Rare presentation of intestinal amyloidosis with acute intestinal pseudo-obstruction and perforation

Gastrointestinal manifestations of amyloidosis include dysmotility and pseudo-obstruction.1,2 Here, we report an exceptional case of acute small bowel obstruction followed by perforation in a patient with documented light chain amyloidosis (AL). A 39-year-old Chinese woman had a 10-year history of 

Table 1: Allergy testing results

<table>
<thead>
<tr>
<th>Allergen</th>
<th>Skin prick testing</th>
<th>Specific IgE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wheat (mm)</td>
<td>Flare</td>
</tr>
<tr>
<td>Gross pollen mix</td>
<td>3</td>
<td>++</td>
</tr>
<tr>
<td>Cat dander</td>
<td>4</td>
<td>++</td>
</tr>
<tr>
<td>Dermatophagoides pteronisinus</td>
<td>0</td>
<td>–</td>
</tr>
<tr>
<td>Dermatophagoides farinae</td>
<td>0</td>
<td>–</td>
</tr>
<tr>
<td>Fresh Quorn mixed with saline</td>
<td>0</td>
<td>–</td>
</tr>
<tr>
<td>Alternaria alternata</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Aspergillus fumigatus</td>
<td>1</td>
<td>–</td>
</tr>
<tr>
<td>Cladosporium herbarum</td>
<td>1</td>
<td>–</td>
</tr>
<tr>
<td>Aureobasidium pullulans</td>
<td>ND</td>
<td>ND</td>
</tr>
</tbody>
</table>

In the skin prick test histamine produced a 6 mm wheal and ++ flare, and saline produced a 0 mm wheal and no flare. Results were those seen 1.5 minutes after using AUK standardised lancets and skin prick test reagents. The specific IgE tests were performed by Sheffield Protein Reference Unit. When Quorn was used as the allergen a small piece of fresh Quorn burger was mixed with saline, and a single drop of liquid from the mixture was put on the patient’s forearm as with the other skin prick reagents. No specific IgE was detected to two other fusaria species, *F culmorum* and *F oxysporum*. Alternaria alternata, *Aspergillus fumigatus*, and Cladosporium herbarum are reported to crossreact with Quorn. There was a heavy growth of Aureobasidium pullulans in the patient’s home (no tests available to other species isolated).

ND, not done.
The diversity of fungal allergens is a challenge for successful immunotherapy. A reduction in occupational exposure to fungi may be achieved using helmets with filtered air (which may remove up to 98% of spores), improving ventilation, and controlling humidity. Fungi in dwellings generally have no specialised spore liberation mechanisms and largely depend on disturbance. Spore wall structure determines whether allergens are already available on the surface, and whether the spores can remain airborne.

S J Katona, E R Kaminski
Department of Immunology, Level 7, Derriford Hospital, Plymouth, Devon PL6 8DH, UK; katona@doctors.org.uk

References

Tumour cells produce receptor activator of NF-κB ligand (RANKL) in skeletal metastases
Osteolytic bone destruction is a common complication of tumours that metastasise to bone. Several solid tumours, most notably breast carcinoma, lung carcinoma, and prostate carcinoma, commonly metastasise to bone in patients with advanced disease, where they cause osteolysis and associated pain, hypercalcaemia, and fracture. It is generally accepted that osteoclasts are the only cells capable of resorbing mineralised bone. In osteolytic metastases, it has been shown that tumour cells directly resorb bone through a vicious cycle: in particular, tumour cell produced parathyroid hormone-related protein (PTHrP) facilitates bone resorption and, as a consequence, transforms growth factor β is released from the bone matrix and promotes the progression of bone metastases by further inducing PTHrP production by tumour cells. Other tumour cell products, such as macrophage colony stimulating factor, interleukin 6 (IL-6), IL-11, and tumour necrosis factor α, have also been shown to be associated with tumour-induced osteolysis.

However, with the identification and characterisation of a direct stimulator of osteoclastogenesis—the receptor activator of NF-κB ligand (RANKL) (also known as ODF, OPGL, and TRANCE)—a possible final common pathway for osteoclastic bone destruction has emerged. A variety of osteoelastic factors which, such as 1,25-dihydroxyvitamin D3, prostaglandin E2, parathyroid hormone, IL-6, and IL-11, have been shown to mediate osteoclast differentiation through the upregulation of RANKL expression or the downregulation of osteoprotegerin (OPG, the decoy receptor of RANKL) expression in osteoblast/stromal cells. There is also experimental evidence that tumour production of PTHrP may stimulate osteoclastic bone resorption by enhancing RANKL expression and reducing OPG expression in the osteoblast. However, whether tumour cells directly produce RANKL, which subsequently mediates osteolysis in metastatic skeletal lesions, has not been determined.

To this end, we have investigated the expression of RANKL in the skeletal lesions of patients with carcinomas that had metastatised to bone. Sixteen cases, including breast carcinoma (four cases), lung carcinoma (six cases), prostate carcinoma (two cases), and follicular thyroid carcinoma (four cases), were collected during surgery of pathological fractures. Histological confirmation of the diagnosis in each case was based on the review of routinely prepared paraffin wax embedded tissue sections in conjunction with knowledge of the clinical and radiological findings. All patients presented with aggressive osteolytic lesions and pathological fracture, and adenocarcinoma was the predominant histological subtype (table 1). The expression of RANKL mRNA and protein was assessed using in situ hybridisation (digoxigenin labelled RANKL antisense riboprobe, 0.5 ng/ml) and immunohistochemistry (mouse antihuman TRANCE monoclonal antibody from R&D, Minneapolis, Minnesota, USA; StreptABCComplex/horseradish peroxidase mouse/rabbit system from Dako, Carpinteria, California, USA), respectively, on paraffin wax embedded tissue sections. Typical histological appearances of neoplastic cells in various bone metastatic tumours were revealed by haematoxylin and eosin staining (fig 1, H&E). The neoplastic cells of breast carcinoma, lung carcinoma, prostate carcinoma, and thyroid carcinoma showed strong positive hybridisation signals with RANKL riboprobes (fig 1, 15H), and strong positive staining with anti-RANKL antibodies (fig 1, IHC). RANKL mRNA and protein were also present in osteoblasts and fibroblasts in surrounding tissues (fig 1). Table 1 summarises the percentages of tumour cells exhibiting immunoreactivity for RANKL and the intensity of immunostaining in all 16 specimens. In short, we found that both RANKL mRNA and protein were present in more than 90% and in some cases 100% of metastatic tumour cells in lesions of breast, lung, prostate, and thyroid adenocarcinoma. Therefore, we conclude that in osteolytic skeletal secondaries, metastatic tumour cells, regardless of origin, express RANKL, and may directly stimulate osteoclastic bone destruction. In support of our observations, Zhang and colleagues have recently provided evidence that tumour cells of prostate cancer are capable of inducing osteoclastogenesis in vitro, directly through the production of soluble RANKL.

Bone resorption is a necessary priming event for the establishment and propagation of tumour metastasis in bone. Our study has been conducted on the metastatic component of the primary carcinoma in the skeleton, and we did not have access to tissues of the primary site. Indeed, there is a paucity of studies that compare RANKL expression in the primary and metastatic tumours of the same patients. Brown and colleagues reported that RANKL was heterogeneously expressed in 10 of 11 prostate carcinoma specimens, and the proportion of tumour cells expressing RANKL was significantly increased in all bone metastases in comparison with non-osseous metastases or the primary prostate tumour. Whether RANKL expression in the primary tumour is predictive of a possible propensity towards skeletal metastasis remains to be seen and could be the focus of future studies.

Acknowledgements
This study was fully supported by a grant of the Research Grants Council of the Hong Kong SAR (CUI8/4142/00M).

Table 1 A list of tumour bone metastases and RANKL immunoreactivity

<table>
<thead>
<tr>
<th>Case</th>
<th>Primary site</th>
<th>Diagnosis</th>
<th>RANKL immunoreactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Breast</td>
<td>Adenocarcinoma</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Breast</td>
<td>Adenocarcinoma</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Breast</td>
<td>Adenocarcinoma</td>
<td>95</td>
</tr>
<tr>
<td>4</td>
<td>Breast</td>
<td>Adenocarcinoma</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>Lung</td>
<td>Adenocarcinoma</td>
<td>90</td>
</tr>
<tr>
<td>6</td>
<td>Lung</td>
<td>Adenocarcinoma</td>
<td>95</td>
</tr>
<tr>
<td>7</td>
<td>Lung</td>
<td>Adenocarcinoma</td>
<td>90</td>
</tr>
<tr>
<td>8</td>
<td>Lung</td>
<td>Adenocarcinoma</td>
<td>100</td>
</tr>
<tr>
<td>9</td>
<td>Lung</td>
<td>Adenocarcinoma</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>Lung</td>
<td>Adenocarcinoma</td>
<td>95</td>
</tr>
<tr>
<td>11</td>
<td>Prostate</td>
<td>Adenocarcinoma</td>
<td>90</td>
</tr>
<tr>
<td>12</td>
<td>Prostate</td>
<td>Adenocarcinoma</td>
<td>85</td>
</tr>
<tr>
<td>13</td>
<td>Thyroid</td>
<td>Follicular adenocarcinoma</td>
<td>90</td>
</tr>
<tr>
<td>14</td>
<td>Thyroid</td>
<td>Follicular adenocarcinoma</td>
<td>95</td>
</tr>
<tr>
<td>15</td>
<td>Thyroid</td>
<td>Follicular adenocarcinoma</td>
<td>85</td>
</tr>
<tr>
<td>16</td>
<td>Thyroid</td>
<td>Follicular adenocarcinoma</td>
<td>100</td>
</tr>
</tbody>
</table>

L Huang, Y Y Cheng
Department of Orthopaedics and Traumatology, Chinese University of Hong Kong, Shatin, NT, Hong Kong SAR

L T C Chow
Department of Anatomical and Cellular Pathology, Chinese University of Hong Kong

M H Zheng
Department of Orthopaedic Surgery, University of Western Australia

S M Kumta
Department of Orthopedics and Traumatology, Chinese University of Hong Kong, smkumta@cuhk.edu.hk

www.jclinpath.com
Are coroners’ necropsies necessary? A prospective study examining whether a “view and grant” system of death certification could be introduced into England and Wales

The paper by Rutty and colleagues’ fails to focus upon the key issues raised by the question it seeks to answer. Those issues are: (1) What is the “primary purpose” of coroners’ necropsies? (2) Is the “information available at the time of necropsy” adequate? (3) What is meant by postmortem examination? Does it only mean dissection of the whole body? (4) Under what circumstances should a necropsy be performed without regard to the views of the next of kin?

References


Figure 1. Expression of RANKL mRNA and protein in bone metastatic tumours. Signals are dark blue in colour. RANKL mRNA was present in the neoplastic cells of various metastatic tumours. Positive signals are brown in colour. RANKL protein was present at different intensities in the cytoplasm of the neoplastic cells of various metastatic tumours. All images are at ×200 magnification. In addition, when present in surrounding tissues, osteoblasts and fibroblasts also expressed RANKL mRNA and protein (indicated by arrows). H&E, haematoxylin and eosin staining; ISH, in situ hybridisation; IHC, immunohistochemistry.
In our view, this last issue is the most important and other issues should be dealt with within that context: none of these issues can be dealt with meaningfully without informed public debate. The authors pay lip service only to this question and reach a conclusion that we consider that necropsies still have an essential role within the coroner’s enquiry” that is self evident but superficial.

The paper seems to be based on a false premise—that the “view and grant” facility is of superficial value within the coroner’s service only to this question and reach a conclusion “…we consider that necropsies still have an essential role within the coroner’s service only to this question and reach a conclusion”. This procedure is regarded as an “alternative”, an adjunct to detailed review of the circumstances of death, allowing deaths where there is no suspicion or evidence of criminality to be certified without a necropsy.

The authors acknowledge that “the most important” factor in a pathologist’s ability to “predict a cause of death before necropsy” is “the quality of the information available to the pathologist”. However, there is no assessment of the quality of information provided in this study, despite a publication by one of the authors indicating the relatively poor quality of such information. A key question raised is: “Was there, in fact, no clinical information available or was the absence of information a reflection of inadequate enquiry on the part of the pathologist? The paper does not deal with that question but, sadly, ignores it with the following dismissive statement: “Any additional information concerning the deceased, which subsequently became available for the “view and grant” facility, was not included, because this could have caused bias in the second part of the assessment”. This appears to us a sad inversion of the importance of the issues.

The inference may be drawn from the paper that where adequate information was provided, allowing a prediction of cause of death, then “the number of correct predictions made of those where a cause of death had been proffered were as follows: A, 70%; B, 63%; C, 59%”. This appears to us to be the “true error rate”, reducing itself to 30–41%, as opposed to the authors’ preferred 54–61%; we would maintain that one should not include in any determination of “error rate” those cases where a prediction could not be made because of inadequate information: under the view and grant system a necropsy would have been carried out in such cases.

In a paper that attaches so much importance to accuracy of cause of death, it is doubly distressing to find a lack of precision in attributing death to “ischaemic heart disease” without further detail of the pathological basis for ischaemia and in finding “bronchopneumonia” an adequate explanation of death.

We think it unfortunate that this paper does not distinguish between the populations of “natural death” and “unnatural death” or give an indication as to whether any of those deaths that were considered to be natural before necropsy were shown to be unnatural—it is this distinction that appears to us to be the primary purpose of a system of investigation of death in which the wishes of the next of kin are irrelevant.

We welcome the opportunity afforded by the authors to add to the debate regarding the role and future of the coroner system. The authors’ implicit support for more detailed investigation of the circumstances of death before postmortem examination sits well with the “radical option”—foreshadowing a “medical examiner” system—detailed in the Home Office consultation document produced in the first phase of its Review of Death Certification, and with recommendation 11—“the feasibility of establishing a new system of death certification involving a medical examiner should be explored”—in recent advice from the chief medical officer.1

S Leadbeatter, D James, A Davison
Wales Institute of Forensic Medicine, B1 Link Corridor, University Hospital of Wales, Heath Park, Cardiff CF14 4XN, UK; leadbeatter@cf.ac.uk

Androgen receptor expression in ductal carcinoma in situ of the breast: relation to oestrogen and progesterone receptors

We wish to add a reference to the list included in the paper of Selim and colleagues concerning androgen receptors in ductal carcinoma in situ (DCIS) of the breast that appeared in the Journal of Clinical Pathology in the first issue of 2002. Although the authors state that androgen receptors in DCIS have not been reported previously, we have studied this and published a paper dealing with our observations, in addition to CAG repeat lengths in the androgen receptor in DCIS.1

References

Authors’ reply
Thank you for this information and the opportunity to reply. Unfortunately, the study of androgen receptor (AR) CAG repeats by Kasami and colleagues’ is not included in the usual searches and this appears to be the reason for overlooking this reference. In this study, cases of fibroadenoma, ductal carcinoma in situ (DCIS), and invasive mammmary carcinoma were included. Twenty-four cases of DCIS were tested for AR CAG repeats and 10 were tested for AR expression immunohistochemically. Two of 10 cases were positive for AR and these two cases were the only cases with apocrine morphology. However, in our study, where AR was expressed in invasive breast carcinoma, most DCIS were tested for AR expression, but other studies have found that a subset of invasive breast carcinomas expresses AR. We feel that a study of AR CAG repeats in benign apocrine metaplasia, which is always immunohistochemically positive for AR, together with and without cases of apocrine and/or non-apocrine in situ and invasive breast carcinoma, would be very valuable in highlighting the importance of CAG repeats and apocrine differentiation.

AA Selim, G El-Ayat, C A Wells
Department of Histopathology, St Bartholomew’s Hospital, St Bartholomew’s and the Royal School of Medicine and Dentistry, Queen Mary and Westfield College, University of London, West Smithfield, London EC1A 7BE, UK; aaselim@doctors.net.uk

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Rare presentation of intestinal amyloidosis with acute intestinal pseudo-obstruction and perforation
S B Ng and I A Busmanis

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