

Positive string test in hypervirulent *Klebsiella pneumoniae* liver abscess

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A 38-year-old diabetic woman presented with fever and jaundice for 4 days. On arrival, she was alert and hemodynamically stable. Physical examination revealed hepatomegaly. An abdominal computed tomography showed a large multiloculated abscess in the right liver lobe without biliary system dilatation (Fig. 1a). There was no evidence of pneumonia, endophthalmitis or central nervous system involvement. *Klebsiella pneumoniae* was isolated from the blood culture, which was susceptible to amoxicillin-clavulanic acid and ceftriaxone. String tests on colonies from culture media yielded positive results with strings measuring 7 mm in length (Fig. 1b). The diagnosis of hypervirulent *K. pneumoniae* (HvKP) was established following the detection of *iucA*, *rmpA* and *peg344* gene.

Hypervirulent strains of *K. pneumoniae* are more likely to cause severe and disseminated infections than classic *K. pneumoniae* strains. HvKP are associated with liver abscess, while other manifestations include pneumonia, endophthalmitis, meningitis and necrotizing fasciitis [1, 2]. Colonies grown on an agar plate have a hypermucoviscous appearance. The string test, which is simple to perform in the laboratory, can help in the early diagnosis of HvKP infection. The test is considered positive if a viscous string measuring >5 mm in length is obtained by stretching bacterial colonies on an agar plate with a bacteriology inoculation loop or needle [2]. Detection of HvKP is important due to its high mortality in comparison to multidrug-resistant and classical *Klebsiella* infections, where coexisting hepatobiliary disease is a potential risk factor for these infections [3].

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Not applicable.



Figure 1. a Abdominal computed tomography showing a large multiloculated abscess in the right lobe of the liver (segment V/VI/VIII). b Result of string test: formation of a string from stretching of the *Klebsiella pneumoniae* colonies isolated from the patient's blood culture.

CONFLICT OF INTEREST STATEMENT

None declared.

FUNDING

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ETHICAL APPROVAL

Not required.

CONSENT

Written informed consent was obtained from the patient.

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GUARANTOR

Edmund LC Ong is the guarantor.

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