

Salmonella Enteritidis Causing Gastroenteritis: A Case Report

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ABSTRACT

A 60-year old female patient presented with the symptoms of severe gastroenteritis after consuming food which contained a chicken and egg preparation at a village party. Her faecal sample

yielded *Salmonella enteritidis* which has rarely been reported as the causative agent of gastroenteritis in India. This case has been reported for its rarity in India.

Key Words: Gastroenteritis, *Salmonella enteritidis*

INTRODUCTION

Salmonellosis is a major cause of bacterial enteric illness in both humans and animals. Human infections with *Salmonellae* are most commonly caused by the ingestion of food, water or milk which is contaminated with human or animal excreta. *Salmonellae* are the primary pathogens of the lower animals, (e.g. poultry, cows, pigs, pets, birds, seals, donkeys, lizards and snakes) which are the principal sources of non-typhoidal salmonellosis in humans. Gastroenteritis, the most frequent manifestation, which ranges from mild to fulminant diarrhoea is accompanied by low grade fever and varying degrees of nausea and vomiting [1].

CASE HISTORY

A 60-year-old female was admitted to the ICU with acute gastroenteritis and in hypovolaemic shock.

The patient had a history of watery diarrhoea, 20 times/day and vomiting 8-10 times /day since 2 days.

The patient was normal before 2 days and she had attended a party at a nearby village, where she consumed food which was made up of a chicken and hen's egg preparation. After 24 hours, she developed the symptoms of gastroenteritis.

Personal history: Non diabetic, non-hypertensive

On examination: The patient was drowsy, responding to oral commands, her tongue was dry and sunken eyes.

Pulse: Feeble, B.P. 100/60 mm Hg, CVS and RS normal, PA: No organomegaly

She was clinically diagnosed as having acute gastroenteritis with hypovolaemic shock and acute prerenal failure.

MICROBIOLOGICAL INVESTIGATION

Stool sample

Macroscopic appearance – Watery stool, no pus/blood/worm.

Microscopy – Plenty of pus cells, no RBCs/ ova/cysts.

Culture: The sample was inoculated onto MacConkey agar, XLD, TCBS. The growth on MacConkey's agar showed smooth, translucent, non lactose fermenting colonies.

The isolate was identified as the *Salmonella* group by studying its biochemical reactions and its agglutination with polyvalent O and H antisera.

It was susceptible to amikacin, ciprofloxacin, ceftriaxone, cefotaxime, chloramphenicol and gentamycin and resistant to ampicillin and cotrimoxazole.

The isolate was sent to NICED, Calcutta, India, where it was identified as *Salmonella enterica* Sero var *Enteritidis* (*Salmonella* poly O +ve, Group 09 +ve, H-g, m +ve).

The patient was treated with I.V. fluids, ciprofloxacin and metronidazole. Her condition improved after 5 days and she was discharged.

DISCUSSION

Salmonella enteritidis which is associated with chicken eggs is emerging as a major cause of food-borne diseases. *S. enteritidis* causes infection of the ovaries and the upper oviduct tissues of hens, resulting in contamination of the contents of the eggs prior to the shell deposition. Approximately 1 in 20,000 eggs is thought to be infected with *S. enteritidis*. The Department of Agriculture estimated that 80% of all the salmonellosis cases were caused by infected eggs [2]. The key factor which enabled the eggs to be efficient vehicles for human infection, is the manner in which people handled and ate the eggs [3,4]. The outbreak of *Salmonella enteritidis* can also be due to infected food workers who do not use gloves [5]. Ice creams, sprouts and unpasteurized juice were also identified as the vehicles of transmission of Salmonellosis [6-8].

In the present case, the source could have been an egg preparation that the patient had consumed at the party or an environmental contamination due to the village lifestyle, where humans and poultry dwell in proximity.

Historically, *S. typhimurium* has been the most frequently reported serotype which caused gastroenteritis, according to the CDC report. The three most common serotypes of *Salmonella* in 2001 were typhimurium (22%) enteritidis (18%) and newport (10%) in the U.S.A. According to Indian reports, *Salmonella typhimurium* and *Salmonella enteritidis* have been reported to be the most common causes of human salmonellosis, which were found to account for 57-67% of the total *Salmonella* isolates [7].

There have been reports of septic arthritis of the knee which was caused by *Salmonella enteritidis* in patients with associated illnesses like Hodgkin's lymphoma and Thalassaemia major [9, 10].

An estimated 0.01% of all the egg shells contain *S. enteritidis*. Consequently, foods which contain raw or undercooked eggs pose a slight risk of infection. In India, *S. enteritidis* has been isolated from poultry, humans, meat, environmental and animal sources and sea food [7].

The incidence of non-typhoidal Salmonellosis continues to rise, along with the rates of emergence of antibiotic-resistant strains. Thus, it is important to monitor every step of the food production, right from the handling of the raw products to the preparation of the finished foods. All the cases of non-typhoidal Salmonellosis should be reported to the public health departments, since the tracking and monitoring of these cases can result in the identification of the sources of the local outbreaks and help the authorities in anticipating large-scale international outbreaks. Lastly, the prudent use of antimicrobial agents in both humans and animals is necessary to minimize the further emergence of antibiotic-resistant strains [2].

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