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Research Paper

A Case of Erythema Nodosum Leprosum with Acute Tubular Necrosis

Medical Science

KEYWORDS : Erythema Nodosum Leprosum, Acute Tubular Necrosis, Lepra Reactions , Lepromatous Leprosy,ZN Stain, Acid Fast

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ABSTRACT

36 years old male admitted with high grade fever with generalized swelling since 15 days. Simultaneously, he also developed redness of both eyes. His urine output declined in last 2 days .Examination revealed B/L conjunctival redness,Facial plethora . Few discrete erythmatous, blanchable papules /nodules were seen over the flexor and extensor aspect of the forearms. His renal functions were found to be deranged for day 1 to day 7 .

Skin biopsy was consistent with the diagnosis of Erythema Nodosum Leprosum. ZN stain was positive for AFB [Bacterial index 4+]. Kidney biopsy was diagnostic of Acute Tubular Necrosis. Patient received multibacillary therapy. Rifampicin 600mg+clofazamine 300 mg once a month supervised dose, dapsone 100mg+ clofazamine 50mg daily self administered. Steroids were also started in view of ENL. Within 3 days of the treatment, rashes started fading, facial plethora disappeared, conjunctival redness disappeared and renal function tests were normal over next 15 days.

Introduction:-

Leprosy is chronic granulomatous infectious diseases caused by the acid-fast rod Mycobacterium leprae. The principal clinical manifestations of which are anaesthetic skin lesions and the development of peripheral neuropathy. Lepra reactions comprises several common immunological mediated inflammatory states & these reactions may precede diagnosis . Type 1 lepra reaction takes place in patients with borderline forms of the disease(BT,BB,BL).Type 2 reactions or erythema nodosum leprosum occurs exclusively in patients near the lepromatous end of the leprosy spectrum (BL,LL). In 90% of patients, type 2 lepra reactions follow the initiation of therapy . . This patient presented to us with erythematous nodosum leprosum reaction with acute renal failure which is one of the rare manifestation of Hansens disease .

Case Report :-

A 36 year old,non smoker,non alcoholic,non diabetic,non hypertensive male patient admitted with high grade fever with generalized swelling since 15 days. Simultaneously, he also developed redness of both eyes. Later he developed decreased urine output in last 2 days that led him to visit to our hospital.

To start with, this patient had developed fever which was insidious onset, high grade fever, intermittent, non progressive, not associated with chills and rigors . At the same time, patient also had developed edema of both upper limb, lower limb and face. He first noticed edema in the upper limb,then lower limb and then face. Lower limb edema was pitting in nature, non tender, exrtending upto knee. Also,he developed redness of both the eyes not associated with any discharge or itching . As mentioned, patient finally developed decreased urine output.

He had no major illness in the past. Other members of the family were apparently of normal health. He had no drug allergy or exposure to drugs .

On examination

patient was Conscious and oriented, Pulse=82/min, BP=140/80mm Hg, Respiratory rate=16/min, temp 102 degree F , JVP= not raised, no pallor, icterus, cyanosis, clubbing. B/L conjunctival redness + Facial plethora +(FIGURE1A), b/l pitting pedal edema & upper limb edema was present .

Skin:

Few discrete erythmatous, blanchable papules /nodules were seen over the flexor and extensor aspect of the forearms. Some of these nodules were tender and nonitching.(FIGURE 1B,1C,1D) No palpable nerves, no skin lesions in the form of hypopigmented macules/plaques . No skin thickening/loss of eyebrows.

Other systemic examination was normal except two cm , non-tender hepatosplenomegaly. Patient was started on symptomatic treatment . His fever decreased over next 5 days however the erythematous rashes with edema continued to be present. The following are the lab parameters during the hospital stay:-

Lab parameters	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	
Serum Creatinine Mg/dl	5.5	5.9	6.2	7.2	6	4.5	2	0.8
Blood Urea mg/l	65	72	80	85	55	45	22	20
Na+ meq/l	140	138	143	138	135	128	129	132
K+ meq/l	4.7	4.1	4	3.5	3.5	3.2	3.5	2.4

CBC:Hb=15gm%,MCV/MCHC/MCH=normal,PBS:Anisopoikilocytosis,microcytes,macrocytes,tear drop cells,mildhypochromia ,WBC=8000/cmm, P70%,L28%,E1%, M1%, Platelet count :1,86,000/cmm. Liver function tests were normal. Urine examination: 1+ protein, few granular casts , 24 hour urine= 700 ml,24 Hour urinary protein= 20mg% ,ESR=10 mm at the end of 1 hour, Dengue Ig M =negative , Widal test = negative Malaria antigen test= negative ,HIV = Negative ,HBsAg = negative , HCV= negative. ECG/CXR= NAD, Serum Calcium=8 mg /d ,Serum Phosphorous = 4mg/dl, ASO titer = negative CRP =negative ,RA= negative,ANA= negative,Serum VDRL= negative, ACE levels= 36 u/L [8-65],Weil felix test = negative, Blood culture – no growth,USG abdomen: Hepatomegaly with fatty liver ,B/L raised renal cortical echogenicity, kidney size=normal, CM difference was good.

Skin biopsy:

Dermis shows periadnexal, perivascular lymphocytic infiltrate having predominantly polymorphs, many foamy macrophages, lymphocytes. ZN stain: positive for AFB [Bacterial index 4+]. Impression: Erythema Nodosum Leprosum. [FIGURE 2A,2B,2C,2D,2E] We referred the patient to leprosy centre. Slit skin smear and ear biopsy was taken. ZN stain was positive 4+. As the patient had e/o acute kidney injury , the kidney biopsy was performed .

Kidney biopsy:

9 glomeruli were seen. Glomeruli appeared normal. PCT showed flat epithelium with loss of brush border, and very few nuclei. Interstitium was edematous. Blood vessels were unremarkable. Impression:Acute Tubular Necrosis.(FIGURE 3A,3B,3C,3D,3E)

Final diagnosis

HANSENS DISEASE (LEPROMATOUS LEPROSY TYPE) WITH ERYTHEMA NODOSUM LEPROSUM WITH ACUTE TUBULAR NECROSIS.

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Treatment :
Patient was started on multibacillary therapy. Rifampicin 600mg+clofazamine 300mg once a month supervised dose, dapsone 100mg+clofazamine 50mg daily self administered. Steroids were also started in view of ENL. Within 3 days of the treatment, rashes started fading(FIGURE 4A,4B), facial plethora disappeared, no conjunctival redness and renal function tests were normal over next 15 days .

Discussion
Erythematous nodosum leprosum occurs exclusively near the lepromatous end of the leprosy spectrum. Although, ENL may preced leprosy diagnosis and initiation of therapy , sometimes, in fact,prompting the diagnosis. In 90% of cases it follows the institiution of chemotherapy, within 2 yrs. It presents with crops of painful erythematous papules. They may resolve spontaneously but may recur. Fever, malaise, lymphadenitis, neuritis, uveitis, orchitis, glomerulonephritis, anemia, leukocytosis, abnornmal LFTS. TNF-alpha ,IL-6, IL-8 , IFN -Gamma is implicated in the pathogenesis. In severe cases, death is possible. Skin biopsy shows vasculitis and panniculitis. Treatment: Glucocorticoids, clofazamine and thalidomide in case of recurrences.

Renal manifestation of Hansens disease: **Glomerulonephritis (**Endocapillary proliferative, Mesangial proliferative , Membranoproliferative , Chronic sclerosing ,Crescentic), **Amyloidosis** , **Acute tubular necrosis ,Tubulointerstltial nephritls** (Acute or chronic) , **Functional defects** without histologic lesions (Acidification defects, Impaired concentrating ability).

Pathogenesis of ATN in leprosy is mainly cytokines mediated endothelial injury, release of adhesion molecules, endothelin causing renal ischemia leading to acute tubular injury , non specific inflammatory effects leading to hematological abnormalities leading to DIC, shock and damage to the tubules.


FIGURE 1A

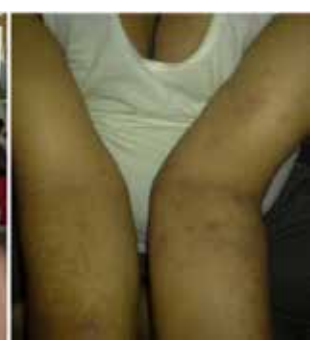


FIGURE 1B

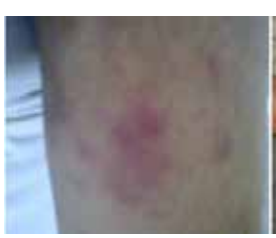


FIGURE 1C


FIGURE 1

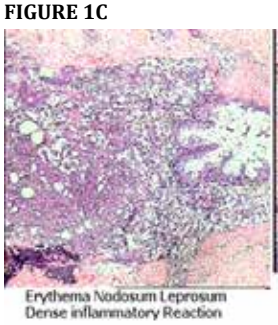


FIGURE 2A

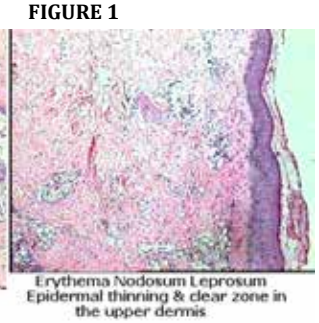


FIGURE 2B

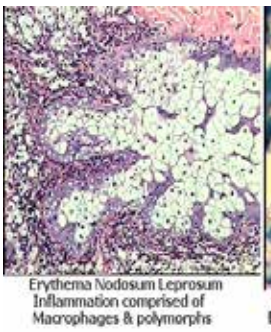


FIGURE 2C

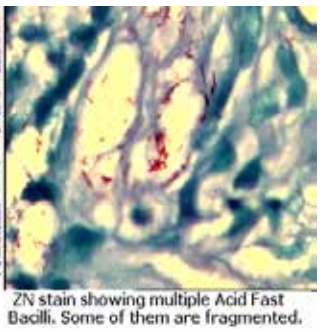


FIGURE 2D

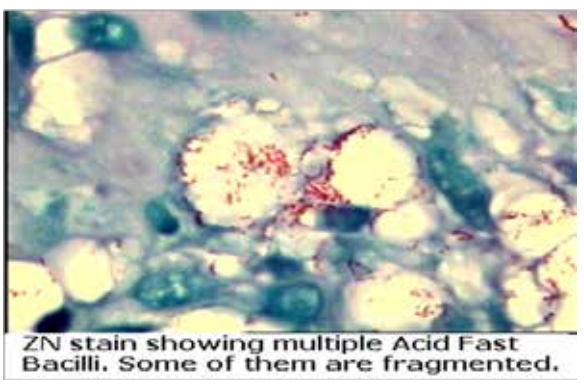


FIGURE 2E

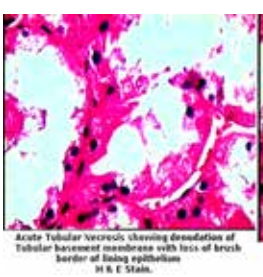


FIGURE 3A

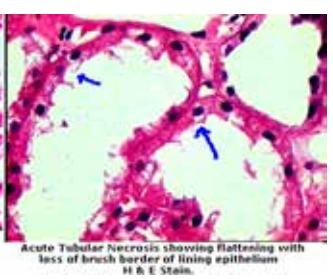


FIGURE 3B

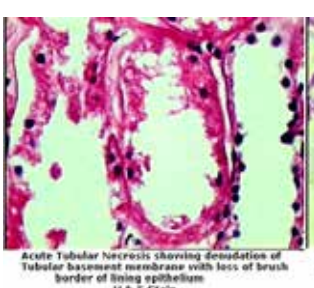


FIGURE 3C

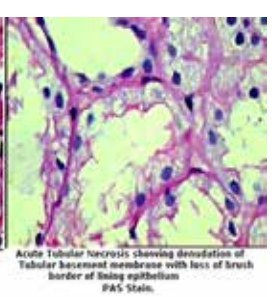


FIGURE 3D

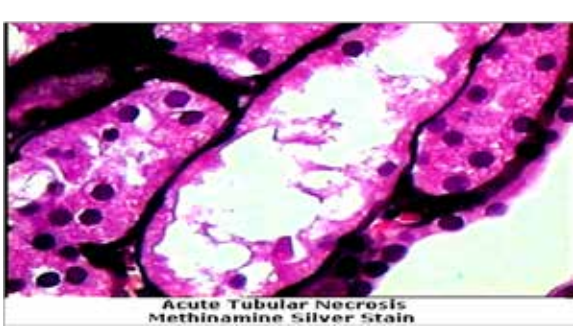
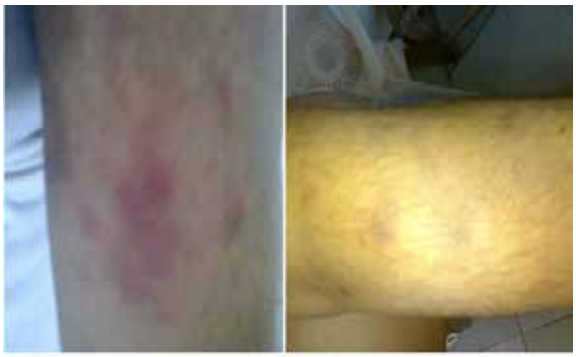


FIGURE 3E



BEFORE TREATMENT ON DAY 3 OF TREATMENT

FIGURE 4A **FIGURE 4B**

REFERENCE

Singhal PC, Chugh KS, Kaur S, Malik AK: Acute renal | Failure in leprosy. Int J Leprosy 1977:45:171-174. | Madiwale C.V Mittal BV,Dixit,et al: Acute renal failure in complicated leprosy | Chugh K.S,Damle PB,Kaur s: renal lesions in leprosy amongst north Indian patients