Aeromonas hydrophila ssp. dhakensis – first occurrence in Czech Republic confirmed by ribotyping

Krejčí E.1, Andělová A.1, Porazilová I.1, Sedláček I.2

1Institute of Public Health, Centre for Microbiology, Immunology and Parasitology, Partyzánské nám. 7, 70200 Ostrava, Czech Republic
2Czech Collection of Microorganisms, Masaryk University Brno, Tvrđeho 14, 60200 Brno, Czech Republic

INTRODUCTION

Aeromonads are a new unusual pathogens which can cause mainly gastroenteritis as well as wound infection or septicaemia. Identification of aeromonads to the species level is very difficult and sometimes doubtful due to ever changing taxonomy.

Recently, three subspecies of *Aeromonas hydrophila* – *A. hydrophila* ssp. *dhakensis*, *A. hydrophila* ssp. *hydrophila* and *A. hydrophila* ssp. *ranae* have been described.

Aim of the study was to prove if the mentioned taxons can be isolated from clinical samples and identified in routine clinical laboratory and if *A. hydrophila* ssp. *dhakensis* could be also involved in diarrhoeal diseases in our region.

METHODS

Isolates were obtained during routine survey of stool samples in clinical laboratory. Biochemical identification was done by ENTEROtest24 (Pilva-Lachema), results were evaluated by software TNW (Pilva-Lachema). Nevertheless the supplementary conventional biochemical tests were needed (acid production from arabinitol, salicin, arbutin and mannose, gluconate utilization, production of gas from glucose, hydrolysis of ascorbic acid, gelatine and teweac, production of elastase, DNase and β-hemolysis, motility, growth at 42°C).

Ribotyping of selected isolates and reference cultures was accomplished using EcoRI restriction enzyme and DNA probe complementary to 16S and 23S rRNA. Cellular fatty acid analysis was performed by MIS Sherlock (MDL Inc., USA).

CONCLUSION

- The less frequent *A. hydrophila* ssp. *dhakensis* was occurred in our region.
- Diarrhoea caused by *A. hydrophila* ssp. *dhakensis* was an imported case of infection.
- Use of an appropriate identification approach (fatty acid analysis, selected phenotypic tests) can easily warn microbiologist of a rare *A. hydrophila* subspecies.
- Ribotyping appeared to be a good tool for the identification of aeromonads.

Aeromonas hydrophila ssp. dhakensis – case report

Having come back from Egypt 25-year old man suffered for 10 days from an acute profuse diarrhoea.

Bacteriological examination:

- First stool sample - 4. 8. 2004
  - *A. hydrophila* ssp. dhakensis isolate 597/04
- Second stool sample - 12. 8. 2004
  - *A. hydrophila* ssp. dhakensis isolate 642/04
  - As an infection agents Salmonella spp., Shigella spp., Campylobacter jejuni, Yersinia enterocolitica, Vibrio cholerae O1 and Escherichia coli – ETec, EPEC were excluded.

Therapy:

- Patient recovered after symptomatic treatment with intestinal antiinfectives (Endiaron, Smecta).

RESULTS

- 138 isolates of aeromonads were obtained in routine survey in 2003 and 2004.
  - 35 *A. hydrophila* isolates were found. Only two of them were identified as *A. hydrophila* ssp. *dhakensis*, both were isolated from the stool sample of the same patient.
  - Results of phenotypic tests of these two isolates in comparison with three *A. hydrophila* type strains are shown in TABLE 1.
  - Both isolates with identical ribopattern were identified as *A. hydrophila* ssp. *dhakensis* on the basis of ribotyping – FIGURE 1.
  - Identification to the subspecies level was confirmed also by fatty acid analysis – FIGURE 2, 3.
  - The rest of the 33 isolates was identified as *A. hydrophila* ssp. *hydrophila*, none of *A. hydrophila* ssp. *ranae* was proved.