

Magneto-LED therapy in the treatment of inflammatory lesions and erosions of the glans penis – case report

Magnetoledoterapia w leczeniu zmian zapalnych i nadżerkowych żołądźi – opis przypadku

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Przeł Dermatol 2016, 103, 367–370

DOI: 10.5114/dr.2016.62887

ABSTRACT

KEY WORDS:

magneto-LED therapy, glans penis, alternative treatment.

SŁOWA KLUCZOWE:

magnetoledoterapia, żołądź, leczenie alternatywne.

Introduction. Inflammatory lesions and erosions of the glans penis defined as balanitis or balanoposthitis constitute a disease in which the effectiveness of conservative treatment is not sufficient.

Objective. To present the therapeutic efficacy of magneto-LED therapy in the treatment, and to present a patient with inflammatory lesions and erosions of the glans penis.

Case report. The patient, 68 years old with inflammatory lesions and erosions of the glans penis of 2–4 years duration, was previously treated with various methods of local therapy without effect. As a result of a 32-week long magneto-LED therapy cycle, complete resolution of skin lesions with subsidence of the burning sensation during urination and reduced swelling and inflammatory erythema of the glans, as well as disappearance of the white coating and unpleasant smell, was achieved.

Conclusions. Magneto-LED therapy is an efficient method of treatment of inflammatory lesions and erosions of the glans penis.

STRESZCZENIE

Wprowadzenie. Zmiany zapalne i nadżerkowe okolicy żołądźi to choroby występujące najczęściej u nieobrzezanych mężczyzn. Etiologia tych schorzeń nadal jest nieznaną.

Cel pracy. Przedstawienie możliwości terapeutycznych magnetoledoterapii w leczeniu zmian zapalnych i nadżerkowych skóry prącia i żołądźi.

Opis przypadku. W badaniu wziął udział 68-letni mężczyzna z rozpoznaniem zmian zapalnych i nadżerkowych na żołądźi, u którego dotychczasowe leczenie nie przyniosło zadowalających efektów. Zabiegi wykonywano 1 raz dziennie przez 60 dni, wykorzystując aparat do magnetoledoterapii z aplikatorem magnetyczno-świetlnym RIR. Na podstawie wyników stwierdzono, że metoda ta stanowi cenne uzupełnienie leczenia farmakologicznego, gdyż daje szansę na całkowitą bądź częściową regresję objawów (pieczenie, świąd, ból), którą obserwuje się już po upływie 2–3 tygodni od rozpoczęcia terapii.

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Wnioski. Zabiegi magnetoledoterapii są skuteczne w leczeniu zmian zapalnych i nadżerkowych żołądki, jednak terapia powinna być powtarzana w cyklicznych sesjach.

INTRODUCTION

Inflammatory lesions and erosions of the glans penis and foreskin defined as balanitis or balanoposthitis may affect males at any age, but they are most often observed in circumcised middle aged men. In the etiopathogenesis of such lesions, many causes are considered, including insufficient hygiene, mycotic and bacterial infections as well as diabetes (high concentration of glucose in blood creates favorable conditions for the development of pathogenic microorganisms). Inflammation of the penis may also be caused by mechanically induced lesions, wounds, or irritations (e.g. caused by wearing too tight underwear or by irritation due to pubic hair). Balanitis may also occur as a side effect of taking medications [1, 2].

The most frequent symptoms reported by patients include itching, burning sensation, reddening, appearance of white coating on the glans, purulent secretion, pain during urination, as well as painful superficial ulceration of the skin [1, 3].

The choice of treatment method depends on the etiology of the disease. In the case of neglected hygiene of the genitals, it is recommended to use disinfecting fluids for flushing the area, which alleviate the inflammatory condition. In the case of phimosis, a surgical procedure is necessary, while in the case of other causes of balanitis, suitable antibiotics or special creams are administered topically. Besides

pharmacological treatment (which does not always give the expected effect), other methods, such as laser therapy, photodynamic therapy or circumcision are also used. According to numerous authors, surgical peritomy is the gold standard; however, many patients refuse to undergo that surgical procedure, for religious or psychological reasons [4–6].

Due to the co-operation of physicians, medical physicists, engineers as well as physiotherapists, in recent years novel methods have been developed, applied usually as supporting therapy, taking advantage of beneficial biological effects of some physical factors such as variable magnetic fields and optical radiation for improving the regeneration of skin lesions of different etiology: chronic wounds and ulcerations or chronic inflammatory lesions and infections of soft tissues [7–10]. One such method is magneto-LED therapy, in which special “panel” or elliptic magnetic-light applicators (Figure 1) are applied, emitting simultaneously a variable magnetic field generated by a solenoid together with luminous non-laser radiation generated by semi-conductor light-emitting diodes (LEDs). In 2010 the first case study was published in Poland concerning the application of magneto-LED therapy in the treatment of inflammatory lesions and erosions of the glans penis in a 50-year-old patient, which provided the basis for extending the observations in that respect to a larger group of patients [11].



Figure 1. Elliptic magnetic–light applicator of Viofor JPS Light device applied for magneto-LED therapy procedures

Rycina 1. Elipsoidalny aplikator magnetyczno-światlny Viofor JPS służący do zabiegów magnetoledoterapii

OBJECTIVE

The aim of this preliminary study was to present the therapeutic efficacy of magneto-LED therapy in the treatment of inflammatory lesions and erosions of the glans penis.

CASE REPORT

The patient, 68 years old, was admitted to the clinic due to chronic inflammatory lesions and erosions of the glans penis located at the dorsal surface, present for at least 2–4 years. The patient had been previously hospitalized several times at dermatological wards and treated with various schemes of pharmacological and surgical therapy without a satisfactory therapeutic effect. Pharmacotherapy included

repeated topical application of antibacterial and antimycotic ointments, as well as several series of treatment with oral use of broad-spectrum antibiotics, compatible with the results of cultures of smears collected from lesions.

At preliminary examination the patient presented with symptoms of inflammation of the surface tissue of the glans penis and foreskin, as well as the presence of erosions with a white, stinking coating (Figure 2). No skin lesions were found outside the genital area. Additionally, the dominating symptoms were pain, itching in the affected area, as well as a burning sensation during urination. In order to exclude urinary tract infection, urinalysis was performed with general examination of the urine, as well as mycological and bacterial examination of subsequent urine culture. The results of urine analysis were within binding norms. Taking into account the chronic, long-term character of the pathological lesions, as well as the lack of therapeutic effects after previously applied conservative topical pharmacological treatment, the patient was subjected to a cycle of magneto-LED therapy procedures.

The patient was subjected to a cycle of 10-minute long procedures using a device for magneto-LED therapy, Viofor JPS Light, performed once daily. The procedures were performed in 4 successive therapeutic sessions lasting 3 weeks with a 6-week intermission between sessions, consisting of 15 procedures each (performed 5 days a week, with a break on Saturday and Sunday). The elliptic magnetic-light applicator RIR of the Viofor JPS device, generating simultaneously a variable magnetic field and luminous non-laser radiation, was applied topically at a distance of 2–3 cm from the surface of skin lesions. Low-energy luminous radiation was generated by 24 LEDs placed on the outside surface

of the applicator, emitting impulse, non-laser, red and infrared radiation with a frequency of 630 Hz and 855 Hz, respectively. The mean energy density of emitted light was 4.9 J/cm². A variable magnetic field with a saw tooth-like shape of basic impulses, with frequency of basic impulses in the range 180–195 Hz, was used.

The patient tolerated the procedures well and completed a whole cycle of magneto-LED therapy without any complications or side-effects. Slow but distinct improvement was observed during the treatment with gradual remission of reported symptoms. As early as after the completion of the first or second therapeutic session the patient reported slight or even significant regression of ailments reported before the beginning of therapy. Complete remission of lesions including erosions turning shallow, followed by complete epidermization and healing of erosions with subsidence of the burning sensation during urination, and reduced swelling and inflammatory erythema of the glans, was achieved (Figure 3).

DISCUSSION

The mechanisms of the synergistic therapeutic effect of variable magnetic fields and luminous radiation applied simultaneously by one device in the treatment of the analyzed disease include improvement of blood supply and oxygen utilization in soft tissues, an analgesic effect, antiphlogistic and anti-edematous effects, stimulation of regeneration of the epidermis regarding acceleration of nucleic acid replication, cell division, synthesis of proteins, and bactericidal and fungicidal effects [7, 8, 10, 11]. Taking into account the potential multidirectional mechanisms of the therapeutic effect of magne-



Figure 2. Local status before the beginning of treatment with magneto-LED therapy

Rycina 2. Stan miejscowy zmian przed rozpoczęciem magnetoledoterapii



Figure 3. Local status after the end of treatment with magneto-LED therapy: complete regression of inflammatory lesions and erosions of glans penis

Rycina 3. Stan miejscowy po zakończeniu magnetoledoterapii – widoczna całkowita regresja stanu zapalnego i zmian nadżerkowych żółędzi

to-LED therapy, further clinical studies, carried out on a larger, more representative group of patients, are necessary in order to develop the optimal therapeutic procedure for this method.

The immediate results of this preliminary study of application of magneto-LED therapy in the treatment of balanitis and balanoposthitis resistant to conservative topical pharmacotherapy are optimistic. The presented case suggests that in situations where standard pharmacotherapy fails to provide satisfactory results of treatment of glans penis lesions of different etiology, application of magneto-LED therapy should be taken into account. It could constitute a valuable component of complex therapy, especially due to its high therapeutic efficacy, good tolerance of procedures by the patients and lack of side-effects.

CONCLUSIONS

Magneto-LED therapy is an effective method of treatment of inflammatory lesions and erosions of the glans penis after ineffective conservative topical therapy. Considering the potential multidirectional mechanisms of the therapeutic effect of magneto-LED therapy, further clinical studies are necessary in order to develop the optimal therapeutic procedure for this method.

Conflict of interest

The authors declare no conflict of interest.

Submitted: 30 V 2016

Accepted: 30 VIII 2016

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