

Oedema of Acute Onset, A Presentation of Round Worm Intoxication

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Abstract: Generalized oedema is a common manifestation of hepatic and renal pathology but uncommon with round worm. Round worm infestation remain a most widely prevalent parasitic infection among the population of tropical and developing countries.

Material: 20 cases of acute generalised oedema in patients of age group ---attending at National institute of health & Research with normal hepato renal, diabetic and haematological profile were assessed.

Methods: All cases were thoroughly interrogated, clinically examined and investigated for bioparameters , all shows raised eosinophil count graded and treated accordingly .

Results: All had complete recovery in 20 days without any adversity, sequel or withdrawal of manifestation in 3 months' post therapy follow up.

Conclusion: In any case of sudden generalised pitting oedema with normal haematological, hepatic, renal and diabetic profile, consider Roundworm as its pathogenic factor ..

Keywords: Oedema, bioparameters ,hepto renal

1. INTRODUCTION

Round worm is a common infestation among population of tropical and developing countries and presents with varied manifestation though abdominal colic, nausea, vomiting and diarrhoea are common manifestation but presentation like sudden onset of generalised oedema is very uncommon

Angioedema is an anatomically limited non pitting oedema or deep subcutaneous swelling and 50% children who had urticaria presents with angioedema which is transient extravasation of plasma to the dermis causing a wheal characterised by tense oedema with or without redness. Usually generalised pitting oedema is a result of hepatic, renal or malnutrition origin. Manifestation like diarrhoea, vomiting, intestinal obstruction and perforation, encephalopathy are well documented but acute generalised pitting oedema due to Round worm infestation remain not widely publicized.

Pathology:

In majority cases mast cells releases histamine rapidly from mediator leukotriene and prostaglandin but in some cases due to ACE inhibitor effect results in release of bradykinin formation, a potent vasodilator result in Oedema

Globally more than 1.5 billion or 24% world population are infected with

Soil transmitted helminthic infection. In India as per 2015 survey 2.41 million children are affected with *Ascaris lumbricoides* (1-10).

Factors contributing oedema 11:

- increased hydrostatic pressure;
- reduced colloidal or oncotic pressure within blood vessels;
- increased tissue colloidal or oncotic pressure;
- increased blood vessel wall permeability (e.g., inflammation);
- obstruction of fluid clearance in the lymphatic system;
- changes in the water retaining properties of the tissues themselves. Raised hydrostatic pressure often reflects retention of water and sodium by the kidneys.

Grading of Oedema:

Clinical Grade	Characteristics
Mild	Mild both feet or ankle
Moderate	Both feet, lower legs, hands and lower arms
Severe	Generalised bilateral pitting edema including Both feet, legs, arms and face

2. MATERIAL & METHODS

2.1. Material

20 cases of sudden generalised oedema admitted at Centre for Critical care, National Institute of Health & Research, Warisaliganj (Nawada) during January 2017 to March 2019 were considered for study and evaluation.

2.2. Methods

Selected patients and their parent were thoroughly interrogated for onset and prodrome of clinical presentations, clinically examined, investigated and administered the therapeutic regime. all patients were assessed for base line bio parameters and repeated after completion of treatment to assess the safety profile and consequent effect.

Therapeutic regime administered:

Suspension antacid with local anaesthetics
 Tab or suspension Levocetirizine with Montelukast
 Bland and simple diet
 After 3 days
 Suspension or tablet containing Albendazole 400mg and Ivermectin 6mg at bed time for 5 days.

Each patient were advised to note regression of oedema and any consequent sequel during the therapy, in addition during post therapy follow patients and their parent were advised to keep a vigil watch on any evident oedema and continuance oaf deworming every month three days for 6 month.

Table & Legends:

Table 1. Showing distribution of patients as per age & sex

Age group (in years)	Number of patients		
	Male	Female	Total
10-15	02	01	03
15-20	05	03	08
20-25	06	03	09
	13	07	20

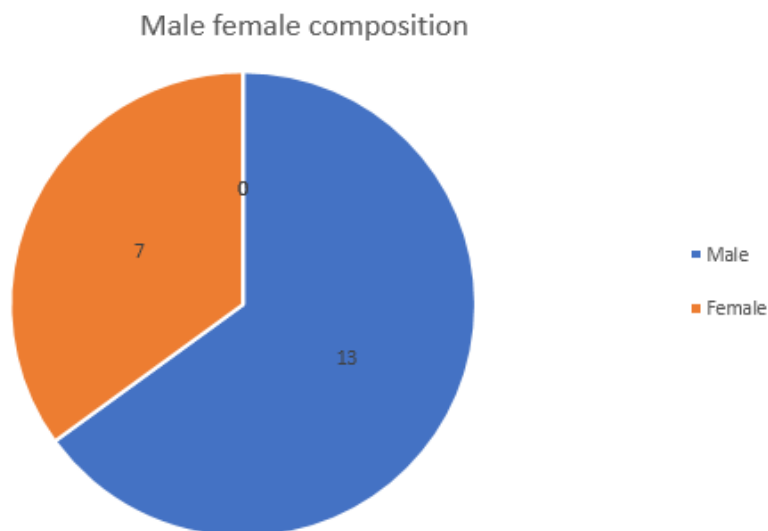


Fig1. Pie diagram showing male female composition

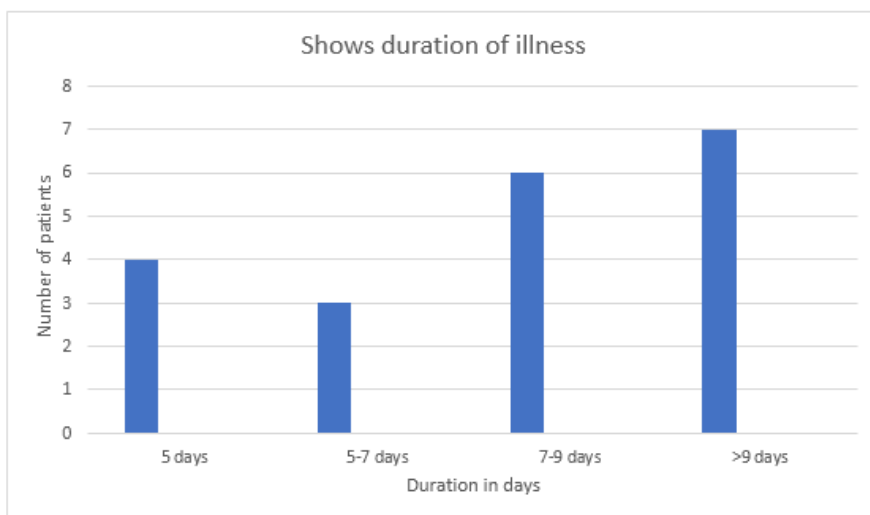


Fig2. Bar diagram showing duration of illness

Table2. Commonest presentations

- Generalised oedema
- Loss of appetite
- General debility
- Giddiness
- Irregular bowel habits
- Pain in abdomen
- Nausea without any vomiting
- Lethargy

Table3. Patients were also interrogated for

- Urinary discomfort if any
- Pain in vertebra costal region (Renal angle tenderness)
- Any agonising itching or urticaria
- Any previous history of such attacks i.e. generalised oedema

Table4. Clinical examination

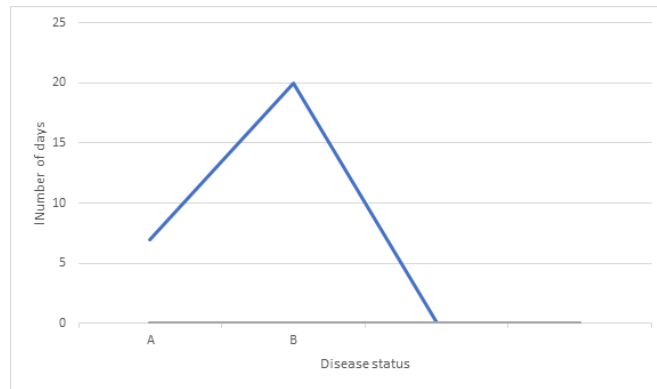
- All had pitting generalised oedema
- Respiratory system: wheeze present in all cases
- Renal angle tenderness – absent in all
- All had body weight, the ideal body weight as per age and height.

Table5. Showing basic bio parameters

Basic bio parameters	Number of Patients
HEMATOLOGICAL	
Absolute eosinophil count ,	
200- 300/	9
300-400/	8
400-500/	3
TLC	
6000-7000/	13
>7000/	7
Haemoglobin percent	
<10gm	11
>10gm	9
DIABETIC PROFILE	
Blood sugar	
Fasting :	
< 100mg	20
>100mg	00
Post prandial :	
<150mg	20
>150mg	00
HEPATIC PROFILE	
SGOT:	
<30 IU	20
>30 IU	00
SGPT:	
< 30IU	20
>30IU	00
Alakaline phosphatase	
<140mg	20
>140mg	00
RENAL PROFILE	
Blood urea :	
<26mg	20
>26mg	00
Serum creatinine:	
<1.5mg	20
>1.5mg	00
Urine :	
Albumin:	
Present	00
Absent	20
RBC:	
Present	00
Absent	20

Table6. Outcome of therapy

Particulars	Number of patients
Generalised oedema	None
Alteration in	
Hepatic profile	None
Renal profile	None
Haematological :	
Improved Hb%	18
Passed round worm	All
Any sequel or adversity	None



(Key word: A – Beginning of relief; B -complete subsidence of oedema)

Fig3. Showing pattern of relief of oedema during therapy.

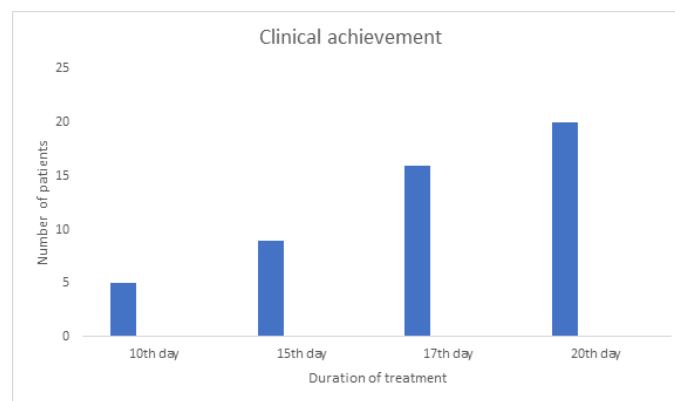


Fig4. showing clinical achievement

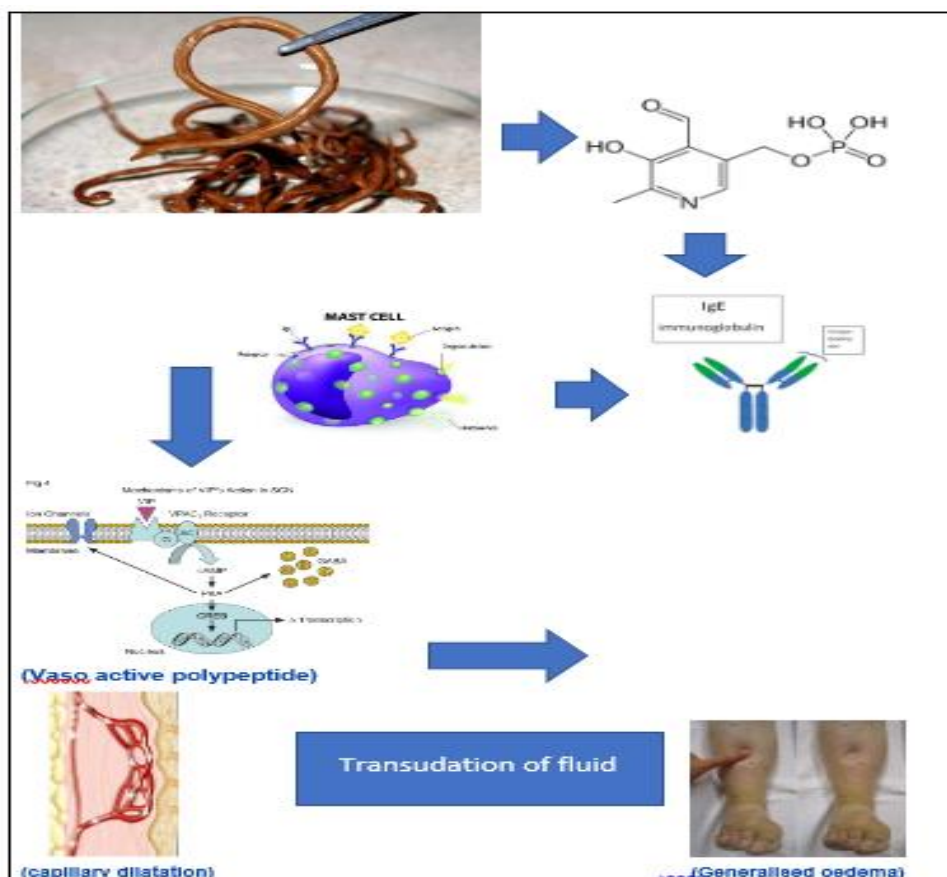


Fig5. Showing schematic presentation of pathogenesis of generalised pitting oedema.

3. OBSERVATION

Selected patients were of age group 10-25 years (T-1) and out of them 13 were male and 07 were female (Fig-1) and duration of illness varies from 5-9 days (Fig-2)

All patients have common presentation i.e.- Generalised pitting oedema, general debility, pain in abdomen and irregular bowel habit (T-2) and interrogation to rule out any associated hepatic or renal pathology were negative in all (T-3) duly confirmed by clinical examination (T-4) evaluation of haematological, diabetic hepatic and renal profile though all shows raised eosinophil count (T-5)

4. RESULT

All patients had progressive decline in oedema and by 20th day all had complete subsidence of oedema (Fig-3) and on deworming all passed plenty of round worm and achieved improved appetite.

No patient had any symptom withdrawal and any sequel.

5. DISCUSSION

Usually generalised pitting oedema is a presentation of either hepatic or renal pathology or malnutrition⁽¹²⁻¹³⁾, but generalised oedema due to non-nutritional *Ascaris lumbricoides* infestation is very uncommon but generalized oedema associated with Round worm symptomatology and passage of round worm on deworming with complete subsidence of oedema with deworming, anti-allergic and pyridoxin supplementation without any withdrawal and sequel or adversity (T-6) suggest -round worm toxin produced generalised pitting oedema, can be explained as -

Release of round worm toxin (Polypeptide) from the body of *Ascaris lumbricoides* which causes competitive inhibition of pyridoxal phosphatase enzyme which combine with IgE of mast cell which releases⁽¹⁴⁻¹⁵⁾ –

- vaso active polypeptide resulting in capillary dilation and exudation of subcutaneous fluid leading to generalized oedema.
- ATP-sensitive potassium channels can cause vasodilation due to hyperpolarization of vascular smooth muscle cells

6. CONCLUSION

In case of generalised oedema of acute onset with normal hepatic and renal profile, think of round worm as its causative parasite, investigate and treat accordingly.

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