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CaseReport

Cutaneous Larva Migrans: ACase Report in aTraveler Child

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1. Abstract

Cutaneous Larva Migrans (CLM) is the most common skin disease of tropical origincaused by hookworms larvae, occurring in international travelers. Typical manifestations consist of erythematous, serpiginous slightly elevated linear cutaneous lesions. We describe the case of an 8-year-oldboy,withCLMinfectionacquiredduringtraveltoBurkina-Faso,andsuccessfully treatedwithIvermectin.Epidemiology,clinicaldiagnosisandtherapeuticaredebated.

Background: Skin diseases are a common occurrence in international travellers and representthethirdreasonforseekingmedicalattentioninreturningtravellers.Assomeskindiseases can have life-threatening complications, especially in children, it is important to discriminate whether the skin complaint represents a serious condition [1]. In these cases, history taking is very important and must include specific destination of travel and all possible exposures to in- sects and animals.

CasePresentation: An 8-year-old boy came to our pediatric Emergency Room because of a skin lesion on the median left foot **(**Figure 1a, 1b**)**. Physical examination showed an erythem- atous, non-itching, slightly elevated both tortuous and linear lesion, extended for 3 cm. On the foot plant, there were some round crusted lesions. The lesion was noted 5 days after the return from travel to Burkina Faso. Traumas, insect bites or animal contacts were excluded. The boy had a normal chest and abdominal physical examination, no fever, no lymph-adenomegaly, no neurologicalsigns.Apartfromthefootlesion,theskinexaminationwasunremarkable.Complete blood count (CBC) showed marked eosinophilia (13.0% of WBC corresponding to 1296/ L). Treatment with an antihistamine agent was started and we referred the patient to the nearby Tropical Infectious Disease Center for further assessments, where the diagnosis of Cutaneous Larva Migrans (CML) was confirmed and he was prescribed oral ivermectin. A follow-up visit wasplannedintheoutpatientclinicofourcenter;after15daystheboyshowedcompleteremission**(**Figure1c**)**andadecreasedeosinophilscount(8.1%ofWBCcorrespondingto740/)was observed.

Discussion:CLMisthemostcommonskindiseaseoftropicalorigincausedbyhookworms, mostcommonly*Ancylostomavermemiense,Ancylostomacaninum,NecatorAmericanus,Uncinariastenocephalaand Strongyloidesstenocephala.*ItisendemicintheCaribbean,Centraland SouthAmerica,Africa,SoutheastAsia,andAustralia.Atemperaturebetween23°Cand30°C,the presenceofhumidsoil,andproperaerationfavorlarvalgrowth.Thedegreeofcontaminationand thedurationofcontactwiththesoilalsoinfluencetheoccurrenceofthedisease.Theadultworms

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Figure1a:twopointsofentrance,markedbyaroundcrustedlesion

Figure1b:serpiginousetracksunderneaththeouterskinlayercausedbythepar-asite

Figure1c:thelesionsafter15daysfromtheERadmission.

liveintheintestineofdogsandcatsandtheireggsareshedthrough feces that contaminate the environment. Humans are accidental host where the parasite cannot complete its life cycle. The larvae penetratetheintactskinandtravelintheepidermis,butareunable tocrosstheskinbasalmembraneandtodevelopintoadults.Clinicalmanifestationsmainlydependonenvironmentalandbehavior- al factors such as walking barefoot in contaminated sand. The incubationperiodisgenerallyoffewdaysfollowedbytheappearance of itching erythematous tunnels, which can be linear or tortuous. Creepingeruptionusuallyappears1–5daysafterskinpenetration, buttheincubationperiodmaybe≥1month.InadultsCLMcan rarelybebilateralorpresentasfolliculitisorurticarialpapules.The speed of migration depends on the parasite species, being usually ofonecentimeterperday.Thenumbersoflarvaethatcaninfectthe areavaryfromonetohundreds(sotherearealsovariationsofthe lesiontopography).Theinfectionisgenerallyself-limiting,asthe larvae cannot progress further in the human skin [2, 3].

CLMinfectionisobservedintravelersreturningfromtropicallocationsandautochthonouscasesarerareinItaly.Thediagnosisis clinicalandbasedonthedetectionofthetypicalskinlesions.The feetandbuttocksarethemorefrequentlocalizations,butCLMcan alsoinfectthearms,hands,andtrunk[4].FaceandscalpsiteCLM lesionsareatypicalandveryrare,evenifthey weredescribedina 5 years boy [5].The occurrence in infants is rare, due to their limited mobility, while children can be easier affected because they areusedtowalkbarefootonbeacheswhiletheywereonvacation andsandisoneofthemostfrequenthigh-riskenvironmentforthe infection acquisition [6]. CDC reported an outbreak of CML in a children'saquaticsportsdaycampinFloridainvolving22people. Erythema, pruritic rashes, serpiginous lesions, changing location rash or lesions were reported. Manifestations were noted on the buttocks, feet, legs, hands, groin, and abdomen and 9 of the patients had lesions in more than one location [7].

In our case the child returned from a travel in an endemic region, themotherreportedthatthechildhasplayedbarefootonthesand and the high number of peripheral eosinophils on CBC was compatible with parasitic infection.

Thediagnosisisbasedonhistoryandclinicalexamination,biopsy is not recommended and laboratory exams, as peripheral hypereosinophilia,leucocytosis,hypergammaglobulinemiaandpositive serology, are useful to confirm diagnosis.

Differentialdiagnosisthatshouldbeconsideredare:Dirofilariasis, Fascioliasis,Gnathostomiasis,hookworminfection,Paragonimiasis, Pediatric Toxocariasis, Scabies, Strongyloidiasis, Visceral Larva Migrans[3].AcuriousdifferentialdiagnosisisPilimigrans,avery rareconditionthatmimicCMLinfection,butitisduetoaforeign body penetration in the skin, in their case hair [8].

Evenifthediseaseisusuallybenignandcanbeself-limiting,complicationsmayoccur.Super-infectionwith*StaphylococcusAureus* and/or *Streptococcus Pyogenes*has been reported, facilitated by scratching the area. This may cause edema making the parasite tunnels less visible. Moreover, allergic reactions to the parasite could worsen the erythema and the pruritus in the involved area [9].TheassociationofCMLwithLöffier'ssyndromeisparticularly

rare in children. It can occur when there is a heavy infestation of larvae.Löffler'ssyndromeischaracterizedbymigratorypulmonary infiltrates,peripheraleosinophilia,transientfever,coughandmalaise[10].ThisassociationwithCLMwasfirstreportedbyWright and Gold in 1946. The exact pathogenesis remains unknown but now type Ihypersensitivity reactionis the better hypothesis [10]. EvenifcomplicationsassociatedtoCLMareeprimarilylocal,the previously stated complications and intense pruritus may require systemic treatments for a longer time.

Treatment depends on the localization and on the extent of infection. Treatment by cryosurgery was routinely used prior to the availability of anthelminthics such as albendazole, mebendazole, thiabendazoleanddiethylcarbamazine[11].Theefficacyofliquid nitrogen alone is limited as larvae can be far from the erythema, while its combination with oral anti-helminths is more effective thanalbendazoletreatmentalone.Ivermectinisthetreatment of choice, even if its safety has not been established in children weighting less than 15 kg. A single oral dose (200 microgram/kg body weight) is enough to kill the parasite effectively. When the treatmentfails,aseconddosecouldbeadministered.Generally,a single dose of ivermectin is more effective than albendazole (400 mgadayfor3days).IncaseofLöffler'ssyndromeAlbendazole10– 15 mg/kg/d for 3-5 days or longer seems to be the best treatment approach[10].Analternativetreatmentwith10%topicalthiabendazoleointment4timesadayforatleast2daysisalsoreportedin children.Germanguidelinessuggesttoapplyalbendazole10%in alipophilicbase3timesdailyfor7-10daysinalargeareaaslarvae canbefarfromthevisiblelesion[10].Topicalalbendazolecanbe used in different concentrations (5 to 50%), and it is considered safe in children. Ivermectin cream 1% seems to be an ineffective treatment [11]. Antihistamine is used for the symptomatic treatment of pruritus.

Recently,DelGiudiceetal[12]reported5casesofautochthonous CLMinfectioninFranceandtheygaveanoverviewoftheautochthonouscasesinEurope,givingadvertisementtoviewofCLMnot only as a typical and exclusive tropical diseases.

Conclusions: Intheeraofmodernmedicine,itisimportantto beawareofCLMinfectionthat,evenifrare,caneasilybeacquired byinternationaltravellingchildrenwhenplayingoncontaminated ground.Preventionbywearingslippersandclothesisimportantto avoidthisinfectionalongwithpoliciesforpetsdeworming.Evenif prognosisisgood,earlyrecognitionandtreatmenthelpinpreventingcomplication.ThesurveillanceofCLMinfection,importedor autochthonous,canbehelpfultomonitoritsincidenceinItalyand Europe.

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