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RESEARCH ARTICLE

CUTANEOUS MICROABSCESSES BY MYCOBACTERIUM CHELONAE : CASE REPORTS FROM A TERTIARY CARE CENTRE, TRIPURA

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Abstract

Nontuberculous mycobacterial (NTM) infections are on the rise. They often cause skin diseases that are misdiagnosed.Two cases of Mycobacterium chelonae infection in immunocompetent patients were presented. First case showed infection of cutaneous and subcutaneous tissue without any preceeding history of skin injury by any intervention like trauma or injection, which was a rare manifestation. The second case showed M chelonae infection as a port site infection in a non healing ulcer. The history and clinical presentation of both the cases were documented. Treatment was also reported with subsequent output during further follow ups. Here both the cases showed resistance to commonly used amtimicrobial agents which increased the suspicion of nontuberculous mycobacterial infection among clinicians and microbiologist and made the diagnosis easier.

Introduction:-

Historically, human infections due to Mycobacterium was almost exclusively due to Mycobacterium tuberculosis (MTB). Recently, increasing trend of prevalence of NTM infection has become a matter of both clinical and diagnostic concern. A rise in the number of NTM infections globally made it being recognized as an emerging threat of significant morbidity and mortality in both immunocompetent and immunocompromised populations [1]

M chelonae is a rapid growing, non tuberculous mycobacteria (NTM).[2,3] It is ubiquitous in the environment and has been isolated from soil, water and human sources.[4-7] Being saprophytic, causes infection following incidental environmental inoculation. Usually found in many cutaneous sites. Infection occurs most commonly after skin trauma, surgery, injections or minor injuries.[8] M chelonae has no pathognomonic findings. This makes diagnosis challenging and necessitates cooperation between clinicians and microbiologists. The treatment of infections with M chelonae is difficult due to its resistance to most antimicrobial agents. Here we reported two incidentally diagnosed cases of M chelone infection with different presentations in a tertiary care hospital in Tripura.

Case 1

24 year old male complained of a painless small nodular swelling on supraclavicular region which gradually ripened enlarged, became 3cm×4cm, then converted to a pustular swelling which was associated with high grade fever. Patient was adviced Tab Clavam 625 one tab twice daily after meal for 7 days. Fever subsided, pustules burst with

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purulent discharge and dried up with crust formation. The contaminated areas led to formation of more pustules which enlarged, swelled and then burst with crust formation resembling erythema contagiosum. Then he was adviced to take Tab Cefuroxime Axetil 500 mg twice daily for 5days.However pustules did not respond to the second antibiotic also and the situation continued. The pus sample was sent to dept of Microbiology, AGMC for bacteriological and tubercular analysis. A gram stain and a Ziehl Neelsen (ZN) stain was done. Gram stain showed purple coloured, rod shaped, gram positive bacilli and ZN stain showed short stout acid fast bacilli.A part of sample was put for Cartridge Based Nucleic Acid Amplification Test (CBNAAT) and it was negative for Mycobacterial tuberculosis complex (MTBC). Sample was put for culture on nutrient agar (NA), MacConkey agar (MA), Blood agar(BA) and two LJ media (one LJ media was covered with aluminium foil and other LJ media remain intact).Inoculated samples were incubated at 37℃.There were no growth on NA, MA, BA after 48 hrs. But LJ media covered with aluminium foil showed orange coloured smooth moist colony on day 5.Smear was prepared from pure colony and stained with gram and ZN stain. ZN stain showed short stout atypical acid fast bacilli, gram stain showed gram positive rod shaped bacilli.On motility testing bacilli were non motile, negative for MPT64 antigen by Immunochromatography test. Biochemical panel were put.It showed catalase tests positive and Tween 80 hydrolysis test positive. Suspecting rapid grower non tuberculous mycobacteria (NTM) a part of sample was sent to NIT & respiratory disease centre, New Delhi & AST was performed.There M cheloni was detected. Antibiotic susceptibility test was done. He was adviced to take tab Clarithromycin (15mg/kg/day) and tab Ciprofloxacin (20mg/kg/day) for 6 weeks and abscesses were healed.

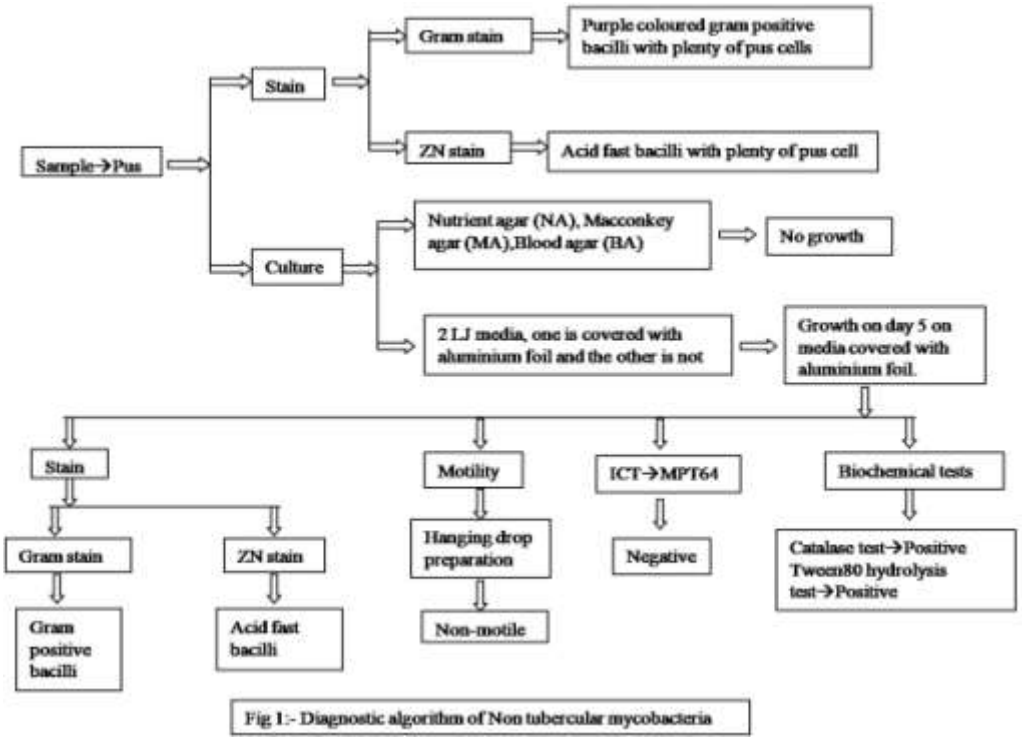
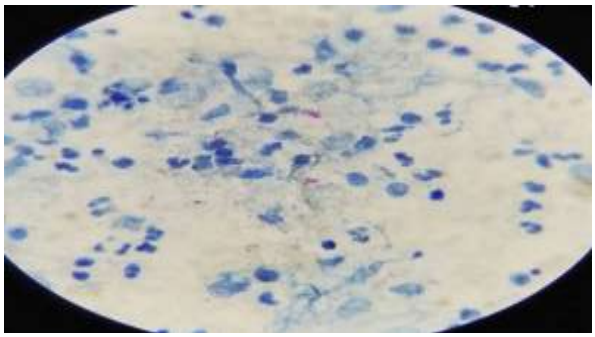


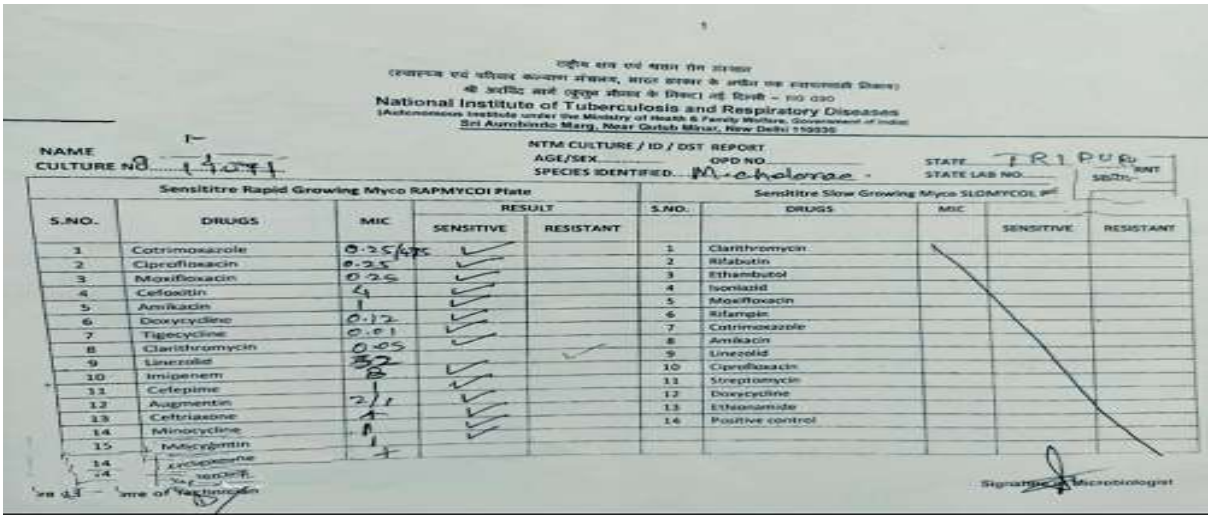
Fig 1:- Diagnostic algorithm of Non tubercular mycobacteria



Case 2

Fig 2:- Acid-fast Bacilli.

A 67 years old fatty lady following laparoscopic cholecystectomy due to cholelithiasis was suffering from non healing port site infection associated with fever with mucopurulent pus. Suspecting of bacterial infection, pus sample was sent to dept of Microbiology, AGMC.Two smears were prepared from the sample and stained with gram and Ziehl Neelsen stain (ZN stain). Gram stain showed plenty of pus cells per high power field (HPF), 2-3 epithelial cells per HPF and plenty of gram positive bacilli. ZN stained smear showed acid fast bacilli on blue background of pus cells. A part of sample was put for CBNAAT. CBNAAT result showed negative for (MTBC).Sample was inoculated in Nutrient agar (NA), Macconkey agar (MA), Blood agar (BA) and two Lowenstein Jensen (LJ) media, one covered with aluminium foil and other remain uncovered and incubated at 37 ℃. It was seen that there was no growth of organism in NA, BA, MA even after 48hr. However LJ media covered with aluminium foil showed yellowish orange, smooth, moist colony on day 4. Two smears were prepared, one for gram stain and other for ZN stain. In gram stain, long rod shaped, purple coloured gram positive bacilli were seen and in ZN stain, short stout acid fast bacilli were seen.On motility testing by hanging drop method, bacilli were non motile, negative for MPT64 antigen by ICT. Biochemical panel was put and it showed catalase tests positive and Tween 80 hydrolysis test positive. Suspecting of rapid grower non tubercular mycobacteria infection, the same sample was sent to NIT & Respiratory disease centre, New Delhi, where M chelonei was diagnosed. Antibiotic sensitivity pattern was given in Fig 3.



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NTM CULTURE / ID / DST REPORT

NAME
CULTURE NO 14071
AGE/SEX
OPD NO
SPECIES IDENTIFIED: M. chelonae
STATE TRIPURA
STATE LAB NO.

Sensititre Rapid Growing Myco RAPMYCOI Plate

S.NO.	DRUGS	MIC	RESULT	
			SENSITIVE	RESISTANT
1	Cotrimoxazole	0.25/4.75	✓	
2	Ciprofloxacin	0.25	✓	
3	Moxifloxacin	0.25	✓	
4	Cefoxitin	4	✓	
5	Amikacin	1	✓	
6	Doxycycline	0.12	✓	
7	Tigecycline	0.01	✓	
8	Clarithromycin	0.05	✓	
9	Linezolid	32		
10	Imipenem	8	✓	
11	Cefepime	1	✓	
12	Augmentin	2/1	✓	
13	Ceftriaxone	1	✓	
14	Minocycline	1	✓	
15	Moxifloxacin	1	✓	
14	Imipenem			
14	Tobramycin			

Sensititre Slow Growing Myco SLOMYCOI Plate

S.NO.	DRUGS	MIC	RESULT	
			SENSITIVE	RESISTANT
1	Clarithromycin			
2	Rifabutin			
3	Ethambutol			
4	Isoniazid			
5	Moxifloxacin			
6	Rifampin			
7	Cotrimoxazole			
8	Amikacin			
9	Linezolid			
10	Ciprofloxacin			
11	Streptomycin			
12	Doxycycline			
13	Ethionamide			
14	Positive control			

Signature of Microbiologist

Fig 3:- AST report from NIT & RD.

Based on AST pattern, Tab Clarithromycin (15mg/kg/day) and Tab Tigecycline 50mg twice daily after meal were adviced for 1 month.Wound dried up with scar formation within 10 days.

Discussion:-

Prevalence of NTM is not clearly documented in India, as there is a lack of awareness among clinicians coupled with deficient laboratory resources to diagnose these infections. Among few reports available, NTM isolation rates are reported to vary from 0.7%-34% in India. [7-9] Tripura also encountered few cases of NTM infection in last 2-3 years.

M chelonae infection is considered in patients with chronic soft tissue infections non responsive to commonly used antimicrobial therapies. [10] It is considered to be among the most drug-resistant nontuberculous mycobacteria as it is resistant to all antituberculous drugs. It is therefore necessary to test for antimicrobial susceptibility on all isolates of M chelonae. According to ATS guidelines, M chelonae is susceptible to clarithromycin (100%), tobramycin (100%), linezolid (90%), amikacin (50%), doxycycline (25%) and ciprofloxacin (20%). [11] Clarithromycin is the drug of choice in most cases. A combination antimicrobial therapy is however recommended to avoid development of mutational resistance. [12-14]

We reported two chronic infective cases in immunocompetent individuals,the first case showed cutaneous manifestation in the form of microabscesses in a 24 year old male. The second case manifested as non-healing wound ulcer. Both the cases were resistant to routinely used antimicrobial drugs.

Conclusion:-

Incidence of skin & soft tissue infections due to rapidly growing mycobacteria are increasing now a days. Recently NTM infection has also been identified in various states of north-eastern zone of India. In Tripura also we found two cases of M cheloni infection and one with atypical presentation.These cases showed that NTMs, particularly rapid growers, can infect the patients with no apparent cause of immunocompromised state. Any chronic nonhealing skin & soft tissue infections must be suspected for NTM and should be given due importance for diagnosis without delay to minimise significant morbidity & mortality.

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