CASE REPORT

CUTANEOUS LEISHMANIASIS – DERMOSCOPIC FINDINGS AND CRYOTHERAPY

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LEISHMANIOSIS CUTANEA (КОЖНЫЙ ЛЕЙШМАНИОЗ) – ДЕРМАТОСКОПИЧЕСКАЯ НАХОДКА И КРИОТЕРАПИЯ

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ABSTRACT

We present a 60-year-old male patient who, three months after a holiday in Southern Greece, found a small ‘pimple’ on his back, which gradually got as big as a small walnut, the central part becoming ulcerated and scabby. Dermatological examination found an erythematous-to-livid nodular lesion on the right shoulder; it was 16 mm in diameter with central ulceration, covered with brownish crust which discharged pus-like secretion upon pressure. Microscope examination of Romanowsky-Giemsa stained lesion material detected amastigote forms of *Leishmania tropica*. The culture investigation and serological tests for leishmaniasis were negative. Dermoscopy of the lesion found the following features: erythema, hyperkeratosis, central ulceration covered with brownish crust, “yellow tears-like” structures and “white starburst-like” patterns, and various vascular structures (including dotted vessels, comma-shaped vessels, hairpin- and glomerular-like vessels). The patient was diagnosed with cutaneous leishmaniasis and underwent four cryotherapy sessions every other week with excellent therapeutic results - complete resolution of infiltrate with subsequent gentle hypopigmented scarring. In conclusion, dermoscopy is an easily accessible non-invasive method which can be useful for the diagnosis of cutaneous leishmaniasis. Cryotherapy is the treatment of choice for single skin lesions.

Key words: *Leishmaniasis cutanea, dermoscopy, cryotherapy*

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РЕЗЮМЕ

Пациентом является мужчина 60 лет, у которого, через три месяца после пребывания в Южной Греции появляется небольшой „бугорок“ на спине, который постепенно нарастает до размера небольшого ореха, в центре которого образуются язвы и покрывается коркой. При дерматологическом осмотре в области правого плеча обнаруживается эритемо-ливидная нодулярная лезия диаметром 16 mm и центральное углубление, покрытое коростой бурого цвета, из которого при нажатии отделяется гноевидный секрет. При микроскопическом исследовании материала лезии, окрашенного по методу Романовского-Гимзе, обнаруживаются амастиготные формы *Leishmania tropica*. Культуральное и серологическое исследования на предмет обнаружения лейшманий дали отрицательный результат. При проведенной дерматоскопии обнаруживаются эритема, гиперкератоз, центральная ульцерация, покрытая коростой бурого цвета, изменения типа „жёлтые слёзы“ (“yellow tears”), типа белого пламени (“white starburst”) и различные васкулярные структуры (точкообразные, серпообразные, фибро- и гломеруло-подобные). Пациенту поставлен диагноз кожный лейшманиоз и проведена криотерапия в течение 4 сеансов через неделю с отличным терапевтическим результатом – полное разрешение инфильтрата с последующим образованием нежного гипопигментного рубца. В заключение можно сказать, что дерматоскопическое исследование представляет собой легкоосуществимый неинвазивный метод, который может применяться при диагностировании лезий кожного лейшманиоза. Криотерапия является средством выбора для обработки единичных кожных лезий.

Ключевые слова: *кожный лейшманиоз, дерматоскопия, криотерапия*

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INTRODUCTION

Cutaneous leishmaniasis is a transmissible protozoal skin invasion caused by single-celled parasites of the genus *Leishmania* and spread by sand flies of the *Phlebotomus* and *Lutzomyia* genera.

It causes confined, single or rarely multiple skin lesions at the bite sites, manifested clinically by an 2-4-mm erythematous papule which gradually progresses into a 1-2-cm node. Necrosis occurs in the lesion centre, an ulcer forms which exude pus, drying in crusts. In a few months the ulcer heals with formation of a permanent scar.¹

There are two main types of the disease:

Anthroponotic (urban) type, which is caused by *Leishmania tropica* and is characterized by a source of invasion a sick person, incubation period of 3-8 months, no seasonality, milder disease course with single lesions, slow evolution and healing with delicate scars;

Zoonotic (rural) type, which is caused by *Leishmania major* and is characterized by a source of invasion wild rodents, incubation period of 1-3 weeks, seasonality, more severe course with multiple lesions, rapid evolution and healing with rough scars.

The diagnosis of cutaneous leishmaniasis is confirmed by epidemiological medical history, detection of extracellular and intracellular amastigote forms of the parasite in skin lesion material (tissue impression smear, aspiration or biopsy), cultivation of promastigote forms of the parasite in NNN culture medium (Novy, Neal, Nicole), serological tests which are commonly negative, PCR reaction and intradermal skin test (Montenegro leishmania skin test).

Treatment of cutaneous leishmaniasis includes topical agents (cryotherapy, sub-lesional application of the 5-valent antimonial preparation Meglumine antimonate (glucantim, amp. 5 ml), ointments containing 15% paromomycin and 10% urea, a

local thermal therapy at temperatures of 40-42°C and systemic agents (pentavalent antimonial drugs and antibiotics such as sodium stibogluconate and meglumine antimonate, pentamidine, paromomycin, miltefosin). In 90% of cases lesions of localized cutaneous leishmaniasis heal spontaneously within 1 year with minimal but permanent scarring.

Dermoscopy is a noninvasive in vivo diagnosing technique that allows better visualization of the changes in superficial layers of the skin. There are a limited number of reports on dermoscopic findings of cutaneous leishmaniasis.²⁻⁵

We present a case of cutaneous leishmaniasis in which a dermoscopic examination has been used for the first time in Bulgaria to diagnose the disease and monitor the effect of the applied cryotherapy.

CASE REPORT

A 60-year male patient referred to a dermatologist because of a small red "pimple" on his back, which within a month progressed to the size of a small walnut with central ulceration and crusts.

The patient reported an insect bite while fishing on Evia Island, Greece, where he had been on vacation three months previously. Dermatological examination of the right shoulder revealed an erythematous-to-livid nodular lesion 16 mm in diameter and a central ulceration, covered with brownish crusts, which discharged pus-like secretion upon pressure (Fig. 1a). Routine laboratory tests were within normal limits. Microscopy of tissue impression smear after Romanowsky-Giemsa staining detected amastigote (aflagellated) forms of *Leishmania*. The culture test (nutrient medium NNN) and serological test (ELISA) were negative.

The patient underwent dermoscopy with digital dermoscope (Dino Lite, Anmo, Taiwan), magnification x60, with and without immersion. Erythema, hyperkeratosis, central ulceration covered with brownish crusts (Figs 2a, 2b), yellow tear-like and

Figure 1. Clinical manifestation (a) pre-cryotherapy (b) post-cryotherapy.

white starburst-like patterns, and various vascular structures (dotted, comma-shaped, hairpin- and glomerular-like vessels) were observed (Fig. 3).

Cutaneous leishmaniasis was diagnosed based on epidemiological and medical history, clinical manifestation, parasitological microscopic examination and dermoscopic findings. Cryotherapy was performed in 4 sessions every other week with excellent therapeutic results - complete resolution of the infiltrate in three months and a remaining hypopigmented gentle cicatrix (Fig. 1c). Repeated native dermoscopy confirmed the healing of the lesion. Dermoscopy with immersion showed neovascularization in the area of the scar (Figs 2c, 2d).

Figure 2. Pretreatment dermoscopic finding - (a) native; (b) with immersion; post-cryotherapy finding (c) native; (d) with immersion; magnification x60.

Figure 3. Pretreatment dermoscopic finding- (a) 'yellow tear-like' structures (*), (b) 'white starburst-like' structures; (c) and (d) vascular structures; magnification x60.

DISCUSSION

The presented case is of interest in several respects:

EPIDEMIOLOGIC ASPECT

Bulgaria is among the countries lacking cutaneous leishmaniasis.⁶ In the relevant Bulgarian literature there are reports of isolated cases of "imported" cutaneous leishmaniasis with evidence of previous travels to other countries in endemic areas.⁷ The presented patient has resided on the Greek island of Evia. Greece is considered an endemic area for cutaneous and visceral leishmaniasis. Most cases are listed in the Ionian group of Islands (incl. Corfu and Zakynthos) and Crete, with isolation of respectively. *L. tropica* and *L. infantum*.⁸

DIAGNOSTIC ASPECT

Lesions of cutaneous leishmaniasis may mimic furuncle, skin tuberculosis, sarcoidosis, pyogenic granuloma, carcinoma, etc., which often makes their precise diagnosis difficult. In recent years cutaneous leishmaniasis has been diagnosed through classical dermoscopy performed with handheld dermoscopes at magnification x10. The findings in dermoscopy can include the following:²⁻⁵

Types of findings by frequency of occurring: generalized erythema (82-100%), vascular structures (88%), yellow tear-like structures (42-53%), hyperkeratosis (33-50%), central erosion or ulceration (46-59%), erosion or ulceration in combination with hyperkeratosis (38%), white starburst-like pattern (38-60%). According to A. Liamblich et al.², the so-called 'yellow tears' are yellowish oval structures corresponding to plugs in the follicular openings, while the 'white starburst-like pattern' represents off-white areas, probably associated with the development of parakeratotic hyperkeratosis located around the central erosion.

Types of vascular structures by frequency of occurring: 'comma-like' (30-73%), linear irregular (31-57%), 'dotted' (53-61%), polymorphous/atypical (26%), 'hairpin-like' (19-37%), arborizing type (10-11%), 'corkscrew-like' (4-7%) and 'glomerular-like' (7-22%) vessels. Combinations of two vascular structures were found in 50% of cases, and of three or more structures - in 38% of lesions. A. Taheri et al.³ observed linear capillaries more often in nodular lesions, and dotted capillaries - in ulcerated lesions. In new lesions the more frequently observed structures were comma-like capillaries, whereas in lesions lasting longer than six months hairpin-like capillaries were more common. Since similar vascular structures are also observed in

various tumour skin lesions, the diagnosis may require histopathologic studies.

Types of dermoscopic findings in cutaneous leishmaniasis: pattern 1 (26%) – vascular structures and yellow tears; pattern 2 (46%) – erosion/ulceration, hyperkeratosis, white starburst-like structures and vascular structures at the periphery; pattern 3 (15%) – combination of patterns 1 and 2; and pattern 4 (11%) – vascular structures. According to lesion localization, type 1 pattern (44%) is most frequently found on the head and type 2 pattern (60%) is most commonly found in the extremities. According to the lesion evolution time, type 1 (78%) is most often encountered in initial lesions (< 6 months), while type 2 (67%) is most common for advanced lesions (> 6 months).

Video-dermoscopy was used for the presented case (magnification x60), and the dermoscopic finding may be classified as type 2 pattern.

THERAPEUTIC ASPECT

Cryotherapy is considered to be an appropriate method for the treatment of single skin lesions. It is administered in a variety of therapeutic regimens, usually including 2-7 cryo-sessions at intervals 1-3 weeks, with healing occurring in up to 92% of cases. Treatment is well tolerated by all patients. It causes mild and transient side effects (pain, hypopigmentation) and has excellent cosmetic results, which was confirmed by our observation.⁹⁻¹²

CONCLUSIONS

The presented case illustrates the importance of epidemiological history and the informativeness of non-invasive videodermoscopic examination in the diagnosis of cutaneous leishmaniasis lesions.

Cryotherapy, due to its simplicity, low cost, high efficiency, good tolerability and rare side effects is the treatment of choice for single or small in number lesions.

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