Articular chondrocalcinosis, quadriiceps calcification, and patellofemoral degeneration in the elderly

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From St Martin's Hospital, Bath

Linear calcific deposits in the quadriiceps tendon1,2 and ‘isolated’ patellofemoral degeneration4,5 have been described as radiographic features seen in association with intra-articular chondrocalcinosis. It has been suggested that their presence may be of value in distinguishing between pyrophosphate arthropathy and other forms of degenerative joint disease.

We assessed the influence of aging on this interrelationship by analysing radiographs taken on consecutive admissions to an acute geriatric unit. We documented the prevalence of intra-articular chondrocalcinosis, patellofemoral degeneration, and quadriiceps calcification and defined their interrelationship.

METHODS AND RESULTS

A total of 120 consecutive x-ray films of the knee (anteroposterior and lateral), pelvis, and wrists were analysed by four independent observers, using light intensification and magnification. Articular chondrocalcinosis was defined as the finding of dense, hazy, linear, or stippled intra-articular calcification. Quadriiceps calcification as seen on lateral views of the knee was defined as either in the muscle belly or in the tendinous insertion. Formation of osteophyte on the upper margin of the articular surface of the patella, loss of articular cartilage in the patellofemoral joint, and subchondral sclerosis was used to assess the presence of patellofemoral degeneration, classified as mild, moderate, or severe.

To achieve maximum sensitivity and to avoid excessive radiation exposure, Ilford rapid R film was used for the knee x-ray examinations, and X-6-Mat RP-X-RPI for the pelvis.

Data were available on 100 patients (31 men, 69 women) aged from 65 to 97 years (mean (SD) 79-4 years (6-6)). None of the patients had haemochromatosis or hypercalcaemia.

Thirty-four patients had intra-articular chondrocalcinosis; 25 had changes at the knee. The prevalence rose from 15% (3 out of 20) in those aged 65–74 to 36% (20 out of 55) in those aged 75–84, and to 44% (11 out of 25) in patients aged from 85 to 97 years.

Quadriiceps calcification at the tendinous insertion was seen in 54 patients. The prevalence increased from 20% in patients aged 65 to 74 years to 60% in those aged 75 to 84, to 64% in those aged 84 to 97.

Fifty patients had evidence of patellofemoral degeneration. In 13 patients the changes were mild, in 27 patients moderate, and in 10 severe. In 17 cases radiographs showed no other abnormality—that is, degeneration was isolated. The prevalence rose from 35% in patients aged 65 to 74 to 49% in those aged 75 to 84 years, and to 64% in patients above 84 years.

The table shows the

References

interrelationship between articular chondrocalcinosis, patellofemoral degeneration, and quadriceps calcification. Articular chondrocalcinosis is subcategorised into present at the knee and in joints other than the knee. Analysis of these figures shows that the prevalence of patellofemoral degeneration and quadriceps calcification is similar in patients with and without articular chondrocalcinosis.

Conclusion
Articular chondrocalcinosis, patellofemoral degeneration, and quadriceps calcification are common in the elderly and their prevalence increases in a linear fashion with aging. They are radiographic phenomena closely related to aging and caution must be exercised in postulating a relationship with a disease process in the elderly.

References
1 Gerster J C, Baud C A, Lagier R et al.

Table 1 Relationship between articular chondrocalcinosis (ACC), quadriceps calcification, and patellofemoral degeneration

<table>
<thead>
<tr>
<th></th>
<th>In association with ACC at the knee (n=25)</th>
<th>In association with ACC elsewhere (n=9)</th>
<th>No evidence of ACC (n=66)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadriceps calcification:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tendon (n=54)</td>
<td>14 (56%)</td>
<td>4 (44%)</td>
<td>37 (56%)</td>
</tr>
<tr>
<td>Muscle (n=10)</td>
<td>3 (12%)</td>
<td>2 (22%)</td>
<td>5 (8%)</td>
</tr>
<tr>
<td>Patellofemoral degeneration:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall (n=37)</td>
<td>14 (56%)</td>
<td>5 (55%)</td>
<td>31 (46%)</td>
</tr>
<tr>
<td>Isolated (n=16)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(mild, moderate and severe)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isolated (moderate and severe only)</td>
<td>3 (12%)</td>
<td>1 (11%)</td>
<td>13 (20%)</td>
</tr>
<tr>
<td>(n=10)</td>
<td>2 (8%)</td>
<td>1 (11%)</td>
<td>8 (12%)</td>
</tr>
</tbody>
</table>

Arthritis of idiopathic haemochromatosis


From the Departments of Rheumatology and Radiology, and the Liver Research Unit, King's College Hospital, London

We have previously described the arthritis of haemochromatosis, and have now re-examined 18 of these cases after a mean interval of 9.4 years. All patients underwent repeat x-ray examination.

Chondrocalcinosis was found in at least one joint in seven patients initially and in 13 patients at the second assessment. Despite adequate treatment of iron overload by venesection it increased in severity and spread to new joints.

Thirteen patients developed arthritis of the metacarpophalangeal joints, but none of them had associated chondrocalcinosis visible radiologically at this site or in the triangular ligament of the wrist.

It was not possible to show a correlation between the presence of chondrocalcinosis at the initial assessment and the extent of iron stores or the patient's age. The table shows the incidence of chondrocalcinosis.

References

Table 1 Prevalence of chondrocalcinosis in haemochromatosis at first and follow up examination in 18 patients (duration of follow up 9-4 years)

<table>
<thead>
<tr>
<th></th>
<th>First examination</th>
<th>Second examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrists</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Knees:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meniscus</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Hyaline cartilage</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Hips</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Symphysis pubis</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Spine</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

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