

“*Salmonella hirschfeldii*” in poultry and man in Ibadan, Nigeria

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During an epidemiological study of salmonellosis in free-range village poultry, “Salmonella hirschfeldii” (invalid) was isolated from four birds in a village on the outskirts of the city of Ibadan, Nigeria. This is the first report of an isolation of “S. hirschfeldii” in poultry in Nigeria. The same organism was found in an adult male in the village. The simultaneous isolation of this serotype from poultry and man is significant because of the complex epidemiological pattern of salmonella infections in the tropical environment. It was not possible to determine whether the infection was transmitted from the poultry to the villager or vice versa.

Transmission of salmonellosis between man and poultry (which constitute the largest reservoir of *Salmonella*) has been shown to occur (1, 2). Although, in general, the more human-specific salmonella serotypes, such as *Salmonella typhi*, “*S. paratyphi-A*”, “*S. schottmuelleri*” and “*S. hirschfeldii*” are rarely isolated outside their usual human hosts, they have occasionally been found in poultry (3–5). Such isolations have been made during disease outbreaks among animals reared under intensive husbandry conditions (6). The ecological conditions obtaining in such systems may favour epizootics, with the possibility of infection of human contacts; the epidemiological picture among free-range village poultry may be quite different. This study was undertaken to clarify the pattern of infection at the village level.

MATERIALS AND METHODS

Cloacal swab samples were taken from 215 fowls selected at random in three villages—Alaja, Awusa, and Fakore—on the outskirts of Ibadan city. Sampling was carried out either late at night after the birds had retired or at dawn, while they were still dozy. At these times, it was relatively easy to catch the birds. In addition, it was easy to identify the birds, as they usually retired to the same resting-place each evening (on door- and windowframes, in sheds, etc.).

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^a Names given in quotation marks have been declared invalid by the International Committee on Systematic Bacteriology. There is, however, no valid alternative.

Stool samples were collected from inhabitants, randomly selected from each village to ensure adequate representation of three broad age groups—infants, schoolchildren and adults—and of both sexes. Special attention was given to any schoolchildren who complained of gastrointestinal disturbance and infants who had diarrhoea during the period of study. Samples were collected from the birds and from the villagers once every 2 weeks over a period of 6 months. On each occasion, 369 stool samples were collected.

Bacteriological methods

Bacteria were isolated using standard methods (7). The isolates were identified by slide agglutination tests and the identity of the isolates was confirmed at the Institute of Hygiene, Veterinary University, Copenhagen, Denmark, and at the Central Public Health Laboratory, London, England.

RESULTS

In Alaja village, of 66 villagers examined, one adult male was positive for “*S. hirschfeldii*”. In Awusa and Fakore villages, *Salmonella* spp. were not isolated from any of the villagers. A total of 215 fowls were examined, of which 4 from Alaja were positive for “*S. hirschfeldii*” (Table 1).

DISCUSSION

Although eight different salmonella serotypes—*africana*, *bredeney*, *edinburgh*, *hadar*, *livingstone*, *mission*, *rubislaw*, and *saint-paul*—have been

Table 1. Isolation of "*S. hirschfeldii*" from inhabitants and poultry in 3 villages near Ibadan, Nigeria, over a 6-month period

Village	Group	No. examined ^a	No. positive
Alaja	Infants	12	0
	Schoolchildren	33	0
	Adults	21	1
	Poultry	84	4
Awusa	Infants	8	0
	Schoolchildren	22	0
	Adults	17	0
	Poultry	71	0
Fakore	Infants	11	0
	Schoolchildren	18	0
	Adults	12	0
	Poultry	60	0

^a Specimens were obtained from each subject and each fowl, once every 2 weeks.

isolated from poultry and man on various occasions in Ibadan (8-14), no human host-specific serotype has previously been isolated from poultry. It was interesting that the man who provided the sample containing "*S. hirschfeldii*" complained of abdominal pains, fever and diarrhoea, which he ascribed to the large amount of cola nuts he had eaten the previous day.

Isolation of "*S. hirschfeldii*" from animals is an extremely rare occurrence worldwide (3, 4). As there is neither a piped water supply nor a drainage system in the villages, refuse and sewage from the human population is disposed of on dunghills. The poor environmental sanitation and low level of personal hygiene make it difficult to determine whether the infection was transmitted from the villager to the poultry or vice versa.

This is the first report of an isolation of "*S. hirschfeldii*" in poultry in Nigeria.

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RÉSUMÉ

"*SALMONELLA HIRSCHFELDII*" CHEZ LES VOLAILLES ET CHEZ L'HOMME À IBADAN, NIGÉRIA

Au cours d'une récente étude épidémiologique sur la salmonellose parmi les volailles élevées au sol dans des villages, "*Salmonella hirschfeldii*" (dénomination incorrecte) a été isolée de 4 oiseaux dans un village de la périphérie de la ville d'Ibadan, Nigéria. C'est la première fois que ce micro-organisme, qui est très rarement isolé même dans la population humaine, est signalé parmi les volailles au Nigéria.

Cette même salmonelle a été trouvée chez un homme adulte dans ce village. L'importance de cet isolement simultané à partir des volailles et de l'homme tient au tableau épidémiologique complexe des infections à salmonelles dans l'environnement tropical. Il n'a pas été possible de déterminer si l'infection avait été transmise des volailles à l'homme ou inversement.

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