

Empyema caused by *Myroides odoratimimus* in a patient with liver abscess

Sir,

Myroides spp. are ubiquitous organisms and rarely considered pathogenic. Despite low virulence, they are recognized as important opportunistic human pathogens because of the ability to develop multidrug resistance.^[1] They usually affect hosts with liver cirrhosis, diabetes mellitus, and chronic obstructive pulmonary disease.^[2] To the best of our knowledge, there are no reports of pleural infection by this organism from India. We report an uncommon presentation of empyema in a ruptured liver abscess caused by *Myroides odoratimimus* in an alcoholic with compromised liver parameters.

A 43-year-old chronic alcoholic and ganja addict admitted to our hospital with complaints of breathlessness, high fever, chill, and rigor for 15 days. There was no history of tuberculosis, diabetes, hypertension, and animal exposure/previous hospitalization. On general examination, the patient was conscious, febrile (102°F), blood pressure 108/70 mmHg, and pulse 92/min, and there was bilateral pedal edema. No abnormality was detected on systemic examination except abnormal breath sounds and palpable tender liver. Parenteral ceftriaxone and metronidazole were started empirically and advised for ultrasonography (USG) and abdominal computed tomographic scan which was interpreted as liver abscess (right lobe) with right pleural effusion extending into the adjacent right lower chest wall [Figure 1]. The patient was managed with intermittent intercostal drainage. Pleural pus was sent for cytological and microbiological examination (Gram stain, acid-fast bacilli, amoebic trophozoites, and bacterial [aerobic, anaerobic] and fungal culture). Blood, urine, and throat swabs were also sent for bacteriological culture.

His biochemical parameters were within normal range except abnormal serum protein and albumin – 5.3 mg/dl and 2.0 g/dl, bilirubin – 0.4 mg/dl, serum glutamic-oxaloacetic transaminase (SGOT) – 59 U/L, and Serum glutamic pyruvic transaminase (SGPT) – 52 U/L. He was seronegative for HIV, HBsAg, and *Entamoeba histolytica* infection. Pleural pus cytology showed fibrinous exudates with predominantly polymorphs; Gram stain was consistent with few epithelial cells over 100 polymorphs/oil immersion field with few Gram-negative bacilli (GNB). Pus was negative for acid-fast bacilli and amoebic trophozoites. Bacterial culture showed nonhemolytic yellowish colonies on blood agar (pigmentation confirmed on nutrient agar) and nonlactose-fermenting colonies on MacConkey agar [Figure 2]. It was Gram-negative nonmotile bacilli (bipolar staining), catalase, and oxidase positive, further conventionally identified to be nonfermentative oxidase-positive GNB. It was susceptible to amoxiclav, piperacillin-tazobactam, carbapenems, and ciprofloxacin and resistant to the third-generation cephalosporins, aminoglycosides, cotrimoxazole, colistin, and polymyxin B. It was then identified to be *Myroides* spp. by automated system (VITEK® 2 GN BioMérieux, France) and susceptibility pattern was 100% concordant with Kirby–Bauer method. Another sample of pleural pus was asked for repeat culture to rule out colonization, which isolated the same bacteria. The anaerobic and fungal culture and aerobic blood and urine culture were sterile. Treatment was modified to intravenous piperacillin-tazobactam 4.5 mg and ciprofloxacin 400 mg twice daily for 10 days. A repeat USG abdomen after 5 days of specific antibiotic therapy showed significant resolution of intrahepatic and subdiaphragmatic collection. The patient was discharged with an advice of



Figure 1: Non-contrast computerized tomography (NCCT) of liver showing solitary (right lobe), thin-walled, hypodense area (size 9 cm × 7 cm) suggestive of pyogenic liver abscess ruptured into right pleural space causing pyothorax and into the adjacent subcutaneous tissues of lower chest wall causing swelling

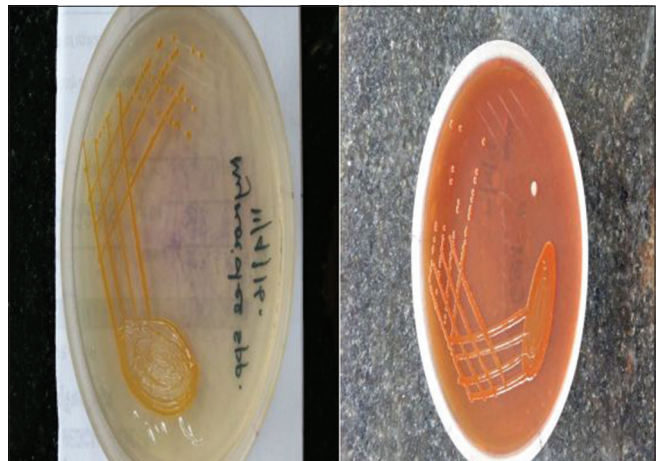


Figure 2: Yellow-pigmented colonies on nutrient agar and nonlactose-fermenting colonies on MacConkey agar

oral ciprofloxacin for 10 more days and follow-up after 15 days.

In a recent review of 48 cases of *Myroides* infection, most are from urinary tract infection, cellulitis, and bacteremia with only one case of pneumonia. *Myroides* infection is uncommonly reported in India.^[3] Invasive infection due to *Myroides* usually precedes by colonization of the respiratory tract, particularly in high-risk patients in intensive care units and neonates.

In the present case, the source of infection is questionable as there was no history of injuries/animal bite/hospitalization. However, the patient was chronic alcoholic and ganja addict. Authors have reported alcoholism and biliary disease to be frequently associated (40%) with pyogenic liver abscess predominantly in men, culture positivity is 70%, and the predominant organism was extensively drug-resistant *Escherichia coli* (50%).^[4]

Hence, antibiotic susceptibility testing plays a significant role for this bacterium and its ability to autoaggregate to form biofilms is responsible for its multidrug resistance and ability to infect immunosuppressed hosts.^[2] Nosocomial outbreaks due to *Myroides* spp. have been reported from numerous hospital sources, including ice machines, intravenous drug vials, nebulizers, topical disinfectants, and sink traps.^[5] A case series of urinary tract infection in immunocompromised hosts were recently reported from a hospital of western Romania.^[6]

To conclude, *M. odoratimimus* is emerging as a multidrug-resistant pathogen in community and health care settings. This is the first report of pyogenic liver abscess and empyema due to *M. odoratimimus* from India, which highlights the role of advanced automated identification systems that can assist the microbiologists not only in rapid diagnosis but also in recommending appropriate antibiotic therapy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

**Ashoka Mahapatra¹, Prasanta R. Mohapatra²,
Snigdharani Choudhury³, Nerbadyswari Deep (Bag)⁴**

¹Departments of Microbiology, All India Institute of Medical Sciences, Bhubaneswar, Odisha, India, ²Pulmonary Medicine, All India Institute of Medical Sciences, Bhubaneswar, Odisha, India, ³Department of Microbiology, S.C.B. Medical College, Cuttack, Odisha, India, ⁴Department of Radiodiagnosis, All India Institute of Medical Sciences, Bhubaneswar, Odisha, India.
E-mail: meetasoka@yahoo.co.in

REFERENCES

1. Deepa R, Venkatesh KG, Parveen JD, Banu ST, Jayalakshmi G. *Myroides odoratus* and *Chryseobacterium indologenes*: Two rare isolates in the immunocompromised. Indian J Med Microbiol 2014;32:327-30.
2. Benedetti P, Rasso M, Pavan G, Sefton A, Pellizzer G. Septic shock, pneumonia, and soft tissue infection due to *Myroides odoratimimus*: Report of a case and review of *Myroides* infections. Infection 2011;39:161-5.
3. Beharrysingh R. *Myroides bacteremia*: A case report and concise review. IDCases 2017;8:34-6.
4. Santos-Rosa OM, Lunardelli HS, Ribeiro-Junior MA. Pyogenic liver abscess: diagnostic and therapeutic management. Arq Bras Cir Dig 2016;29:194-7.
5. Coyle-Gilchrist MM, Crewe P, Roberts G. *Flavobacterium meningosepticum* in the hospital environment. J Clin Pathol 1976;29:824-6.
6. Licker M, Sorescu T, Rus M, Cirlea N, Horhat F, Jurescu C, et al. Extensively drug-resistant *Myroides odoratimimus* – A case series of urinary tract infections in immunocompromised patients. Infect Drug Resist 2018;11:743-9.

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Access this article online	
Quick Response Code: 	Website: www.lungindia.com
	DOI: 10.4103/lungindia.lungindia_42_19

How to cite this article: Mahapatra A, Mohapatra PR, Choudhury S, Deep N. Empyema caused by *Myroides odoratimimus* in a patient with liver abscess. Lung India 2019;36:459-60.

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