Rhabdomyolysis Associated with Salmonella Group C Gastroenteritis in a Patient Suffering from Chronic Renal Failure

A.	Abraham	Man
A.	Avri	Sheniach

Golda Medical Center, Israel

Dr. Abraham Man, 10 Pinkas St., 62661 Tel-Aviv (Israel)

Dear Sir,

A 55-year-old man presented with a 2-day history of fever, chill, abdominal pain, diarrhea and oliguria. He had a past history of hypertension and chronic glomerulonephritis with creatinine values of 3.4–3.6 mg/dl (290–310 $\mu\text{mol/l}$) 1 week before admission.

Examination revealed a thin dehydrated distressed man, temperature was 38.6 °C, pulse was 124 b.p.m. regular, blood pressure was 90/60 mm Hg, respiratory rate was 40/min. There was generalized pallor, neck was supple. Auscultation of the lungs and heart was normal. There was a diffuse slight tenderness of the abdomen with hyperperistalsis. On rectal examination, there was watery stool without blood.

Initial laboratory values were as follows: hemoglobin 13.6 g/dl, hematocrit 43%, white blood cell count 6,200 (58% neutrophils, 18% stab forms, 20% lymphocytes, 4% monocytes); urea 200 mg/dl (33 mmol/l), creatinine 9.8 mg/dl (850 $\mu\text{mol/l}$), uric acid 13 mg/dl (0.72 mmol/l) calcium 5.9 mg/dl (1.45 mmol/l), phosphorus 8.1 mg/dl (2.65 mmol/l), sodium 127 mEq/l, potassium 3.2 mEq/l, total protein 5.2 g/dl (52 g/l), albumin 2.7 g/dl (27 g/l), creatine phosphokinase, 1,966 IU/l, lactic dehydrogenase 1,942 μl aspartate aminotransferase 43 IU/l, alanine aminotransferase 26 IU/l, alkaline phosphatase 61 $\mu\text{u/ml}$ (normal 30–110 $\mu\text{u/ml}$).

Arterial blood gases revealed pH of 7.25, oxygen tension of 81 mm Hg, carbon dioxide tension of 19 mm Hg and bicarbonate of 11 mEq/l. Urine was brown, protein was +2 by dipstick.

Microscopic examination showed 10–15 red blood cells and one granular cast per high-power field, qualitative test for myoglobin gave strong positive reaction.

Treatment was begun immediately with intravenous fluids and sodium bicarbonate solution.

With this therapy, the patient improved, the creatine phosphokinase level slowly decreased, urine output averaged 3–4 l/day and urine became clear. Blood cultures were negative and stool culture grew salmonella group C. Two weeks later, the patient recovered, creatine went down to the former level.

Rhabdomyolysis is a rare complication of bacterial infections [1, 2]. Cases associated with pneumococcal pneumonia, Legionella pneumophila and Francisella tularensis were reported [3–6].

In this case, muscle injury could be the result of bacterial toxin [7], rigors and fever [8] or severe dehydration [9] caused by the infection with salmonella group c bacteria.

The propensity of patients with already compromised renal function to this complication is probably high, due to the reduced functional glomerular and tubular mass and the exposure of a small number of nephrons to the effect of concentrated myoglobin. The reversibility of renal failure due to rhabdomyolysis if diagnosed and treated early is specially important in those patients with previously compromised renal function.

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