



UvA-DARE (Digital Academic Repository)

Nonserotypeable *Shigella dysenteriae* isolated from a Dutch patient returning from India (letter)

Kuijper, E.J.; van Eeden, A.; de Wever, B.; van Ketel, R.J.; Dankert, J.

DOI

[10.1007/BF01708247](https://doi.org/10.1007/BF01708247)

Publication date

1997

Published in

European journal of clinical microbiology & infectious diseases

[Link to publication](#)

Citation for published version (APA):

Kuijper, E. J., van Eeden, A., de Wever, B., van Ketel, R. J., & Dankert, J. (1997). Nonserotypeable *Shigella dysenteriae* isolated from a Dutch patient returning from India (letter). *European journal of clinical microbiology & infectious diseases*, 16, 553-554. <https://doi.org/10.1007/BF01708247>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

- Clinical Infectious Diseases 1992, 15: 134–157.
- Wu M, Shyu R, Lai M, Huang G, Chen D, Wang T: A predisposition toward *Edwardsiella tarda* bacteremia in individuals with preexisting liver disease. *Clinical Infectious Diseases* 1995, 21: 705–706.
 - Claridge JE, Musher DM, Fainstein V, Wallace RJ: Extraintestinal human infection caused by *Edwardsiella tarda*. *Journal of Clinical Microbiology* 1980, 11: 511–514.

Nonserotypable *Shigella dysenteriae* Isolated from a Dutch Patient Returning from India

Shigellosis or bacillary dysentery is an acute diarrhoeal disease predominantly involving the large bowel. *Shigella dysenteriae*, the classical cause of severe bacillary dysentery, is commonly found in travellers with diarrhoea who have visited Africa, South and Central America, or Southeast Asia. *Shigella dysenteriae* is usually identified by biochemical reactions and serotyping and encompasses 15 serotypes for which commercial antisera are available (1). Recently, we cultured a new provisional serotype of *Shigella dysenteriae* from a Dutch patient with dysentery who had returned from India.

The patient, a 52-year-old male, developed high fever, chills, abdominal cramps, and watery diarrhoea just before returning home from a six-week visit to southern India. Twenty-four hours after his return to Amsterdam, his diarrhoea changed to a bloody defecation and he visited the outpatient clinic of tropical medicine at our institution. The physical examination was normal except for abdominal tenderness. Signs of ileus or peritonitis were absent. His body temperature was 37.7°C. Laboratory tests revealed mild dehydration: haemoglobin 9.2 mmol/l, sodium 135 mmol/l, potassium 3.2 mmol/l, and creatinine 100 µmol/l. The leucocyte count was $3.6 \times 10^9/l$ (71% neutrophils, 24% lymphocytes, and 5% monocytes). The quantitative buffy coat analysis and thick smear for malaria were negative. A fresh stool sample examined microscopically for parasites was negative. Since the presumptive clinical diagnosis was enterocolitis due to *Shigella*, enteroinvasive *Escherichia coli*, *Salmonella*, or *Campylobacter*, treatment with ciprofloxacin 500 mg b.i.d. was initiated. The symptoms of enterocolitis completely resolved within the next 48 h.

All faecal cultures remained negative except for a *Shigella*-like strain that was isolated from the MacConkey-tellurite agar medium. This isolate

had all of the characteristics of *Shigella dysenteriae* (Table 1), but slide-agglutination using sera encompassing *Shigella dysenteriae* serotypes 1–10 (Murex Diagnostics, UK) was negative. Additionally, the strain did not react with specific antisera against *Shigella dysenteriae* serotypes 11–15, *Shigella flexneri* (types 1–6, groups 3, 4, 6, 7, 8), *Shigella boydii* (types 1–19), or *Shigella sonnei* (forms I and II), as confirmed by Dr. B. Rowe, Laboratory of Enteric Pathogens, Central Public Health Laboratory, Colindale, London, UK, and Dr. N.A. Strockbine, WHO Collaborating Center for *Shigella*, Centers for Disease Control and Prevention, Atlanta, GA, USA. The strain contained the *ipaH* gene, present chromosomally and located on the invasion plasmid of *Shigella* spp. and enteroinvasive *Escherichia coli* isolates, as shown by the polymerase chain reaction using the appropriate primers and oligonucleotides for hybridisation (2). Susceptibility testing by disk diffusion showed that the isolate was susceptible to amoxicillin, ceftriaxone, gentamicin, nalidixic acid, and ciprofloxacin and resistant to tetracycline, trimethoprim-sulphamethoxazole, and chloramphenicol.

Because of the findings of the biochemical tests, the inability of known *Shigella* antisera to recog-

Table 1: Results of biochemical tests of the nonserotypable *Shigella dysenteriae* strain. All incubations were performed at 37°C, and the negative fermentation reactions were incubated for seven days.

Test	Result
Motility	-
Oxidase	-
Catalase	+
Methyl red	+
Voges-Proskauer	-
Simmons citrate	-
Indole	-
H ₂ S in Kliglers' iron agar	-
Christensen urease	-
Lysine decarboxylation	-
Ornithine decarboxylation	-
Nitrate reduction	+
Glucose fermentation	+
Gas from glucose	-
Lactose fermentation	-
O-nitrophenyl-β-D-galactopyranoside	-
Sucrose fermentation	-
Raffinose fermentation	-
Arabinose fermentation	+
D-mannose fermentation	+
Mannitol fermentation	-
Salicin fermentation	-
Dulcitol fermentation	-
myo-inositol fermentation	-
Melibiose fermentation	-
D-xylose fermentation	-

-, negative reaction; +, positive reaction.

nise this isolate, and the presence of the *ipaH* gene, we conclude that this strain represents a provisional new serotype of *Shigella dysenteriae*. The strain is currently under further investigation, and preliminary data (reviewed by Dr. N.A. Strockbine) show that it is antigenically related to *Escherichia coli* O159.

Historically, *Shigella dysenteriae* consisted of ten serotypes that can be recognised with commercial antisera (1). However, since 1990, five new serotypes designated as 11, 12, 13, 14, and 15 have been identified by several laboratories (3–5). In particular, serotypes 14 and 15 are recovered from patients in India and Bangladesh. Since none of the commercially available antisera recognises these new serotypes, the proportion of each serotype among *Shigella dysenteriae* strains causing diarrhoea in patients returning from India or Bangladesh is currently unknown. Therefore, we suggest that *Shigella dysenteriae* strains biochemically identified but not recognized by the available antisera be sent to a reference laboratory for additional typing.

E.J. Kuijper^{1*}, A. van Eeden²,
B. de Wever¹, R. van Ketel¹, J. Dankert¹

¹ Department of Medical Microbiology, and ² Department of Infectious Diseases and Tropical Medicine, L-1, Academic Medical Center at the University of Amsterdam, Meibergdreef 9, 1105 AZ Amsterdam, The Netherlands.

References

1. Brenner DJ: Recommendations on recent proposals for the classification of shigellae. *International Journal of Systematic Bacteriology* 1984, 34: 87–88.
2. Venkatesan MM, Buysse JM, Kopecko DJ: Use of *Shigella flexnerii ipaC* and *ipaH* gene sequences for the general identification of *Shigella* spp. and enteroinvasive *Escherichia coli*. *Journal of Clinical Microbiology* 1989, 27: 2687–2691.
3. Ansaruzzaman M, Kibriya AKMG, Mitra AK, Sack RB, Albert MJ: Isolation of *Shigella dysenteriae* 11, 12, and 13 from patients with diarrhea in Bangladesh. *Journal of Clinical Microbiology* 1993, 31: 1392–1393.
4. Ansaruzzaman M, Kibriya AKMG, Rahnam A, Neogi PKB, Faruque ASG, Rowe B, Albert MJ: Detection of provisional serovars of *Shigella dysenteriae* and designation as *S. dysenteriae* serotypes 14 and 15. *Journal of Clinical Microbiology* 1995, 33: 1423–1425.
5. Wathen-Grady HG, Britt LE, Strockbine NA, Wachsmuth IK: Characterization of *Shigella dysenteriae* serotypes 11, 12, and 13. *Journal of Clinical Microbiology* 1990, 28: 2580–2584.