

**Rare Case of Salmonella Gallinarum Septicaemia in a young patient at IGIMS: A tertiary care hospital in India**

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**Introduction**

The genus Salmonella belongs to the family Enterobacteriaceae. Salmonella Gallinarum septicaemia in humans has been reported in two apparently immunocompetent hosts [1].

**Keywords:** Bacterial infection, Asia.

**Case Report**

A 20 year old man was admitted in Orthopedics department of Indira Gandhi Institute of Medical Sciences, after he complained of pain and instability in Left knee for 2 years. He had a history of fall in a minor road traffic accident and experienced pain and swelling around left knee joint. Pain was sudden in onset, non-progressive and non-radiating. There was no history of loss of consciousness, vomiting or bleeding. On consulting a local doctor his pain subsided by analgesics. After one year the problem reverted back. So the patient came to this hospital. On general examination, the patient was conscious, afebrile and

vitals normal. His hemoglobin was 13.4 gm/dl, TLC was 8200 and CRP was 5.1. He had no history of other comorbidities. Lachman test and anterior drawer test was positive. He was diagnosed with ACL deficient knee (left) and suspected non united medial condyle of left femur. After 5 days of admission, he was operated. Fracture site was opened and fracture ends were freshened and fixed with screw. But he developed fever with chills after 12 hours of surgery. His blood sample was collected from different sites and sent for culture and sensitivity testing in the bacteriology section of IGIMS. After 7 hours and 9 hours respectively, two of the aerobic culture bottles flagged positive and then cultured on Blood agar and MacConkey agar. After 24 hours of aerobic incubation, greyish nonhemolytic colony grew on blood agar [Fig 1.b] and non-lactose fermenting colony was observed on MacConkey agar [Fig1.a]. Isolated colonies (non-lactose fermenting) from MacConkey agar were tested by both

conventional and automated system (BDPhoenix automated system). On Gram staining, Gram negative bacilli were seen which were non-motile by using hanging drop method. Organisms were catalase positive, oxidase negative, indole negative[Fig 2.d], citrate was not utilized[Fig2.c], TSI was Alkaline/Acidic with gas production with H<sub>2</sub>S formation[Fig 2.a], mannitol fermenter and non-motile on mannitol motility agar[Fig2.b]. The isolate was confirmed to be “Salmonella enterica ssp enterica sv Gallinarum” by automated identification system (BD Phoenix) [Fig.3]. The isolate was found to be sensitive to Imipenem, Meropenem, Ceftazidime, Cefotaxim, Cefepime, Tetracycline, Chloramphenicol, Trimethoprim Sulfamethoxazole and resistant to Amikacin, Ciprofloxacin and Levofloxacin[Fig.3]. On the basis of antibiotic sensitivity report, the patient was treated and he gradually recovered, after which he was discharged.

### Discussion

The genus Salmonella consists of two species: (1) Salmonella enterica and (2) Salmonella bongori . Salmonella. enterica subspecies are further classified into many serovars, and more than 2500 serovars have been identified so far; they include many pathogens having great medical and veterinary importance. These serovars differ greatly in their host range and their degree of host adaptation.<sup>[2,3]</sup>

Unlike Typhi and Paratyphi, nontyphoidal Salmonellae (NTS) are not human-restricted. Many serovars are closely related to foodborne outbreaks including S. Typhimurium, S. Enteritidis, S. Newport, and S. Heidelberg and have reservoirs in farm animals<sup>[4,5]</sup>. Among other foodborne pathogens, NTS is the leading cause of death and hospitalizations<sup>[6]</sup>.

Salmonella can also induce chronic conditions including aseptic reactive arthritis and Reiter's syndrome.

Salmonella enterica serovar Gallinarum is distinct from rest of the serovars; this is the only known serovar that is highly adapted to fowls and is nonmotile. This serovar includes two biovars, gallinarum, and pullorum. Cases of infection due to Salmonella Gallinarum is rare in humans, though they may cause infections in immunocompetent individuals as compared to immunocompromised patients, as evident in our case also.

In other report in 2001, two cases of Salmonella gallinarum septicaemia in two apparently immunocompetent patients have been reported. These cases were both from the Indo-Pakistan subcontinent and developed a septicaemic illness following TAB vaccination in Saudi Arabia[7]. In 2006, a patient from Iran was apparently immunocompetent with empyema due to Salmonella Gallinarum.[8]

### Summary

Septicemia due to Salmonella Gallinarum is rare. Very few cases of Salmonella Gallinarum infection in humans have been reported worldwide. Further study is needed to identify the real cause of infections in humans by this poultry oriented bacteria.

### References

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