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Editorial

Concern for World Orthopaedics

I am concerned by the divergent paths that Orthopaedic Surgery, and the training for it, have taken in the First World and in the under-developed countries of Africa and Asia.

In the West, there are plenty of orthopaedic surgeons and there is enough money for an industry-driven and patient-driven orthopaedic technology.

In contrast, most under-developed countries are near bankrupt. Very few orthopaedic surgeons try to care for far too many patients who are unable to afford the cost of operations, let alone expensive implants.

At least from this outsider's viewpoint, the West is pre-occupied with degenerative joint disease, osteoporosis, trauma and the sepsis that may complicate major orthopaedic procedures.

In the Third World, trauma, much of it neglected or delayed in presentation, children's deformities and bone and joint sepsis (including tuberculosis) are the major pre-occupations

Big questions arise from these differences. Does Western orthopaedics have anything to offer the Third World? Conversely, does the Third World have anything to teach the West?

The training of orthopaedic surgeons

The answer to these questions becomes even more important when we consider the training of orthopaedic surgeons. We obviously need to train surgeons in the appropriate skills with which to serve the communities in which they will work. The easiest way to do this is to have a narrow training, based solely on the technology in everyday use in that particular area.

On the other hand, although a Zambian orthopaedic surgeon will treat many conditions by non-operative means, he will still need to replace an osteoarthritic joint, internally fix a complicated fracture or relieve paraplegia from a congenital scoliosis on some occasions.

In the West, non-operative treatment (with the possible exception of cast bracing) has progressed little since 1963, the date of my first orthopaedic house job. Now as we approach the post-antibiotic era of bacterial multi-drug resistance and have to contend with the implications of HIV disease, a western surgeon may need to adopt non-operative treatment. For that, better methods and forgotten skills will be needed.

With increased specialisation, training is getting narrower. It needs to be broadened. A lot of time and money is saved if a surgeon can make a diagnosis from a good history and physical examination with a minimum of investigation. Even in Zambia, some patients come clutching unnecessary MRI scans that have been taken elsewhere. Accurate manipulative reduction of fractures, casting and the use of traction are also skills which seem to be waning.

In 1997, I briefly visited an orthopaedic teaching unit in England. It was beautifully equipped. The cost of one of their elaborate orthopaedic beds would have refurbished our whole unit in Zambia.

I saw some very complicated and careful surgery being done with very good results,..... but some of those elaborate beds contained patients with serious postoperative infections. Some had protheses infected with organisms totally resistant to all known antibiotics.

I attended their Monday morning review of the weekend's trauma. The first case was a simple angulated shaft fracture of the fifth metacarpal. It had been manipulated under general anaesthesia and a back slab had been applied. The trainee couldn't understand why the fracture had immediately re-displaced and proposed plating the metacarpal. The three point fixation principle of casting a fracture had not been considered.

Another problem arose in an elderly woman with a long spiral fracture of her osteoporotic femur. She had been treated using a locked intramedullary nail. Unfortunately, the bolts had cut out before she had even reached the ward.

We would have sat that patient up in a Perkin's bed. The exercises would keep her muscle pumps going and prevent venous thrombosis and pulmonary embolism, gravity would control rotation of the fracture, a light cast would prevent migration of the pin through her osteoporotic tibia and kept her foot plantigrade and she would be healed in six weeks.

Non-operative treatment of fractures

The object of treatment is the restoration of complete function with the least risk and inconvenience to the patient and the least anxiety to the surgeon.
Robert Jones (1913).

Non-operative treatment is not only for the poor in Third World countries. Sometimes it is simply the ideal method of treatment.

Three years ago, my 29-year-old son was shot by poachers and sustained a comminuted open fracture of the lower third of his right femur. He was treated in Perkin's traction. The fracture was clinically united at four weeks and he was out of hospital by six weeks. At 12 weeks he was driving a five-ton truck 800 kilometres into the Luangwa Valley to set up a Safari Camp and a month later he was leading walking safaris over very difficult terrain. He has no residual disability and I would put it to you that no other method of treatment could have been more appropriate for that fracture.

A comminuted fracture of the distal humerus will heal if treated in a plaster cast but the elbow will never function. So take off the cast. But what then?

You could spend some hours and some hundreds of pounds doing a surgical jigsaw puzzle; filling in the gaps with cancellous bone graft where necessary; using plates and screws to produce a firm fixation so allowing early joint movement. Nothing less is acceptable. Without the necessary skills and proper implants, an inadequate fixation leads to a stiff elbow or to an infected disaster.

I no longer have any anxiety about these fractures: they do not require an orthopaedic surgeon to treat them. Put up in running traction and moved from day one, we get as good functional results as from internal fixation. The method is just as applicable to gunshot wounds and other open injuries. The treatment is supervised by our physiotherapist.

A plea for broader training

What is my point? Training is always incomplete but let us at least try to make it as broad as possible.

It has been said that, given a particular problem, three orthopaedic surgeons will suggest six different ways of solving it. Surely it is better for an orthopaedic surgeon to have six options for treating a condition, depending upon the varying circumstances of his patients.

I believe that surgeons from the Third World can benefit from a time in the West, learning techniques which can be adapted to benefit their patients at home.

Similarly, I believe that British trainees need to work in the Third World. They need to hone their clinical skills, to see and solve problems not addressed in the textbooks and to learn the skills of non-operative fracture treatment.

A view from the West

All of the above is based upon one section of the Lipmann Kessel Memorial Lecture that I delivered to the Congress of the British and Irish Orthopaedic Associations in Dublin in September 1998. It was only after returning to Zambia that I saw the Commentary, *Responding to Change,* written by Augusto Sarmiento from Florida[1]. Even the United States of America, it seems, can ill afford the regular use of advanced technology.

Many conditions that previously had been treated successfully with simple non-operative means began to be treated operatively instead. This pattern reached the educational institutions, and, within a very short time, new graduates from orthopaedic residency programs were completing their training with only a modicum of understanding and respect for non-operative approaches to diseases and injuries of the musculoskeletal system. Today, the diagnosis and treatment of musculoskeletal conditions nearly always involve the use of expensive technology. For example, bursitis and tendinitis demand not just a physical examination but magnetic resonance imaging as well. A sprained joint is thought to require, in addition to magnetic resonance imaging, an arthroscopic procedure followed by expensive and prolonged physical therapy. Low-back pain, even in the absence of neurological deficit is approached by a battery of expensive tests followed, once again, by prolonged physical therapy. Although many graduates finish their residency seeming to know little about how to reduce a fracture and immobilize it in a cast, they do know how to insert an intramedullary nail, secure a plate and apply an external fixator. In fact, I believe that many orthopaedic residents are being trained to be skeletal cosmetologists rather than physicians. An unjustified and unreasonable obsession with perfect anatomical restoration recently has dominated the minds of many, particularly in the field of fracture care. Inconsequential abnormalities are considered to be indications for operative treatment because of the fear of undocumented undesirable sequelae.

Augusto Sarmiento (1998)

It is high time that surgeons in Africa stopped hankering after the uncritical introduction of advanced technology from the West. Many methods of treatment evolved here are not only better for poor nations but just better. In many instances they are more appropriate than high-tech, high-cost, high-risk treatment. Our trainee surgeons see and treat a very wide range of pathology. They may not be conversant with the latest ideas of bone fixation and biomechanics but become very good clinical surgeons able to restore function at minimal cost and risk. Of course we can learn from the West but we have much to teach them too.

Reference

Sarmiento A. Responding to change. *J Bone Joint Surg* 1998; 84-A:601- 603.

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