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The Variegatedcutaneous Fascades Of Ascaris Induced Manifestationsand Its Transmogrification – A Four Year Clinicohistopathological Study In North Eastern Region Of India.

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Abstract:
Background: *Ascaris lumbricoides is one of the largest and most commonparasites found in humans. The adult worms has varied presentations, lives in the small Intestine and eggs are passed in the feces . Ascariasis is the most common soil-transmitted helminth infection in the world.*
Aim :The objective of this study was to commemorate the clinical symptoms and selected hematological indices of ascariasis in opd and ward patients from the northeastern region of indian territory.
Materials and methods: Patients hospitalized in tertiary careHospital in Shillong,medical opds in happy valley and day care centres, from the period of 2014–2018 were included in this study. The intestinal stage of ascariasis wasdiagnosed based on positive coprological survey performed using the decantation technique. A total of 300patients were included in the study, whohad presented in the opds with papular urticarial rash, accompanied with itching,more in the evening hours, stool samples were evaluated, and A. lumbricoides-positive tests were obtainedfrom 35 patients.
Results: Ascaris-positive young patients (3-15yrs.) accounted for 10% of all hospitalized patients, AscarispositiveCollege going students(16-25)accounted for 32% and adult working patients (25–42 yrs.) for 56% and > 42 years comprised 2%. Seasonalpatterns were observed in the prevalence of A. lumbricoides (maximum in June–October). The infection was more in patients who were nonvegetarians, travel history and frequently eating from outside other than home food. There was significant lower limit of normal haemoglobin levels and prevalence of infection with Ascaris lumbricoides. Significant markers of intestinal stage ascariasis were abdominal pain,urticaria, bronchialasthma, allergic rhinitis, atopic dermatitis and co-existing ascariasis, affecting the eosinophil counts in theperipheral blood.
Conclusion:Ascariasis is still a current clinical problem characterized by non-specific clinicalmanifestations, which should be taken into consideration in the differential diagnosis of urticarial rash and atopic dermatitis.
Key words: *Ascaris lumbricoides, ascariasis,urticaria, abdominal pain, haemoglobin*

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I. Introduction:

Urticaria is an itchy rash caused by tiny amounts of fluid that percolates from blood vessels just under the skin surface. In chronic urticaria, it persists for more than six weeks,although often on and off.The release of histamine under the skin is involved in causing hives (urticaria).Ascariasis is a cosmopolitan intestinalparasite estimated to affect approximately 1.4billion people worldwide (73%) in Asia .[1,2] The causative factors are poor sanitary and epidemiological conditions as well as travel history,exposure to outside food,non veg diet ,closed environments,exposure to animals/pets and state of health /immunity of the exposed subjects [3]. The clinical course in most of the infected subjects is asymptomatic;however, those excreting ova constitute a link in theepidemic chain, aiding in the perpetuation of theparasite's life cycle. Ascaris infection can mimic other common diseaseslike respiratory infections, bronchial asthma,skin allergies and gastrointestinal diseases.[4,5,6] Theconsequences of chronic and untreated infectionsinclude systemic symptoms, such as disturbances insomatic development or secondary nutritionaldeficiencies such as anemia, behavioral and sleepdisorders.[7] Diagnosis is hampered by lack ofsensitive diagnostic tests and is often made only inthe event of therapeutic failure as apart of treatment modality for other mimickers of the disease.[3–5,8–11]

II. Materials And Methods

The study was carried out among patients attending clinics in tertiary military care centres, day care Wards and out patientdepartments atMilitary Hospital in Shillong and Happy valley East khasi hills Shillongfrom(2014-2018) in, northeastern region of India. Clinical data including symptoms like itching with diurnal variation more in evenings and night,urticaria,atopic dermatitis,mild pain abdomen, with blood and stoolresults were taken into account in this analysis. The intestinal stage ofascariasis was diagnosed based on a positivecoprological examination. The coprological studywas carried out using the decantation technique atintervals of 1–3 days. Faecal samples (approximately2 g) were homogenized in 3 ml of distilled water.After 2 hours the supernatant liquid was gentlyremoved, and the sediment mixed again with water;the procedure was repeated 3 times. After that,slides were prepared for microscopic examination,Ascaris lumbricoideseggs were identified by twolaboratory specialists. Stool tests for the presence ofparasite eggs and cysts wereinvestigated, with correlation with history of skin symptoms(itching, urticaria, atopic dermatitis). The diagnosisof atopic diseases (bronchial asthma, allergicrhinitis and atopic dermatitis) was considered onlyif it was made by medical specialist or dermatologist in theoutpatient clinic.

The nutritional status was determined by bodymass index (BMI, weight (kg)/(height (m). Blood counts were conducted on an 18parameterhematologyanalyzer (3 part fully automated hematologyanalyzer, sysmex) and thehematological parameters of the peripheral bloodwere also analyzed: hemoglobin (g/dl), haematocrit (%), mean corpuscular volume MCV (fl), platelets), leukocyte count, WBC (number/mm3)as well as relative (%) and absolute bloodeosinophil counts (number/mm). All patients withstool positive for A.lumbricoidesand clinicalsymptoms were treated with anthelminthic drugs(albendazole, mebendazole or pyrantel) and presumptive dose of ivermectin. Thereby, weanalyzed the history of gastrointestinal signs as areason for hospital admission (abdominal pain,vomiting/nausea, diarrhoea),dematological manifestations and history of respiratorydiseases (recurrent infections, wheezing, bronchial asthma)

III. Results

Out of 35 patients screened positive for Ascaris there were 45.5% of males and 54.5% femaleswhich were floating population in this region. The analysis was conducted in three age groups, young patients (3-15 yrs) accounted for 10 % of all screened and hospitalized patients, Ascaris positive College going students (16-25) accounted for 32% and adult working patients (25–42 yrs.) for 56% and > 42 years comprised 2%. Seasonal patterns were observed in the prevalence. Patients with stools positive for A. lumbricoides eggs presented with a wide spectrum of gastrointestinal symptoms (Fig. 2). Chronic Abdominal pain was most frequently observed (72.0%). Vomiting and dehydration were the most common causes of hospitalization in the youngest age group(3-15 years)(2%)(Fig 1) . Skin symptoms in the form of chronic urticaria or pruritic eruptions occurred equally frequently in the group with infection(18%)(Fig2). The history of respiratory symptoms accounted for in 6.0 % of the patients with a positive stool test.4.0% of all the patients positive for coprological index showed low grade anaemia(11.2-11.8 g %).

Fig 1: Characteristics of patients with ascariasis in three age groups

Groups (years)	3-15	16-25	25-42	>42
Median age	8.5	22.5	29.8	44.2
Percentage of hospitalized	3.9%	8.0%	15.78%	11.9%
Belonging to Village (%)	65.3%	40%	7.6%	50%
Belonging to City areas	34.7%	60%	92.4%	50%
Male (%)	46.4%	39.5%	48.0%	48.0%
Female (%)	53.6%	60.5%	52.0%	52.0%
History of travel(%)	35.8%	35%	75%	40%
Non veg diet(%)	58.6%	79.2%	70%	60%
Positive stool sample(%)	34.0%	63.6%	50%	50%

Explanations: Chi2 Pearson Test * $p=0.48;p=0.12;p<0.002$

Fig 2: Clinical symptoms of patients ascaris positive

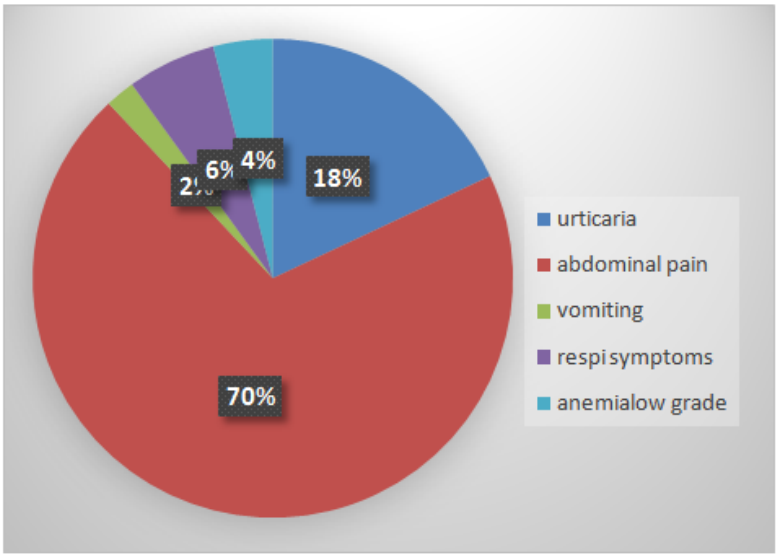

FIG 3a /3b/3c: Gross of adult ascaris worm identified as whole in stool of patient, clinical manifestation of urticarial rash in patients positive for the same, microscopic examination of stool positive for ascaris cysts .

Discussion:The aim of this study was to evaluate the clinicalsymptoms of ascariasis in floating population attending clinics and outpatient departments in tertiary care hospital in Shillong and happy valley east khasi hills Meghalaya(North east).In the study population of the hospitalized patients, the risk of ascariasis calculated using the odds ratio identified to children between 25 and 42 years of age as particularly at risk, and this can beassociated with lack of good hygiene habits, 92% of city residents,eating food from outside,working or college attending group that aretypical of this age group.A seasonal occurrence of outbreaks of infectionwas observed, prevalence being the highest in the second half of the year in late summer(June-October) and in theautumn. This observation is consistent with the ideaof greater exposure to infection in this period in thewarm months of the summer (exposure to water,soil,greater consumption of vegetables and fruit fromhome gardens, often naturally contaminated bysoil,in this particular region consumption of more of red meat like pork in non vegetarians).The clinical symptoms of ascariasis depend on the life cycle of the parasite. In the first phase ofinfection with the invasive egg, during migration oflarvae into the lungs, there are general symptoms(body temperature increasing to 38.3°C), a drynonproductive cough, symptoms of airwayobstruction (dyspnea, wheezing, and evenhemoptysis) and skin symptoms (pruritus, urticaria)[1]. The non-specific nature of the symptoms, theirsimilarity to common infections or allergies, andadditionally the fact that this is a nondiagnosticphase (for approximately 40 days from the infectiononset, there is an absence of parasite eggs in stools)significantly hinder diagnosis. In hospitalized patients with Ascaris positiveeggs in the stool,6 % had a documented history of symptoms of respiratory infection. However, it is not clearwhether these were connected with the infection orhad other causes. Pulmonary manifestations ofascariasis are rarely a complication of the intestinalphase.A past Ascarisinfection leaves no resistance and does not protectagainst reinfection, and the risk of reinfectiondepends on constant exposure to Ascaris lumbricoideseggs [12,13].While discussing other symptoms in patientswith a positive stool test, we must also consider arandom occurrence of diseasewithasymptomatic infection. In the second (intestinal)phase of ascariasis, symptoms from thegastrointestinal tract occur, which are characterizedby great diversity. In the intestinal phase, ascariasissymptoms may mimic an acute abdomen (peritonitisand appendicitis), which should be ruled out by

sonography which is associated with theintestinal migration of mature individuals that havethe ability to crawl into the pancreatic duct, thebiliary ductsand the appendix [14]. They arereported in a significant percentage of patients,particularly the abdominal pain (87%) and, lessfrequently diarrhea and urticaria (15%) [15]. Skin lesions described in the course ofascariasis have different symptoms: utricaria,cutaneous pruritus, Schonlein-Henoch syndrome[16].The consequences of chronic and untreatedinfections may include systemic symptoms, such asdisturbances of somatic development, secondarynutritional deficiencies, i.e. anemia, and behavioural and sleep disorders. In the study groups, behavioural disorders and parasomnias were observed in just afew patients, and lower hemoglobin concentrations with ascariasis were observedwith gastrointestinal symptoms.[17-30]Therefore, when analyzing the clinical symptoms with a positive stool test, it should be takeninto account that the majority of the infectedsubjects are asymptomatic and it is possible toaccidentally discover ova in stool without any linksto the symptoms.

IV. Conclusion

This study was based on a floating population and may not be representativeof the general population [31].Serological testing of antibodies like IgE and IgM has its limitations in such positive patients ,due to cross reactivitywith other parasites [32]. The possibility of false-negative results, which characterize theinitial phase of infection, should also be considered .Theretrospective nature of the analysis prevented fullinsight into thesymptomatology of the disease, i.e.tracing the sequence of the emergence of specific symptoms or monitoring the effectiveness oftherapy. Despite these limitations, the study derives attention to the problem of ascariasis, as a diseasethat is still prelevant, and which despite non-specificmultiorgan manifestations should be considered inthe differential diagnosis, especially of skin and systemic manifestations.

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