I am grateful to Major-General J. Huston, Q.H.S., F.R.C.S., Director of Surgery, for his advice and encouragement and to Captain G. Tate, R.A.M.C., and Mr. A. E. Pridham, for their help.

REFERENCES


COLD AGGLUTININS IN THE WEST AFRICAN SOLDIER

BY

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From The Pathology Laboratory, Military Hospital, Accra

NORMAL sera may contain not only iso-agglutinins but also agglutinins which have a strong reaction at low temperatures and hence are known as cold agglutinins (Whitby & Britton, 1953). Cold agglutinins usually disappear on dilution of the serum beyond 1:16 or 1:20 (Turner & Jackson, 1943). They may, on occasion, be of high titre and also active at room temperature. This is a cause of mistakes in blood transfusion procedures. The titration of cold agglutinins has been found to be a useful laboratory procedure in the diagnosis of virus pneumonia, haemolytic anæmias, Raynaud's disease and other conditions.

During a medical survey in a Gold Coast village, Colbourne, Edington & Hughes (1950) noted the frequent occurrence of cold agglutinins. This investigation has been undertaken following a suggestion by Dr. G. M. Edington, of the Medical Research Institute, Accra, that it would be useful to have a base line of cold agglutinins in normal West Africans. One hundred sera from normal West African soldiers were therefore examined.

METHODS

The sera were separated from blood specimens which had been kept in an incubator at 37° C. overnight. Doubling dilutions of the sera were prepared in 75 mm. × 12 mm. Kahn tubes, using 0.2 ml. quantities. Pasteur pipettes, calibrated to deliver 0.2 ml., were used. A 1 per cent suspension of washed red cells from normal group O subjects was made from oxalated blood, which had been kept at 37° C. for four hours, and 0.2 ml. was added to each tube.
Cold Agglutinins in the West African Soldier

Results were read as follows:

1. After standing at room temperature for four hours.
2. After refrigeration overnight at 2° to 5° C.
3. After incubation at 37° C.

The room temperature was found to be on the average about 26° C. It was found difficult and often impossible to read cold agglutination because as soon as a tube was taken out of the refrigerator, dew immediately formed on the outside, making the glass opaque. This difficulty was overcome by dipping the tubes in a beaker filled with alcohol.

Readings were taken macroscopically using the concave side of a microscope mirror. Positive results were easily detected in most cases by the rough edge of the deposited cell suspension, as against the more uniform button of cells in the negative tubes. The titres recorded refer to the highest serum dilutions before the addition of red cells, at which macroscopic agglutination was observed.

Readings were also taken microscopically in 32 sera; it was found that the microscopic titre was the same as the macroscopic in 3 cases, one tube higher in 16, two tubes higher in 7, and three tubes higher in 6 specimens. The microscopical readings necessitated quick work and special arrangements. A microscope, without a mechanical stage, was placed on a table beside the refrigerator. Glass slides were cooled in the refrigerator. To read the titre a tube was taken out, shaken three times, and its contents tipped quickly on to the edge of a cold glass slide; the latter was then placed under the microscope. Once the first slide had been focused the adjustment and manipulation of the microscope were minimal, thus ensuring speed in reading cold agglutination. Comparison was made with a saline suspension of cells as a negative control; a positive serum was also included in each batch of tests.

RESULTS

No agglutination was seen at room temperature or at 37° C. in any of the sera. At 2-5 °C. 51 sera gave positive results (see Table 1). One serum sample showed a "zone" phenomenon in that it gave a stronger reaction at a titre of 1 in 32 than in lower dilutions. One case of what appeared to be agglutination at room temperature was found to be rouleaux formation when examined microscopically.

Table 1. Number of sera giving macroscopic agglutination at titre shown.

<table>
<thead>
<tr>
<th>Titre</th>
<th>No. of Sera</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/64</td>
<td>2</td>
</tr>
<tr>
<td>1/32</td>
<td>2</td>
</tr>
<tr>
<td>1/16</td>
<td>4</td>
</tr>
<tr>
<td>1/8</td>
<td>11</td>
</tr>
<tr>
<td>1/4</td>
<td>16</td>
</tr>
<tr>
<td>1/2</td>
<td>11</td>
</tr>
<tr>
<td>1/1</td>
<td>5</td>
</tr>
<tr>
<td>Negative :</td>
<td>49</td>
</tr>
<tr>
<td>Total examined :</td>
<td>100</td>
</tr>
</tbody>
</table>
SUMMARY

One hundred sera were examined for the presence of cold agglutinins in the West African soldier. Cold agglutinins were found in 51 sera out of 100 examined. The highest titre recorded was 1 in 64. No agglutinins were found at room (26°C) or incubator (37°C) temperature.

I would like to thank the Director of Pathology for his advice, and Dr. G. M. Edington for his encouragement.

REFERENCES


TRAUMATIC HÆMATOMA OF THE LARYNX

by

Captain B. LIVESEY

Royal Army Medical Corps

A soldier aged 20 years was admitted to the B.M.H., Nicosia, during the evening of 2nd April, 1956, following a fall in which his neck had struck the mushroomed end of a metal tent-peg. The immediate effects of the injury were aphonia, a paroxysm of coughing with hæmoptysis, lancinating left otalgia and, according to his statement later, a sensation of "something running down into his chest." On admission thirty minutes after the accident his general condition was good although he appeared anxious and slightly dyspnæic (respiratory rate 30/min.). As he was unable to tolerate indirect laryngoscopy, a provisional diagnosis of laryngeal hæmatoma was made. 1,000,000 units of crystalline penicillin were given intramuscularly, followed by 500,000 units eight-hourly.

3rd April. Seen at 0830 hours. Dyspnæa was more marked and tracheostomy was advised in anticipation of increasing laryngeal obstruction. 0900 hours—transferred to the theatre. While waiting in the theatre a paroxysm of coughing occurred, followed by complete laryngeal obstruction with extreme cyanosis, carpo-pedal spasms, opisthotonus and finally collapse. A low emergency tracheostomy was performed immediately. This particular operation was selected to minimise the risk of laryngeal perichondritis at a later date. (Subsequently he developed an inhalation pneumonia which responded rapidly to penicillin and intensive breathing exercises.)

Indirect laryngoscopy was performed daily. Initial examination showed complete immobility of the vocal cords and arytenoids, almost a cadaveric picture. A large hæmatoma involving the left ary-epiglottic fold and left arytenoid was present, protruding anteriorly over the posterior third of the left cord. A small hæmatoma was situated on the right cord at the junction of the anterior two-thirds and posterior third.

11th April. Nine days after the injury, the right cord was moving through 80 per cent of its range whilst the left cord had commenced slight movement on phonation.

12th April. Coughing occurred during the night and expectoration produced a discoloured piece of mucous membrane—roughly triangular in shape (3.5 cm. high and 1.5 cm. wide at its base). No hæmoptysis occurred. Laryngoscopy showed that the mucosal surface of the left arytenoid and left ary-epiglottic fold had been detached, leaving raw surfaces with a velvet-like appearance.

13th April. Right cord swinging across the midline on phonation but left arytenoid remains immobile.
Cold Agglutinins in the West African Soldier

E. E. Vella

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