [10]. The predominance of gender was variable or even equitable in the studies reported in the literature [11]. Initial patient management has been carried out by nurses and traditional healers in 31.7% of cases. This therapeutic itinerary has also been reported in several studies [9,10,12]. In fact, over 80% of the African population uses traditional medicinal plants, based on empirical and socio-cultural beliefs. Due to their beneficial effects, plants have been used as a first-line treatment for skin diseases. However, due to their immuno-allergenicity and pharmacological toxicity, they can trigger or aggravate many dermatoses [13]. Previous ethnobotanical studies had identifying the various medicinal plants used to treat dermatitis in Ziguinchor [14].

There was often an underlying pathology favoring the onset of infectious dermatoses. Most of these were diabetes and HIV infection. Skin lesions were sometimes the reason for the discovery of diabetes in 12.75% of cases [15].

Mycotic dermatoses were the most frequent in our study, accounting for 50.7%. Climatic conditions in tropical regions and promiscuity as well as immunodepression were the favouring factors [1,16].

We noted one case of actinomycotic mycetoma in a farmer originally from and resident in Guinea-Bissau. This was an imported case, as Ziguinchor is not a mycetoma-endemic region, with annual rainfall in excess of 1000mm. Mycetoma localization on the nose wing is exceptional. Viral dermatoses were the second most common cause in 28.5% of cases, including herpes zoster (6.3%), molluscum contagiosum (4.5%), condyloma (2%), Kaposi's

disease (1.3%) and herpes (0.9%), and were the circumstance leading to the discovery of HIV in 8 cases.

Bacterial dermatoses have been accounted for 25.4% of the total. Infectious dermatoses with pyogenic germs were the most frequent, followed by bacterial dermo-hypodermatitis. A single case of tuberculoid leprosy has been noted.

These common bacterial infections have often been reported in previous studies in Africa and

they share climatic and environmental factors [1,9,15]. In sub-Saharan Africa, several studies report the role of voluntary cosmetic depigmentation, HIV infection and diabetes as risk factors for leg erysipelas. [3,16]. Parasitic dermatoses accounted for 11.8%, with scabies predominating. Factors favoring scabies were promiscuity, limited resources and poor hygiene [17]. The majority of cases progressed favorably with treatment of the cause, and mortality was associated with bacterial dermohypodermatitis necrotizing with septic shock.

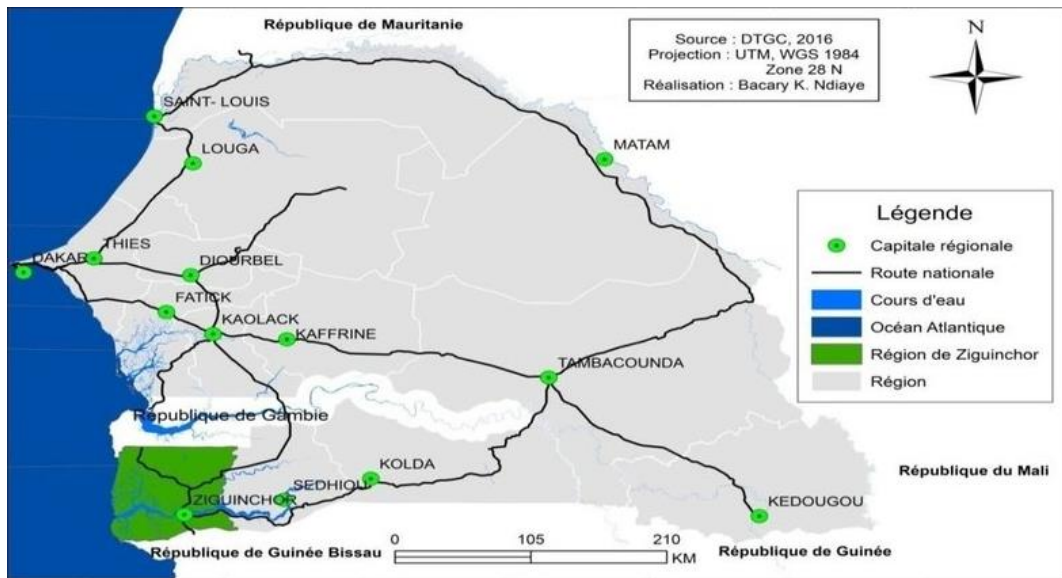


Fig. 1. Geographical map of the Ziguinchor region (Senegal)

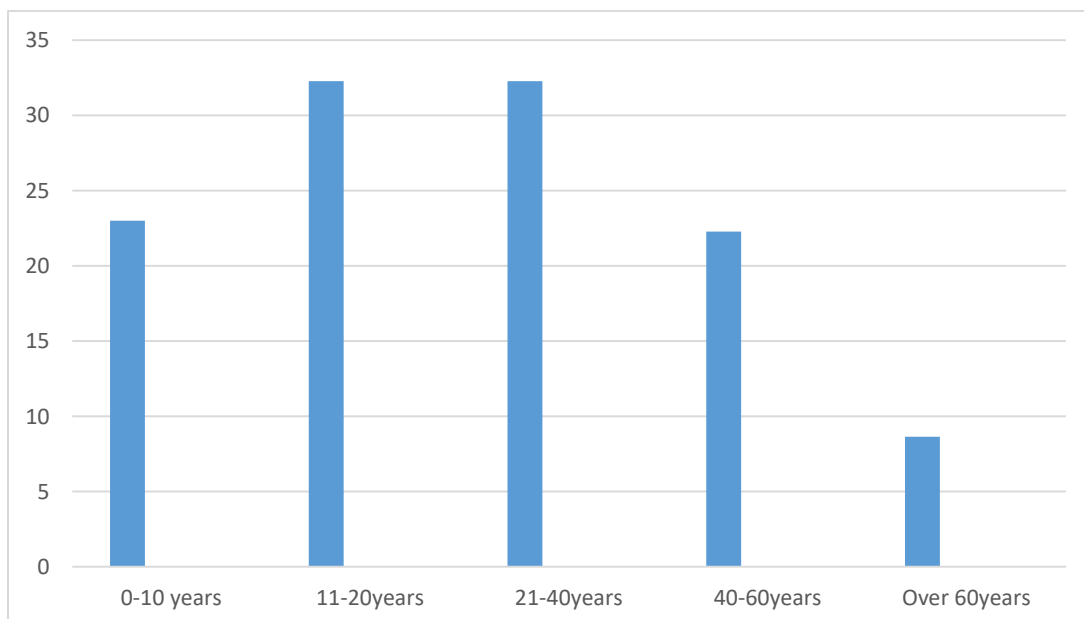


Fig. 2. Distribution of patients by age group



Fig. 3. Dermatophytosis of the trunk associated with diabetes



Fig. 4. Ringworm of the scalp in a child



Fig. 5. An actinomycotic mycetoma of the nose in a farmer



Fig. 6. Genital warts associated with HIV infection



Fig. 7. Facial impetigo in a girl

Table 1. Therapeutic itinerary of patients

Initial support	Number	Percentage (%)
Nurse	10	5,2
Generalist	24	12,7
Dermatologist	171	77,7
Pharmacist	05	2,6
Traditional medicine	10	5,2

Table 2. Causes of infectious dermatoses

Infectious skin diseases	Number	Percentage %
Mycotic	112	50,7
Dermatophyties	50	44,6
Scalp ringworm	26	23,2
Onychomycoses	18	16
Candidiasis	9	8
Pityriasis versicolor	8	7
Actinomycotic mycetoma	1	0,8
Viral	63	28,5
Intercostal shingles	14	22,2

Infectious skin diseases	Number	Percentage %
Gibert pityriasis rosea	12	19
Vulgar wart	10	15,8
Molluscum contagiosum	10	15,8
Varicella	8	12,6
Condyloma	4	6,3
Kaposi sarcoma	3	4,7
Génital herpes	2	3,2
Bactériel	56	25,4
Erysipelas	16	28,5
Impétigo	14	25
Furuncle	8	14,2
Folliculitis	7	12,5
Ecthyma	4	7,14
Necrotizing fasciitis	4	7,14
Abscess	1	1,7
Tuberculoïd leprosy	1	1,7
Gonococcal disease	1	1,7
Parasitaires	26	11,8
Scabies	17	65,3
Cutaneous larva migrans	7	26,9
Pubic Pediculosis	2	7,6

Table 3. Epidemiology of infectious dermatoses by country

Country	Study period	Number of cases	Middle age	Sex-ratio	Infectious dermatoses frequencies
Our study	January 2019 to August 2019	220	30ans	1,04	30,3%
Mali [1]	January 2009 to December 2009	5149	8ans	1,2	55,1%
Turkey [6]	November 2014 to November 2016	10115	10ans	-	24,62%
Cameroun [7]	October 2001 to September 2002	714	20ans	0,7	19,4%
Madagascar [8]	January 2017 to December 2019	347	6,4ans	0,86	43,23%
Brasilia [9]	January 2017 to December 2017	2330	9,7ans	1,17	12,6%
India [10]	January 2011 to June 2011	1090	-	1,2	32,4%
Saoudi Arabia [12]	January 2004 to January 2006	383	8,4ans	1,5	12,5%
Tanzania [11]	septembre 2012 et août 2013	340	4ans	1	43,5%

5. CONCLUSION

Infectious dermatoses are a frequent request for care in tropical Africa, particularly in Ziguinchor. They have been dominated by mycotic and viral infections in children. In adults, diabetes and HIV infection are the major contributing factors. Mortality is linked to necrotizing bacterial dermohypodermatitis. Early diagnosis and management can improve prognosis.

CONSENT

Informed consent for participation in this study was obtained from all patients.

ETHICAL APPROVAL

All the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national).

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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