patients are healthier than their geriatric population contemporaries.

Preparing for the worst?

■ On April 15 2013, at 2:49pm, two bombs were detonated 12 seconds and 150 m apart near the crowded finish line of the Boston Marathon, the oldest marathon in the world. On November 13 2015 at 9:30pm, explosions occurred at the Stade de France, Paris. Within 20 minutes, there are four separate shootings and three explosions. At 9:40pm, a massacre takes place in the Bataclan concert hall. These two contemporary papers describe the responses mounted by the emergency services in the face of multiple major casualties in an urban area. With wartime signature injuries, how well would your unit and trauma network cope? We would thoroughly recommend to all readers of 360 to read the original articles of these two papers[10,11] which describe the lessons (good and bad) from the responses to these two terrorist acts. Sadly, lessons are available for us all to learn from the experiences of others, and those described here include more robust communication infrastructure and the reinforcement of the value of preparatory drills, more robust organisational hierarchy

for mass casualty events and the implementation of a multi-trauma follow-up clinic. Paris (France) has a crisis unit and in this situation was able to co-ordinate 40 hospitals, with a total of 100 000 healthcare professionals, up to 22 000 beds, and 200 operating theatres. Few developed cities have such resources, and indeed neither London during the 7/7 London bombing, New York on 9/11 nor Boston had the benefit of such a well co-ordinated response although all emergency services coped incredibly well in the face of such a human tragedy. We ask the question here at 360: are we as well prepared? Are you as well prepared? Yes and no. Here in the UK we do not have the same crisis unit, so triage may not be as good as in Paris, and in the light of summated learning from Boston (Massachusetts), it is likely that major incident plans need some revision and adjustment. France has a network system for Paris but nowhere else in the country, so the UK is likely better prepared on a national scale than the French were. In our own units, could we produce a similar number of beds rapidly? In similar circumstances, probably. Are we geared up to switch to hypotensive resuscitation

for shooting victims? Permissive hypotension is now standard in the pre-hospital setting for all the Major Trauma Centres in the UK and is being practised. Blood and blood products may be a genuine problem, particularly if the scale of the incident is not recognised early. The first few patients through the door (often not the worst injuries) could use up stocks and rationing which would be needed until the transfusion service was able to set up an emergency donor centre. Hopefully we will never need to know, however, we would commend you wherever you are to think again about your own unit and network's action plans.

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Oncology

Salvage of the pathological proximal femur X-ref

■ There is a misconception among surgeons that pathological fractures of the proximal femur through a benign lesion necessitate replacement. Surgeons from **Caracas (Venezuela)** set out to dispel this myth with their own comparative series of patients treated for both proximal femoral fracture, and without a fracture through benign bone tumours.[1] The authors report the outcomes of 97 patients treated overwhelmingly with fixation (86.2% for pathological fractures and 98.5% for those

without fracture). Local recurrence risk was similar for patients in the pathological fracture (10.3%) and non-fractured groups (8.8%) with excellent functional outcome scores in both groups and not statistically significantly different. The authors concluded that the majority of pathologic fractures through a benign bone tumour of the proximal femur can be successfully treated with curettage, burring, bone grafting and internal fixation without increasing the risk of local recurrence or negatively impacting functional outcome when compared to those without a fracture.

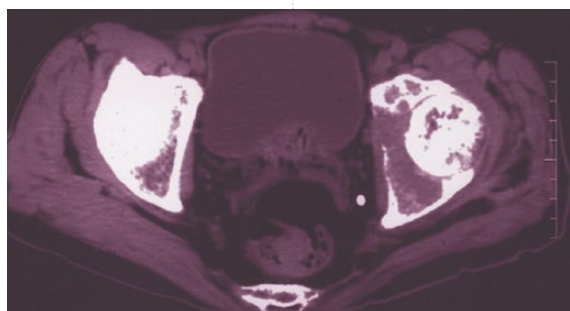## Fractures in giant cell tumour of bone

■ There is 'common sense' presumption that pathological fracture can lead to localised spread, seeding and recurrence of benign tumours, and as such patients presenting with pathological fractures should perhaps be treated with a more aggressive approach than those with lesions that are not fractured. Researchers in **Singapore (Singapore)** have undertaken a meta-analysis to establish if this approach is evidence-based, using the giant cell tumour.[2] Their literature review and meta-analysis

included the results of 19 papers reporting the outcomes of 3215 patients, all of whom had undergone treatment for giant cell tumour (GCT). The cohort included 580 patients who underwent treatment for fracture. There was no difference in local recurrence rates between patients who have a GCT of bone with and without a pathological fracture at the time of presentation, and neither was there a difference in outcomes between those patients undergoing curettage with and without a fracture. The resounding message from this paper is that based on the

evidence currently available, there are no grounds for treating patients presenting with a GCT fracture any differently to those without.

Giant cell tumour in the distal radius X-ref

■ In a *tour de force* of current benign bone tumour research we would draw readers' attention to a further paper concerning the giant cell tumour (GCT) from authors in **Chicago (USA)**. The study team report their results of 39 patients treated for GCT of the distal radius over a 23-year period.[3] Patients reported here were either treated with primary intralesional excision (n = 20), resection with wrist arthrodesis (n = 15) or resection with osteoarticular allograft (n = 4). It is difficult to draw conclusions from a small series with differing presentations and treatment strategies, mak-

ing each group too small for subset analysis. What the authors are able to conclude, however, is that resection for giant cell tumour of the distal radius with an allograft arthrodesis showed a lower recurrence rate, lower re-operation rate, and no apparent differences in functional outcome compared with joint salvage with intralesional excision. The authors stop short of recommending resection for all cases and adopt the 'middle path', concluding that because arthrodesis after recurrence yields similar functional scores to the initial resection and arthrodesis group, an initial treatment with curettage remains the first line in uncomplicated GCT of the distal radius. However, fusion clearly yields

excellent results, and here at *360* we would tend to agree with the authors that in those patients with joint involvement or extensive bone loss, a primary arthrodesis is an excellent option.

Growing prostheses in children X-ref

■ Endoprosthetic replacement in children following resection of a malignant bone tumour is still a controversial intervention. Although the newer growing prostheses minimise the complexity of re-operations, these prostheses are still associated with a high number of re-operations and an uncertain longevity. Orthopaedic oncologists in **Vienna (Austria)** share their experience over 27 years of 71 patients treated with excision and growing prosthesis for extremity sarcoma.[4] Of the initial 71 patients, 12 died from their disease and outcomes were excellent with an MSTS score of 87.8%. Despite the excellent functional results, patient averaged 2.5 operations for complications, of which the most common were soft-tissue-related (46%), structural failure (28%), infection (17%), and aseptic loosening (8%). This is a reliable and honest look at the longer-term outcomes of patients presenting with extremity sarcomas. The high number of complications should be offset against successful lengthening of an average of 70 mm and excellent long-term functional outcomes. Lengthening prostheses will always be a balance of risks and benefits, and this report provides excellent data on which to make this choice.

The unplanned sarcoma excision X-ref

■ There will always be an incidence of unplanned surgical excision of bone tumours. Seemingly benign lesions are excised successfully in small units throughout the world, however, every once in a while a poor work up, or simply surprising histology will lead to the referral to a regional bone tumour centre of a patient following a 'whoops manoeuvre'. This poses a difficult situation for the receiving surgeon. Should they rely on the margins and histology from the primary surgery, or should patients routinely undergo further surgery? A team in **Freiburg (Germany)** undertook a review of all such patients over a ten-year period and compared them with those initially treated in their centre.[5] In this series of 204 patients, over half (n = 110) were secondary referrals and 71 had undergone attempted excision without suspicion of malignancy. In these, there was a 53% residual tumour incidence, and the initial histopathology report was inaccurate in around half of cases. While clearly education and comprehensive tumour networks are essential to reduce the rates of such procedures, it is evident from this large series that receiving surgeons should have a low threshold for re-exploration and re-excision of patients' tumours when there is any cause for doubt if the initial surgery has not occurred at a tumour centre.

Imaging and cartilage lesions

■ Grade one chondrosarcoma is a tricky diagnosis – both to be confident in making and confident in treating. However, unlike the truly benign encondroma, grade 1 chondrosarcoma is a malignant lesion and should be treated more aggressively. The difficulty, however, is in making the diagnosis. Researchers in **Columbia (USA)** have undertaken a diagnostic study to ascertain just how accurate modern imaging techniques are in making this subtle

distinction.[6] Their study reports the outcomes of 53 cases of enchondroma and grade 1 chondrosarcoma (all with a definitive histopathological diagnosis). The study team included two MSK radiologists who, after agreeing the criteria for malignancy, independently reported the contrast MRI scans and radiographs for all 53 cases. Perhaps surprisingly, the results were not as accurate as perhaps we might intuitively expect. The radiographs alone were actually misleading for chondrosarcoma with only 20% of cases correctly diagnosed (n = 5/24) and the MRI scans were only marginally better than a coin toss (58%; n = 14/24). This paper really does highlight the difficulties faced in making these diagnoses. While we are perhaps not surprised that diagnosis is difficult to reach on imaging alone, it does highlight to us the importance of thorough assessment and intervention when there is the suspicion of malignancy.

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