EMPYEMA THORACIS CAUSED BY Serratia marcescens IN A 2-YEAR-OLD CHILD

Sir,

Empyema thoracis (ET) is common in developing countries having high incidence of pneumonia, reported incidence being 0.8% of pediatric admissions.[1] *Staphylococcus aureus* is predominantly found.[2] It is often seen in underweight children, but whether it is because of under-nutrition or social factors leading to inadequate and delayed treatment of pneumonia is not known.[2]

To best of our knowledge, community-acquired ET due to *Serratia marcescens* (SM) - which are small, motile, opportunistic gram-negative rods belonging to family enterobacteriaceae - in a healthy child has not been reported from India.

A 2-year-old previously healthy male child was admitted to cardio-thoracic ward of Sawai Man Singh Hospital (SMSH), Jaipur, with fever, cough and labored breathing for 15 days. He had received treatment for approximately 10-12 days elsewhere, records of which were not available; however, his condition did not improve.

The patient was lethargic and anorexic; his weight was 10 kg. Detailed examination revealed dull notes on chest wall percussion, decreased tactile and vocal fremitus and decreased breath sounds on left-sided chest. Chest X-ray and ultrasonography revealed left pleural effusion. Past history of injury, respiratory infection, tuberculosis, seizures, jaundice or allergy was unremarkable.

Complete blood count showed hemoglobin 5.5 gm%, total leukocyte count 32,890 cells/mm$^3$ (neutrophils 80%, lymphocytes 18%, monocytes 2%).

On needle aspiration, pleural fluid was viscous, for which a chest tube was inserted for drainage. Aspirated fluid was subjected to microscopic examination and culture. Gram-staining revealed many polymorphs. Patient was given i.v. amikacin and cefazidime, but his condition did not improve. On the fifth day of admission, left thoracotomy with decortication and empyema drainage was performed. Two new chest tubes were inserted.

Pleural fluid samples obtained on aspiration and after surgical drainage were subjected to microscopy and culture-sensitivity testing. Grossly, both fluid samples were turbid. Red colored colonies obtained were subjected to various biochemical reactions and organism was identified as SM, from both samples. This was further confirmed by mini API (BioMerieux India Pvt. Ltd.), an automated system for bacterial culture-sensitivity testing. Organism was sensitive to amikacin, cefazidime, cefoperazone, aztreonam, imipenem, ceftriaxone, ciprofloxacin and piperacillin but resistant to doxycycline.

Serology for HIV and blood culture were negative.

In addition to previous treatment, i.v. Cefoperazone was administered as per culture and sensitivity report, for 15 days. Patient showed good clinical recovery, fever subsided, respiratory signs and symptoms as well as blood parameters improved.

Various cases of Serratia causing pulmonary infections and outbreaks in ICU have been reported.[3-4] Only two case reports of empyema caused by SM were found on Medline and Pubmed search.[2,3] It has been known to cause pneumonia, lung abscess and empyema in immunodeficient children.[5] Our case differs from above mentioned cases as this is the first case report of SM causing ET in an immunocompetent child in English literature.

Contributing factors for diseases caused by SM include exposure to contaminated instruments, fluids and peripheral catheters, use of steroids, broad spectrum antibiotics or prior colonization.[2]

In the present case, treatment details before admission to SMH could not be obtained. However according to the patient’s mother, he had received some i.v. drugs, maybe antibiotics or steroids, elsewhere. There was no documentation that patient was ever infected with the same organism earlier. Hence to conclude, this can be regarded as a case of community-acquired ET due to SM, probably because of unjustified use of broad-spectrum antibiotics.

Although surveillance cultures were not done, yet no other Serratia group infection was noted from the same ICU/ward in routine samples received for culture during that period.

REFERENCES


Rajni Sharma, Babita Sharma, Parul Sinha, Suman Rishi
Department of Microbiology and Immunology, Sawai Man Singh Medical College, Jaipur, India

Correspondence
Rajni Sharma, P-3, Tilak Marg, C-Scheme, Jaipur (Rajasthan), India.
E-mail: drsinhaparul@yahoo.co.in