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Research Article

Profile of Bacterial Dermohypodermitis in Senegal over a 30-year period

Abstract

Introduction: The increase of both the frequency and severity of the bacterial dermohypodermitis (BDH) in Senegal suggests the existence of other risk factors outside of those classically known to be involved. Our study aimed to clarify the epidemiological, clinical and risk factors of BDH in Senegal.

Patients and methods: It was a retrospective, descriptive study based on records of all patients admitted for a DHD, in our department over a 30-year period (1982-2010).

Results: We collected 456 cases including 365 erysipelas and 91 necrotizing bacterial dermohypodermitis (NBDH). Nearly 50% of cases were observed during the last decade. The sex ratio was 0.3 and 0.9 whereas the average age was 40 years and 45 years respectively for erysipelas and NBDH. It was a severe form of erysipelas in 243 cases and classical one in 122 cases.

The predominant topography was the lower limb (81%). Simultaneous multifocal BDH was observed in 5 patients. The risk factors were skin bleaching (70%), venous insufficiency (37%), obesity (24%), a history of erysipelas (9.8%), lymphedema (9%) and pregnancy (3.5%). The portal of entry was identified in 76% of the cases. NBDH was secondary to Vibrio vulnificus infection in 2 cases and Pasteurella multocida in one case. The outcome was recurrence of the disease (9%), death (2%) and elephantiasis (1.5%).

Discussion: Our study reports on of the the most important BDH series in Sub-Saharan Africa. It highlights a marked increase in the frequency of BDH in our our country over the last years. In general, the condition was severe and typically affected young adults between 35 and 45 years old, usually females and mostly practicing skin whitening.

Introduction

In Western countries, bacterial dermohypodermitis (BDH) has been widely studied and risk factors are well documented [1-3]. In the last decade, we have assisted to a marked increase of both the frequency and severity of BDH in everyday practice. This reality suggests the existence of other specific factors in our regions, apart from those traditionally known. However, very few studies have been conducted in Africa regarding this pathology [4-7].

Our objective was to specify the epidemiological profile, the clinical aspects, as well as the risk factors associated with BDH in Senegal.

Patients and methods

This was a retrospective study based on the records of patients admitted for a BDH in the Department of Dermatology of Dakar University Hospital from 1982 to 2010 (30 years). The diagnosis was clinical. For each file, we collected the age, gender, time of consultation, location, portal of entry, associated risk factors, skin bleaching, treatment, and evolution.

Results

We collected 456 cases including 365 erysipelas and 91 necrotizing bacterial dermohypodermitis (NBDH).

The frequency of BDH over the 30 years has been illustrated in figure 1. Nearly half of the BDH (221 cases; 48.6%) have been observed during the last decade.

The sex ratio (M / F) was 0.3 and 0.9, respectively for erysipelas and NBDH. The average age was 40 years for erysipelas and 45 years for NBDH.

The average time for consultation for all BDH was 6.4 days.

It was a severe form of erysipelas (bullous, hemorrhagic or abscessed) in 243 cases (66.6%) and a classical erysipelas in 122 cases (33.3%) (Figure 2).

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Thirty-seven patients (8%) were on their second admissions and 8 patients (1.7%) had more than two hospitalizations.

The clinical appearance of NBDH resulted in subacute forms in 90% of cases.

The topography was the lower limb in 370 patients (81%), the upper limb in 16 cases (4%), buttocks in 6 cases and the face in 4 cases (Figure 3). BDH was observed synchronously on two different locations in 3 patients and 3 distinct locations in 2 patients (Figure 4).

A skin bleaching for cosmetic purposes was found in 319 women (70%). The products were applied topically with an average quantity of 4 tubes of 50g (200g) per month, during an average period of 5.7 years (range 1-20 years). The use of one or more products containing ultrapotent topical steroids (usually clobetasol propionate) was recorded in all patients using skin whitening agents.

Venous insufficiency was found in 168 (37%) patients. The other risk factors were obesity in 109 cases (24%), a past medical history of erysipelas in 45 cases (9.8%), lymphedema in 42 cases (9%) and pregnancy in 16 patients (5%). One or more systemic diseases (diabetes, hepatic cirrhosis, cancer, heart failure, motor deficiency, leprosy, Kaposi disease, HIV infection) were associated with the occurrence of BDH in 136 patients (30%).

A portal of entry, consisting mainly by pyoderma, interdigital intertrigos, leg ulcers or a pruritic dermatitis (lichen, eczema), was found in 352 cases (76%).

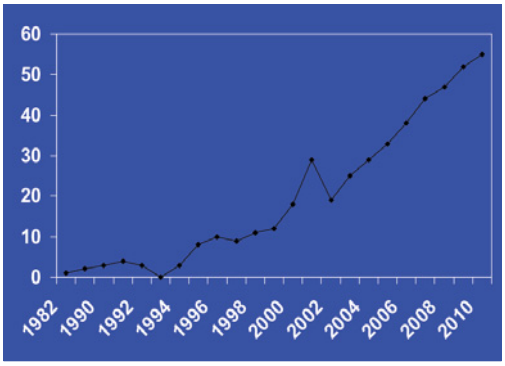

Figure 1: BDH frequency in the Dermatology Department of Dakar over a 30-year period.

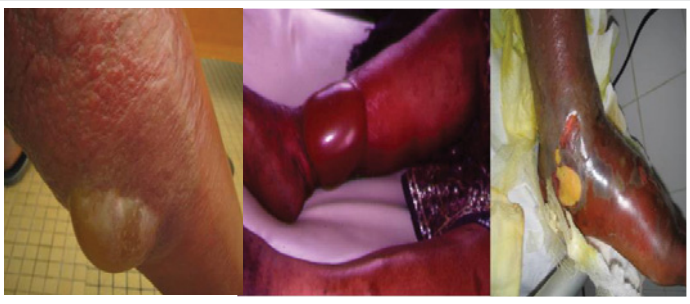

Figure 2: Severe forms of erysipelas: bullous, hemorrhagic and necrotic.

Figure 3: Erysipelas of the buttock.

Figure 4: Multifocal erysipelas affecting both legs and the forearm occurring in a patient under isotretinoin treatment for acne.

A non-steroidal anti-inflammatory drugs (NSAIDs) use was reported in 138 (30%) patients with NBDH and in 35 (7.6%) patients with erysipelas.

Bacteriology from local specimens or blood cultures had most frequently isolated streptococcus, staphylococcus or gram negative bacilli in 12.5% of the cases.

NBDH was secondary to Vibrio Vulnificus infection in 2 fisherman patients after being accidently pricked by a fish bone and in one case it was due to a Pasteurella multocida infection.

The treatment was based on penicillin G or amoxicillin-clavulanic acid alone or in combination with gentamycin and/or metronidazole. Additionally, surgical debridement was performed in the cases of NBDH.

The mean duration of hospital stay was 17.5 days for erysipelas and 43 days for the NBDH.

A recurrence in 42 cases (9%) and death due to septic shock or an associated pathology were reported in 9 cases (2%). Sequelae consisting of elephantiasis of the lower limbs occurred in 7 patients.

Discussion

To our knowledge, our study reports on of the the most important BDH series in Sub- Saharan Africa. This study highlights a marked increase of the disease's frequency in our

Citation: Diallo M, Niasse M, Diatta BA, Diop A, Ndiaye M, et al. (2017) Profile of Bacterial Dermohypodermitis in Senegal over a 30-year period. Int J Dermatol Clin Res 3(1):022-025. DOI: http://doi.org/10.17352/2455-8605.000022

regions over the last decade. Indeed, formerly considered a rare condition with about 2 cases / year in the 1980s, BDH frequency has increase to more than 40 cases / year, thus representing the first cause of hospitalization in our department. In Guinea, hospital prevalence is also estimated at 33% [4].

As in all African series, a predominance of BDH in youngs, females mostly, was also noted in our study. This pattern contrasts to the one observed currently in the Western countries, where there is an important decline of the incidence of BDH and mostly occurring in older age subjects [8-11].

Clinically, the presentation of BDH in Sub-Saharan Africa has no particularity apart from the less visible aspect of the erythematous plaque in the Black subject. However, we noted a particular frequency of severe forms (bullous, hemorrhagic, localized necrosis or abscesses), accounting for more than half of the hospitalized cases in our series. This may be partially explained by some hospital bias, but also probably by the treatment delay, sometimes due to patients' therapeutical itinerary (inadequate drug prescription by nurses who are the first-line health workers or the use of traditional medicine remedies). In addition, NSAIDs use was common in our patients, especially in the NBDH group, confirming that these molecules could potentially exacerbate the disease. Cutaneous atrophy related to bleaching practices with ultrapotent topical corticoids, may also be an aggravating factor [7]. Despite the application of skin whitening products over the entire body, the lower limb and more especially the legs were the predominant topography of BDH, as reported in the literature. This is surely related to the role of venous and/or lymphatic insufficiency in the pathogenesis of the disease, but also to the frequent occurrence of trauma on these regions.

Multifocal BDH have been exceptionally described in the literature [12,13]. In Tunisia, on 378 cases of leg erysipelas, only 4% were bilateral [14]. In our study, we observed the simultaneous occurrence of BDH on several foci in 5 patients. The risk factors associated with these forms were diabetes, skin bleaching, a history of erysipelas, NSAIDs use and xerosis induced by oral retinoid therapy. The pathogenesis of these multifocal forms is not fully understood, but could probably be explain by the streptococcal toxin diffusion or by the dissemination of the bacteria.

The risk factors associated with the occurrence of BDH have been identified and well documented in numerous studies. These factors are local (venous-lymphatic stasis, existence of portal of entry) and general (obesity, diabetes) [1-3,8,15]. However, the clear increase in both frequency and severity of clinical presentation of this disease in our regions suggests the existence of other particular factors. In Senegal, the frequent use of bleaching products could be an additional risk factor. Indeed, more than half of the patients (70%) in our series used daily lightening agents consisting of ultra-potent topical steroids over an average period of 5 years. This correlation which has only an indicative value, highlights nevertheless the aggravating role of skin bleaching in the occurrence of BDH. A recent (unpublished) multicenter case-control study confirmed that skin bleaching is an important risk factor (odd-ratio 3.2, 95% CI [1.8-5.5]) [16]. Actually, bleaching with topical steroids may promote BDH via cutaneous atrophy which creates breaches of the skin and thus becoming a portal of entry [17]. It also modifies the cutaneous bacterial flora and predisposes to obesity, but also to iatrogenic immunosuppression in the long-term. It also probably explains the frequency of severe forms.

Regarding bacteriological explorations, isolation of a germ was only achieved in 12.5% of our patients, due to the difficulty in detecting the bacteria responsible for the disease and the frequent antibiotic treatment initialized before hospitalization. Nevertheless, streptococcus especially beta-hemolytic group A species, is recognized as being responsible for the majority of BDH [3,13]. Very rarely, Vibrio vulnificus, Gram- negative halophilic bacillus that can be pathogenic especially in humans with chronic liver disease, has been implicated in BDH. This germ was isolated from topical samples of 2 young fishermans with no hepatic disease [18]. In the same way, one case of NBDH was secondary to Pasteurella multocida infection.

The evolution of our patients under treatment was generally favorable, but loco-regional complications (abscess, necrosis) were not rare, as well as the recurrences. This explains why the BDH represent nowadays the first cause of acquired lymphedema in our service.

Death was a rare outcome (2%), often secondary to septic shock or the existence of other comorbidities.

Conclusion

The frequency of BDH has dramatically increased in Senegal. These are generally severe forms typically affecting young adults between 35 and 45 years of age, usually female and practicing skin bleaching.

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