Letters to the Editor

Concomitant fungal and bacterial atlanto-axial osteomyelitis: a case report

To the Editor:
I read with interest the article by Yau and Li.¹ A complete test to evaluate the patient’s immune system should have been performed; such a strange concomitant infection without severe impairment of immunity is rare. The quality control process to rule out the possible contamination should have been clarified.² The statement that penicillosis is the third most common AIDS-related illness in Thailand should be clarified. Candidiasis and herpes infection should be kept in mind.

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To the Editor:
We read with interest the article by Yau and Li.¹ The authors presented an elderly patient who developed right upper limb weakness, neck pain and urinary complaints secondary to co-infection with Staphylococcus aureus and Penicillium marneffei at the cranio-vertebral junction.

As the surgery was performed 2 days after the admission, was the patient put on skeletal traction following admission? A phase of cervical traction (with neck in extension) is almost always advisable before such surgery for patients with a neurological deficit. The skeletal traction may gradually realign the vertebral column and achieve mechanical decompression.

As similar features may be observed in other conditions (rheumatoid arthritis, infections such as tuberculosis and brucellosis, sarcoidosis, and tumours such as lymphoma and chordoma),² needle aspiration or biopsy under C-arm image intensifier should have been performed to rule out other pathologies.

There are serious concerns about carrying out implant surgery in patients suspected to have active pyogenic infection of the region, especially in the presence of Gram-positive cocci evident on frozen section examination. The risk of infection flare-up must be borne in mind. Furthermore, osteopenia of the surrounding region due to the disease process itself and disuse may result in internal fixation of questionable quality. Surgery on the cranio-vertebral junction is a major procedure and prolonged anaesthesia in an elderly may result in pulmonary complications. Could the management have been simplified by recourse to halo-vest immobilisation and transoral decompression under general anaesthesia (after fibre-optic intubation)? In our experience, operative debridement and decompression is better undertaken with a halo-vest in situ after fibre-optic intubation.

Concomitant fungal and bacterial infections of the cranio-vertebral region are rare even in isolation and tend to occur in immunologically compromised patients. Such occurrence in an immunocompetent patient warrants thorough diagnostic work-up. It is against the guidelines for problem solving to consider coexistence of 2 or multiple disease processes when a single common plausible aetiology could explain the clinico-radiological presentation and laboratory findings. The insidious nature of clinical presentation (a history of 2 months, absence of high-grade fever)
along with the typical features on magnetic resonance imaging (osseous debris in the atlanto-axial region and a prevertebral collection extending till fourth cervical vertebrae beneath the anterior longitudinal ligament) could have prompted the diagnosis of tuberculosis and institution of appropriate chemotherapy (especially in the Indian subcontinent). In our experience, clinical and radiological improvement following conservative treatment of such patients is the rule rather than the exception.3 In this context, it is equally difficult to isolate and culture *Mycobacterium tuberculosis*, as osteoarticular tuberculosis is essentially a paucibacillary form.3,4

The patient was administered 4 weeks of intravenous amphotericin B followed by 18 weeks of oral itraconazole as therapy for a fungal infection. The patient would have received in-patient care for a minimum of 8 weeks in order to monitor renal function, and receive replacement therapy for persistent hypokalaemia. In which case it might have been prudent to use itraconazole alone on an out-patient basis to avoid the toxicity profile of amphotericin B.

The patient made a full recovery of power with mild residual numbness over the right hand, and no myelopathic hand signs were elicited after 5 months of follow-up. Does it mean that the Hoffman sign turned negative within 5 months of presentation? How long did it take for the patient to be relieved of neck pain and urinary complaints? Were urodynamic studies conducted?

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**Authors’ reply:**
The specimens was carefully taken, handled, processed and sent to the respective laboratories with standard precautions. Contamination is unlikely. The patient was referred to an infectious disease specialist for workup on underlying immunodeficiency, and the results were negative. The patient had enjoyed good health before having the diseases, with no history of any opportunistic infection. In fact this was a rare case of mixed bacterial and *Penicillium marneffei* infection in an immunocompetent person.

Application of traction on a structurally deficient cervical spine with neurological deficit is dangerous. Traction carries the risk of further deteriorating the neurological status. As the infective process had already destroyed the atlas and axis together with their stabilising ligaments, traction may have made the deformity worse. Moreover, the cause of cord compression in this patient was a large mass of infective tissue rather than bony mal-alignment. The goal of management was decompression and stabilisation rather than re-alignment, and thus preoperative traction was not applied.

Anterior decompression would have further destabilised the already unstable atlanto-axial spine; stability provided by a halo brace alone might be inadequate. We agree that there is an anaesthetic risk for elderly patients, but our patient was 58 years old, had good past health and was still working before his presentation. Anaesthetic risk was therefore considered to be low.

Although instrumentation in pyogenic vertebral osteomyelitis carries a risk of local recurrence, its safety and efficacy has been reported.1-3 Instrumentation after radical debridement does not increase the risk of recurrent infection. Rather, the increased stability provided by instrumentation can promote healing.3

A multi-disciplinary approach to uncommon conditions is mandatory. Our radiologist considered that needle biopsy of the anterior atlanto-axial area, despite guidance by imaging (including computed tomography), was extremely difficult. We therefore proceeded to operative biopsy together with frozen section, decompression, and stabilisation after the
anatomic extent and nature of the lesion had been well delineated by imaging. The regimen of anti-fungal therapy was decided after consultation with an infectious disease specialist. As the patient recovered fully without receiving any anti-tuberculous treatment, possible *Mycobacterium tuberculosis* infection seems unlikely.

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Differences in outcome between Maori and Caucasian patients undergoing total joint arthroplasty for osteoarthritis

To the Editor:

We read with interest the article by Pai et al. The authors concluded that “Maori patients were more likely than Caucasian patients to have preoperative comorbidities, but their postoperative length of hospital stay and complication rates were not significantly different.” How were the ethnicities of the groups (Maoris and Caucasians) determined? Prior to the Maori Affairs Amendment Act in 1974, a Maori was defined as one with more than 50% of Maori descent. Since then, the New Zealand Statistic Office has allowed its citizens to be called a Maori if they have Maori ethnicity, or they identify themselves culturally as Maori. If the Maori patients in your study were of culturally defined, then ethnicity would not account for the differences between groups. In addition, the sample size was small and the study was not powered. It is likely that the lack of any significant difference in outcomes between the 2 groups was due to a type-II error. This study should therefore be regarded as a pilot study to stimulate further research into this area.

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Authors’ reply:
45% of the population in Gisborne are Maori. In our study, the ethnicity of patients was defined based on the physical features and cultural values, including body built, face, broad nose, and accent. No genetic tests were carried out. There are no longer many pure Maori in New Zealand. We agree that larger studies with suitable statistical analysis are necessary.

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Continuous infiltration of local anaesthetic following total knee arthroplasty

To the Editor:
I read with interest the paper by Ong et al.1 Multimodal pain management regimens can play an important role in enhancing functional restoration by facilitating patient participation in postoperative rehabilitation. The patients were randomised into 3 groups. In group 1, the controls received patient-controlled analgesia (PCA) with intravenous morphine for 48 hours. In group 2, patients received continuous infiltration of bupivacaine (4 ml of 0.25%) to the subcutaneous tissue and intra-articular space for 48 hours, in addition to PCA. In group 3, patient received an intra-articular injection of local anaesthetic consisting of normal saline (50 ml), ketorolac (1 ml), morphine (10 mg) and bupivacaine (100 mg), followed by continuous infiltration of bupivacaine (4 ml of 0.25%) to the subcutaneous tissue and intra-articular space for 48 hours, in addition to PCA. The authors reported that “morphine use was significantly higher in controls than patients in group 2 (p=0.022) and group 3 (p<0.0005) over 48 hours, but not between groups 2 and 3 (p=0.482).”

It is paramount to determine the optimal pain management regimen for postoperative pain control while minimising the side-effects of medications. In the light of these results, I would be interested in knowing whether the authors adhered to a particular pain protocol (in groups 2 or 3), and what they would advise as a better protocol.

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REFERENCE

Authors’ reply:
We currently use the third protocol, in which morphine use was lowest. In group 2, the flow rate was sometimes too slow for an immediate effect after general anaesthesia. In group 3, the bolus injection helped to deal with the initial pain after total knee arthroplasty, despite its poor long-term effects. The continuous infiltration of local anaesthetic enabled good long-term pain relief. Hence, the combination of the bolus injection and continuous infiltration of local anaesthetic provided better results. By coordinating with the anaesthetic team, we raised the awareness that the bolus injection was used to prevent medication overdosage, especially in the initial hours after the surgery.

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