balanced by the absence of A-scan delay and calipers. The practical implications of the high-resolution real-time scanners remain to be ascertained in comparable conditions.

Though our results are rather disappointing, they may not be representative of results obtained in routine scanning of patients attending the booking clinics of many general hospitals. If more accurate and reliable dating is to be obtained, it is desirable to obtain a first scan before the 12th week of menstrual age. Other hospitals undertaking similar work may be advised to review the accuracy of their own sonar estimations of gestational age.

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References


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SHORT REPORTS

Plasmapheresis and a placebo procedure in autoerythrocyte sensitisation

Autoerythrocyte sensitisation was described in 1955 by Gardner and Diamond, who concluded that the accompanying purpura was immunological in origin, the result of autosenstisation to erythrocyte stroma. Eighty-nine cases have since been reported, and the subject has recently been authoritatively reviewed by Ratnoff. We report a case showing some of the features typical of this disease; the patient derived considerable symptomatic benefit from plasmapheresis, while sham plasmapheresis was unsuccessful. This finding may be relevant in the pathogenesis of the disease.

Case report

A 36-year-old woman presented in 1974 with a one-year history of recurrent large and painful spontaneous bruises that appeared on her arms, legs, fingers, and, occasionally, abdomen. They started as small, painful, black lumps, which spread over an area 10-20 cm in diameter and then faded over three to four days through a brown colour, sometimes leaving a residual small lump in the centre of the bruise. Apart from bruises she complained of a wide range of symptoms including anorexia, lunchtime retching, heartburn, constipation, diarrhoea, dysuria, frequency of micturition, and vaginal discharge. The table shows her full medical history and the reported incidence of each symptom in autoerythrocyte sensitisation.

On examination she had two bruises 15 cm in diameter over each upper arm but no other abnormal physical signs. A wide range of investigations gave normal or negative results. These included a full blood count, erythrocyte sedimentation rate, platelet count, clotting screen, urea and electrolyte concentrations, liver function tests, autoimmune screen, direct antiglobulin test, chest radiography, electrocardiography, faecal occult bloods, serological test for syphilis, urinary 5-hydroxyindoleacetic acid, cryoglobulins, and cold agglutinins. On three occasions slightly low concentrations of C3 (71-5 mg/100 ml, 54 mg/100 ml, and 74 mg/100 ml; normal range 81-150 mg/100 ml) and immune complexes of IgG class (5.2 μg/ml; normal 5 μg/ml) were detected. Barium meal, gastroscopy, sigmoidoscopy, and barium enema were normal.

Washed red-cell stroma 0.1 ml injected intradermally into the patient’s back reproduced the bruises, but injections of her plasma or physiological saline did not. Autoerythrocyte sensitisation was diagnosed and vitamin C given as a placebo. She failed to attend several outpatient follow-ups and did not return until February 1978, when the bruises had begun to reappear.

Two litres of plasma were exchanged for 1-2 litres of plasma protein fraction using the Haemonetics 30 Celltrufuge. She showed an appreciable symptomatic improvement: bruises that were appearing every two days stopped but returned three weeks later. She therefore underwent plasma exchange every two weeks from May to August 1978. She defaulted from follow-up but was apparently free of bruises until June 1980, when she reappeared with the same symptoms as at presentation. Three further plasma exchanges produced the same result as before.

In May 1981 she returned with further bruises and was given sham plasmapheresis using the IBM 2997 continuous flow cell separator, with which she was totally unfamiliar. Centrifuged red cells taken through the machine were combined with her plasma before being returned to her bloodstream. Meanwhile, the plasma protein fraction was dripped through a tangle of tubes into the collecting bag. She presented the next day with fresh large painful bruises. A week later authentic plasma exchange left her with relief lasting three weeks. We therefore concluded that sham plasmapheresis was ineffective in controlling her symptoms, but authentic plasma exchange produced a considerable improvement in her symptoms on all occasions.

Medical history of patient and reported incidence of each symptom in autoerythrocyte sensitisation

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Diagnosis</th>
<th>Treatment</th>
<th>Reported incidence of symptoms (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Asthma</td>
<td>Various inhalers</td>
<td>10</td>
</tr>
<tr>
<td>22</td>
<td>Pregnancy</td>
<td>Caesarean section</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Hypersensitivity</td>
<td>Caesarean section</td>
<td>62</td>
</tr>
<tr>
<td>26</td>
<td>Postnatal depression</td>
<td>Caesarean section</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Backache</td>
<td>Symptomatic treatment</td>
<td>32</td>
</tr>
<tr>
<td>32</td>
<td>Recurrent sore throat</td>
<td>Symptomatic treatment</td>
<td>15</td>
</tr>
<tr>
<td>33</td>
<td>Overdose of quinilbarbitone sodium</td>
<td>Normal appendix removed</td>
<td>50</td>
</tr>
<tr>
<td>34</td>
<td>Abdominal pain</td>
<td>Symptomatic treatment</td>
<td>59</td>
</tr>
<tr>
<td>35</td>
<td>Menorrhagia</td>
<td>Hysterection</td>
<td>48</td>
</tr>
<tr>
<td>36</td>
<td>Transient paraesthesia</td>
<td>Normal uterus and tubes</td>
<td>No treatment</td>
</tr>
<tr>
<td>38</td>
<td>Dysuria</td>
<td>Investigation only</td>
<td>41</td>
</tr>
<tr>
<td>40</td>
<td>Bleeding per rectum</td>
<td>Investigation only</td>
<td>65</td>
</tr>
</tbody>
</table>

Comment

The pathogenesis of autoerythrocyte sensitisation is unknown. Many workers have suggested that the bruises are self-inflamed. Indeed, psychiatric disturbances are almost universal and dominate the clinical picture. The test of injecting red-cell stroma intradermally is positive in only 60% of patients. Other patients have developed the lesions when phosphatidylserine, histamine, histidine, tyramine, serotonin, tryptophan, trypsin, old tuberculosis, autologous serum, platelets, and pregnantriol were injected intradermally. Immune
complexes and low C3 concentrations have been shown in the past, but only one other patient has been treated by plasma exchange. This patient also responded. These reports suggest that in some patients with autoerythrocyte sensitisation there may be a specific immunological abnormality, but its exact nature and that of the myriad of psychological symptoms remain unexplained.


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Tuning-fork tests in diagnosis of serous otitis media

Serous otitis media is the most common cause of hearing loss in childhood and its detection has required a considerable audiometric effort by community health services. The insidious nature of the condition causes great difficulties in diagnosis by general practitioners. The average hearing loss in serous otitis media was found by Brookes to be 14-7 dB, whereas a loss of 19 dB or more was found by Golabek and Stephens to be necessary to produce a negative Rinne test. Our findings suggest that one or both of these figures may be wrong, and in our experience the average hearing loss is greater than 14-7 dB.

Patients, methods, and results

One hundred children aged 2-12 years and admitted for myringotomy were investigated by tuning-fork tests and pure-tone audiometry. The initial diagnosis was made clinically and by tympanometry. A tuning fork of 512 Hz was used in the paediatric ward with an ambient noise level of around 50 dB. The Rinne test was performed by both loudness comparison and threshold techniques.

Six children under 4 failed to respond to the tuning-fork tests and pure-tone audiometry. Of the six children in the unilateral effusion group in which vibration in the Weber test was not referred, four had negative middle-ear pressures of 200 mm H2O or more in the other ear, and one had a ‘flat’ curve in the other ear on tympanometry. Three children with bilateral negative Rinne tests in the unilateral group also had a midline result in the Weber test and a negative pressure of 200 mm H2O or more in the ear with less effusion. In the no-effusion group three children had abnormal Rinne tests, but where the Rinne test was negative the tympanogram was flat. The table summarises these results.

Comment

Tuning-fork tests are a reliable method of diagnosing serous otitis media in children over 4 and do not make great demands on equipment, environment, or skill but do require co-operation from the patients. Rinne tests were abnormal in 51 of the 54 children with bilateral effusion and 23 of the 29 with unilateral effusion. The abnormal tuning-fork test results in the no-effusion group correlated with hearing losses in pure-tone audiometry and flat tympanograms and were due to other causes of conductive deafness. Even under hospital conditions tuning-fork tests were more reliable than pure-tone audiometry when all three groups were considered together, and the results of pure-tone audiometry in the unilateral and no-effusion groups were no better than would be expected by chance (p<0.1). There are good grounds for tuning-fork tests being performed routinely by general practitioners on children over 4 suffering from earache or deafness, and possibly they would be a more effective test for serous otitis media in school screening tests than pure-tone audiometry. In an investigation comparing pure-tone audiometry with tympanometry as a screening test for hearing in 285 primary-school children, pure-tone audiometry recognised only half the ears with serous otitis media, and about half the children failing pure-tone audiometry were subsequently found to have normal hearing. Similar results were reported by Harrison. Pure-tone audiometry in school screening tests where the ambient noise levels have peaks of 70 dB is therefore a very poor test and should be replaced either with impendence audiometry or possibly by tuning-fork tests combined with the presentation of one high-frequency tone at one intensity.

The diagnosis of serous otitis media in children below the age of 4 still rests mainly on the clinical appearance of the tympanic membrane combined with tympanometry. Tuning-fork tests are a cheap and effective way of diagnosing the conductive and middle-ear deafness of serous otitis media in children under 4, and we have found that it is not difficult to obtain co-operation and accurate results.


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Lactic acidosis and Fanconi’s syndrome due to degraded tetracycline

The ingestion of degraded or outdated tetracycline is well known to result in the Fanconi syndrome, but to our knowledge, lactic acidosis has not been reported in such circumstances. We describe a woman who after ingesting altered tetracycline developed simultaneously lactic acidosis and the Fanconi syndrome.

Case report

A 41-year-old woman took a self-prescribed dose of 4 g tetracycline over 48 hours because of toothache. The tablets had got wet accidentally over a year before, and she had dried them and kept them in a non-hermetic cardboard box. She denied fever, convulsions, alcohol, or ingestion of other drugs. She stopped taking the tetracycline because of vomiting, mild epigastric discomfort, and profound weakness, which lasted for three days, and was then admitted to hospital. On admission blood pressure was 120/80 mm Hg, pulse rate 86/min, and temperature 37°-°C. Kussmaul breathing was noted. She was alert and well orientated and seemed moderately dehydrated. The rest of the physical examination was negative. Packed cell volume was 40% and white cell count 9.3×10^9/l with normal differential. The table summarises the remaining laboratory findings. In addition, generalised hyperaminoaciduria was shown by ion-exchange chromatography. Hypo-osmolar urine unresponsive to exogenous vasopressin was also noted. There was no clinical or laboratory evidence of hepatic disease. Large amounts of sodium bicarbonate (1836 mmol/l over three days) and potassium (520 mmol/l) over three days) were required to correct the acidosis and maintain a normal serum potassium concentration. In addition, she was given phosphate supplements to treat hypophosphataemia. Four days after admission serum lactate concentration was still 5.35 mmol/l (48 mg/100 ml). Throughout the treatment serum creatinine concentration was normal and serum uric acid values were below 149 μmol/l (2.5 mg/100