

Silver-coated textiles in hidradenitis suppurativa: A case report

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Meggie Morand¹ and Afshin Hatami²

Abstract

Hidradenitis suppurativa is a chronic and debilitating skin disease of apocrine gland-bearing areas. The mainstay of treatment usually includes topical and systemic antibiotics. These agents can be used as monotherapy or combination therapy. The therapeutic role of functional textiles with antimicrobial activity has been recently emerging in the treatment of other skin diseases such as atopic dermatitis and epidermolysis bullosa. The pathologic processes involved in the development of atopic dermatitis and hidradenitis suppurativa are still incompletely understood, but these two diseases share some similarities including bacterial proliferation and chronic inflammation. We report the case of a 14-year-old boy with hidradenitis suppurativa that has been successfully treated with silver-coated textiles. To the best of our knowledge, this article is the first to report the benefits of silver-coated textiles in the treatment of hidradenitis suppurativa.

Keywords

Inflammatory dermatoses, dermatology, pediatric

Introduction

Hidradenitis suppurativa (HS) is a chronic and debilitating skin disease of apocrine gland-bearing areas.¹ While some cases of HS can be treated with surgery, the initial approach is usually much more conservative. The mainstay of treatment often includes topical and systemic antibiotics. These agents can be used as monotherapy or combination therapy.² The pathogenesis of HS involves the dysregulation of the microbial skin flora.³ We report the case of a 14-year-old boy with HS that has been successfully treated with boxer briefs made of silver-coated textiles. To the best of our knowledge, this article is the first to describe the efficacy of silver-coated textiles in the treatment of HS.

Case report

A non-smoker 14-year-old boy was referred to the dermatology service for the evaluation of a congenital melanocytic lesion found on routine physical examination. The patient was diagnosed with a congenital nevus of the back. Over the course of the next few months, the patient was seen regularly in dermatology for the management of his acne vulgaris. Isotretinoin was the main treatment for this condition.

The patient subsequently developed a perineal folliculitis that failed to respond to topical antiseptic treatment. He later developed obvious signs of HS. No case of HS had been

reported in his family and he had never been diagnosed with conditions known to be associated with HS. More specifically, he had no past medical history of arthritis or pyoderma gangrenosum. The physical exam showed inflammatory nodules, abscesses, and sinus tracts on the buttock. Similar inflammatory nodules were found on his thighs and his armpits. Taken together, these findings were compatible with a Hurley stage II HS. An oral antibiotic combination therapy was started shortly after the diagnosis was made. At that moment, the patient was still taking isotretinoin for the treatment of his acne. A combination of rifampicin and clindamycin was instituted for 6 weeks, but without any success. Afterward, the patient was instructed to wear boxer briefs made of silver-coated textiles (polyamide and elasthan) at night. This approach was well tolerated and resulted in a significant reduction of both the size and the number of inflammatory papules and nodules (see Figures 1 and 2). The

¹Centre Hospitalier Universitaire de Montréal, Division of Dermatology, Department of Medicine, University of Montreal, Montréal, QC, Canada
²Centre Hospitalier Universitaire Sainte-Justine, Division of Dermatology, Department of Pediatrics, University of Montreal, Montreal, QC, Canada

Corresponding Author:

Meggie Morand, Centre Hospitalier Universitaire de Montréal, Division of Dermatology, Department of Medicine, University of Montreal, 1051 Sanguinet Street, Montreal, QC H2X 0C1, Canada.
Email: meggie.morand@umontreal.ca





Figure 1. Inflammatory papulonodules and crusts on the inner thigh before the use of silver-coated textiles.



Figure 2. Improvement of inflammatory lesions after the use of silver-coated textiles.

patient was instructed to wear his boxer underwear for a couple of successive nights to treat HS exacerbations. Importantly, similar outcomes were noticed after the patient had stopped using isotretinoin. The boxer briefs appeared to

be even more effective after being slightly soaked in water. The patient was highly satisfied with this convenient treatment and declined a systemic therapy.

Discussion

HS is a chronic skin disorder involving recurrent inflamed lesions of apocrine gland-bearing regions. Intertriginous areas are most commonly involved.¹ While HS is not an infectious disease per se, a dysregulation of the microbial skin flora appears to play a role in its pathogenesis. Innate immunity also appears to be defective.³ It has been suggested that a functional defect of keratinocytes alters the local immune system. Taken altogether, these changes promote bacterial infections and chronic inflammation.⁴ The bacteria involved in HS arise mainly from the skin flora, but pathogenic commensals from the gut can also be found in chronic HS lesions.⁵

According to recent guidelines, the classic treatment of HS involves a combination therapy of oral antibiotics. Clindamycin and rifampicin are most commonly used, but tetracycline, acitretin, and biologic agents can also be used with variable degrees of success.² Topical clindamycin has been shown to be effective in the treatment of superficial lesions in a double-blinded randomized controlled trial (RCT).⁶ However, topical clindamycin has also been shown to promote the development of resistant bacterial strains.⁷

The therapeutic role of silver-coated textiles in epidermolysis bullosa (EB) and atopic dermatitis (AD) has been emerging in the past few years.^{8,9} It is believed that silver nanoparticles adhere to the cytoplasmic membrane of the bacteria to alter its function. They also react with sulfur- and phosphorus-containing bacterial proteins such as DNA.¹⁰ We decided to try silver-coated textiles in HS because of its effectiveness in similar skin diseases and the convenience of such treatment for a young patient. Two RCTs evaluating the use of silver-coated textiles in AD reported a significant decrease in *Staphylococcus aureus* skin colonization. They also suggested that systemic absorption of silver is safe.^{11,12} Furthermore, silver-impregnated dressings or gels are often included in the treatment regimen of EB. Silver socks have also been shown to improve feet ventilation.¹³ Another advantage of silver-coated textiles is that they are not associated with the development of bacterial resistance. The main disadvantages related to this treatment are the initial cost of the clothing and the potential loss of antimicrobial activity with laundering.¹⁴

In conclusion, we are the first to report a case that clearly illustrates the benefits of silver-coated textiles in the treatment of HS. Our case has some limitations. HS is a disease whose severity fluctuates, so the real effectiveness of treatment is difficult to assess. Further studies are needed to evaluate the exact role of this treatment in these patients. We believe that silver-coated textiles represent a great treatment option for mild cases of HS. We suggest using them with a

combination therapy for more severe cases. Moreover, other studies could highlight the role of silver-coated textiles in other diseases involving bacteria or viruses, such as chronic wounds and warts.

Declaration of conflicting interests

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Informed consent

Written consent was obtained from the parent.

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