Radiological reliability in atlantoaxial subluxation

Sir,—I read with great interest the thought provoking article by Selby and associates.1 The authors have found atlantoaxial subluxation in 18 out of 131 patients with Down’s syndrome. Repeat radiographs performed at 10 minute intervals in 19 patients, including six with subluxation, showed that in three patients the abnormality was not seen in both sets of radiographs. They attribute the lack of radiological reliability to the changes in the muscle tone and ligamentous laxity. However, they fail to mention the position in which the radiographs were taken.

The horizontal ray lateral view taken with the patient in the supine position reveals the full extent of any abnormal slippage due to laxity of the transverse ligament as the weight of the neck muscles will force the odontoid process to separate from the anterior arch of atlas and serve as a dynamic test of integrity of the atlantoaxial joint, whereas, if the patient is examined erect or prone, the gap narrows.2 The other possible explanation for variability in the values could be due to improper technique of obtaining flexion and extension views. At the end of flexion movement, when the chin abuts against the sternum, some deflexion occurs at the level of cervical-occipital junction. The maximal flexion of the upper cervical segment is obtained only by drawing the head as far back as possible and then tucking the chin in. Correct extension of the upper cervical region is obtained by drawing the head forwards as far as possible and then extending without moving the neck backward.3 The odontoid peg has three ossification centres4 and not four centres as mentioned by the authors.

Computed tomograms of the craniovertebral junction should be done before rejecting radiographs of the neck as unreliable at identifying atlantoaxial subluxation.

SHANKAR PRAKASH
Department of Neurological Surgery, Baylor College of Medicine, One Baylor Plaza, Houston, Texas 77030, USA


Abdominal pain in Henoch-Schönlein purpura

Sir,—We read with interest the report by Hu et al on the use of ultrasonography to diagnose and exclude intussusception in children with Henoch-Schönlein purpura.1 We agree with the authors that ultrasonography is an excellent, non-invasive procedure to assess for the presence of intussusception. We also agree that the incidence of intussusception in children with Henoch-Schönlein purpura is likely higher than reported.

We believe that the history and physical examination are the best ways to differentiate whether an intussusception is present. Our experience suggests that there are several kinds of abdominal pain in children with Henoch-Schönlein purpura. The most common abdominal pain is a dull, constant, periumbilical pain which is due to inflammation and bleeding in the intestinal wall and results from the underlying vasculitic process. This pain is not colicky and there are no peritoneal signs by abdominal examination. The abdominal pain associated with intussusception is characteristically colicky and intermittent. The stool may contain blood and mucus (‘red currant jelly’). Other symptoms and signs of intestinal obstruction such as vomiting, abdominal distension, and increased bowel sounds may be present. An abdominal mass may be palpable, and there may be a feeling of emptiness in the right iliac fossa. Peritoneal signs are absent. This intermittent colicky pain is usually superimposed against the background of the more common dull and constant periumbilical pain. If an intestinal perforation occurs, the abdominal pain is constant, generalised, and peritoneal signs such as abdominal wall rigidity and infrequent bowel sounds are evident by physical examination. Ureteritis has been reported in Henoch-Schönlein purpura and may also present with colicky pain.2 This colicky pain may be

distinguished from that due to intussusception by its location in the flank or the groin.

WM LANE M ROBSON
ALEXANDER K C LEUNG
Department of Pediatrics, University of Calgary, Alberta Children’s Hospital, 1065-7, 300, 10600 124 Street, Calgary, Alberta, Canada T2N 4M6

Multiple admissions under 2 years of age

Sir,—I read with interest the article by Spencer and Lewis and was extremely impressed by the figures they present as far as total admissions are concerned.1 We have undertaken some research in Portugal in all the paediatric departments of the country (85 hospitals). The results for years 1989 and 1990 are shown in the table.

<table>
<thead>
<tr>
<th>Hospital admissions in 1989 and 1990</th>
<th>1989</th>
<th>1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total births</td>
<td>118 560</td>
<td>116 383</td>
</tr>
<tr>
<td>Total children aged (years):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-4</td>
<td>500 000</td>
<td>487 000</td>
</tr>
<tr>
<td>5-9</td>
<td>740 000</td>
<td>731 000</td>
</tr>
<tr>
<td>Children admitted to hospital aged (years)*:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1</td>
<td>13 019</td>
<td>12 443</td>
</tr>
<tr>
<td>1-4</td>
<td>15 179</td>
<td>14 503</td>
</tr>
<tr>
<td>5-9</td>
<td>10 923</td>
<td>10 856</td>
</tr>
</tbody>
</table>

*The study included paediatric departments only. Paediatric surgery, and surgery for ear, nose, and throat and orthopaedic, and other ‘adult’ departments were not included.

Our study aimed to gain some information about acute respiratory infections and we found that 24-96% of all admissions were caused by these infections. The figures were similar for central and district hospitals. In a one day study performed in 1990 in child health clinics of three districts of Portugal we found that 8% of children aged less than 2 years of age, who were attending the health centre on that day, had been admitted to hospital during the previous six months.

The psychological, emotional, physical, social, and economic consequences for the child, the family, and the admitting institution that is caused by admissions have been fully described and are undoubtedly a major problem in social paediatrics. The article by Spencer and Lewis is an excellent contribution to this challenge.

MARIO J G CORDEIRO
Faculty of Medicine, University of Lisbon, Ave Rio de Janeiro, 24-2 1º Dio, 1700 Lisbon, Portugal


Dr Selby comments: I would like to make the following points in reply to the letter from Dr Prakash. Firstly, it is mentioned both in the text and in table 4 that the radiographs were taken in flexion, extension, and neutral positions in both the initial and in the repeated films. Secondly, I accept that correct positioning is important in radiological diagnosis of atlantoaxial subluxation and care was taken by experienced paediatric radiographers in the accurate positioning of the children. Information on odontoid hypoplasia can be seen in papers by McManners1 and Elliot et al.2 Finally, the reason for our paper is that at present the recommendations of the Department of Health and the American Academy of Pediatrics is that a child with Down’s syndrome may or may not be eligible to partake in active sports dependent on the normality of plain radiographs of their cervical spine. We do not feel that these are valid recommendations.

I would agree that a child with neurological abnormality would need further investigation and subsequent intervention and stabilisation. I do not know of any study which has looked at a large number of children with Down’s syndrome for atlantoaxial subluxation with tomography.

3 Acheson ED. Atlantoaxial instability in people with Down’s syndrome. London: DHSS, 1986. (CMO/(86)/8.)
Multiple admissions under 2 years of age.

M J Cordeiro

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