Surgical challenges in the rheumatoid patient - then and now

Bill Ledingham

Bill Ledingham is a Consultant Orthopaedic Surgeon based in Aberdeen since 1992. He trained in surgery in Glasgow, Edinburgh, Aberdeen and Bath. He worked as a Consultant in General Trauma and Orthopaedics with a special interest in Rheumatoid Surgery, retiring from NHS clinical practice in 2019. He continues to carry out lower limb surgery at Albyn Hospital, Aberdeen.

I have written before[1] on the diminishing, nay vanishing, need for rheumatoid surgery as a speciality. Nearly a decade later, everything I said is still true, only more so. I make no apologies for repeating myself.

The development of more effective disease-modifying drugs has radically reduced the erosive effects of synovial proliferation with consequent minimisation of destruction of joints and other tissues. I'm so long in the tooth now that I can even remember the use of gold injections.

I really didn't think in 1992, when I started as a consultant with an interest in rheumatoid surgery, that there would be such rapid progress in the medical treatment of such a devastating disease. More than 30 years later, nearing the end of my useful life as an orthopaedic surgeon, how things have changed.

Surgical treatment is simpler now because of that and the need for a single coordinator (the rheumatoid surgeon) involved with every aspect of any rheumatoid patient is far less.

During my tenure as a registrar in Aberdeen, where I had the privilege of working alongside two dedicated rheumatoid surgeons gaining significant experience in managing patients with rheumatoid conditions. Subsequently, I spent three years as a Senior Registrar in Bath learning the enormous benefits of a close association with rheumatologists which continued throughout my career. Combined clinics with my rheumatology colleagues were one of the high points of my timetable.

Over my consultant career I tried to make my rheumatoid clinic a place for seeing old friends and making new ones. I had inherited most of my patients from my predecessor and remembered many of them from my registrar days. Some were still with me when I retired. Many had multiple joint replacements, fusions and tendon repairs. They were always thankful for any small improvement that could be achieved. Strangely enough, revision joint surgery was infrequently required; hip and knee replacements seemed to last for a long time possibly due to the relative immobility of the patients. Hinged knee replacements were available but hadn't reached the sophistication and versatility of modern rotating hinge knees. Patients in the 1980s and 1990s would experience some of the following problems often many at the same time:

- Severe painful deformities of hands, wrists, feet and ankles.
- Destroyed valgus knee joints.
- Hips with vanishing femoral heads or protrusio acetabulae.
- Shoulders and elbows with gross damage and large effusions.
- Steroid induced osteoporosis.
- Rheumatoid nodules.
- Severe synovitis with intra-articular melon seed bodies.

Figure 1: 25 year-old PFC knee replacement which had become unstable.

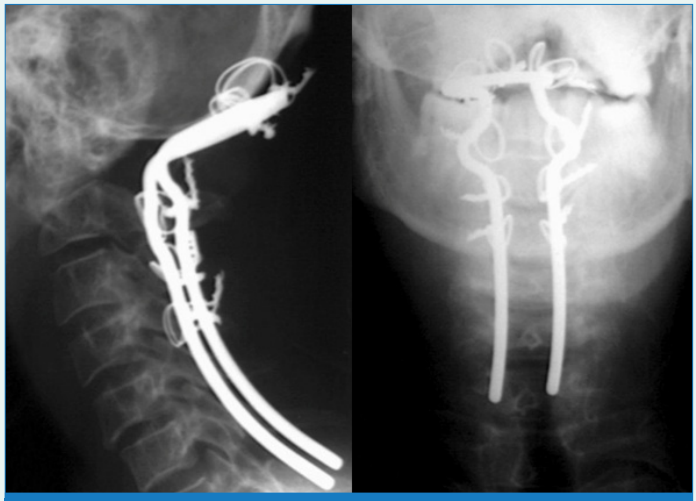

Figure 2: Ransford Loop. Designed by Andrew (Andy) Ransford 1940 – 2021.

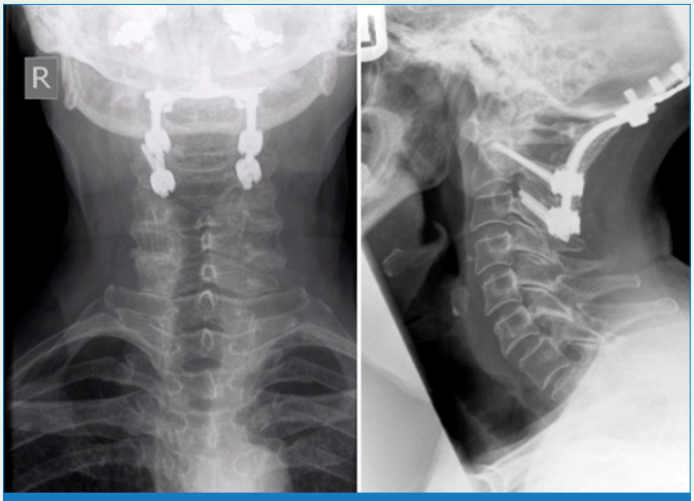

Figure 3: Occipito-cervical fusion.

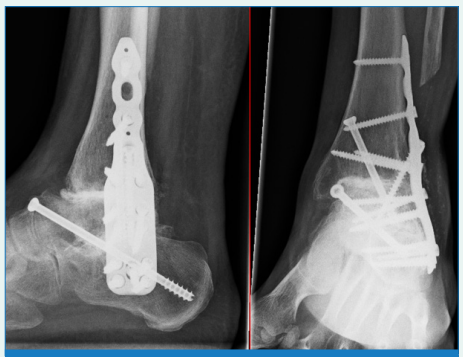

Figure 4: Pantalar fusion.

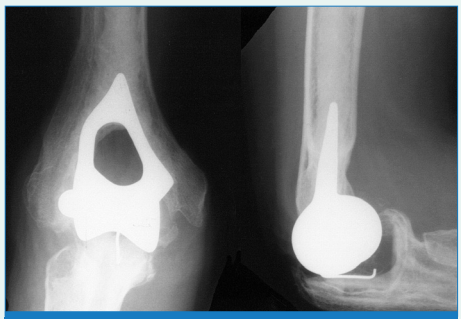

Figure 5: Souter Strathclyde unconstrained total elbow replacement.

- Osteoporotic spinal wedge fractures were common, usually stable, but necks could be very unstable with upper limb weakness and lower limb unsteadiness attributed to joint disease rather than myelopathy from cord compression.

Anaesthetic challenges included poor and fragile veins, need for awake intubations and concerns about neck stability. A lateral flexion/extension C spine X-ray was often requested before surgery. It was essential to have an anaesthetist familiar with the potential difficulties that could and would arise.

I remember the use of the Ransford loop in Bath, which was a reliable if extensive way to perform occipital-cervical fusion.

That technique has been largely superseded by other more targeted stabilisation methods and in any event neck instability is much rarer.

In days past, there were dedicated rheumatoid wards with inpatients being stabilised on medication, receiving inpatient physiotherapy, occupational therapy, wax baths, hydrotherapy and being fitted with orthoses. Patients were often medically much less well than those seen now. Many had multiple systems involved. Rheumatoid patients are now admitted, if required, to general medical beds and rheumatologists called in to give advice.

Most rheumatoid surgeons in those days used to treat all surgical aspects of their patients' disease. Most of the operations we did were very straightforward but effective. When meeting a new patient it was essential to carry out a procedure that was most likely to be a success such as hip replacement, carpal tunnel decompression or forefoot arthroplasty.

That built up a relationship based on trust and led to the belief that you would do your best to help wherever possible. In some instances if there were particularly difficult problems to deal with patients would be referred for specialist hand, shoulder or elbow advice. Neck stabilisation was always carried out by my spinal colleagues. The fact that the patients had been referred by 'their own surgeon' gave them confidence that they would be in good hands.

Hindfoot fusions were very effective as were ankle fusions. Early ankle replacements were much less successful than those used now.

Knee synovectomies either open or arthroscopic could buy time before the inevitable total knee replacement and were frequently performed. Dropped fingers due to synovial destruction of extensor tendons were very common and benefitted from repair. Hip replacements often required bone graft supplementation and the use of reinforcement rings. Now there is much greater use of trabecular metal augments.

In those days, it was difficult to match the developers results of the Soutar/Strathclyde elbow replacement, dependant as it was on intact and functioning ligaments, and I breathed a sigh of relief when prostheses such as the Coonrad Morrey sloppy hinge largely supplanted it. >>

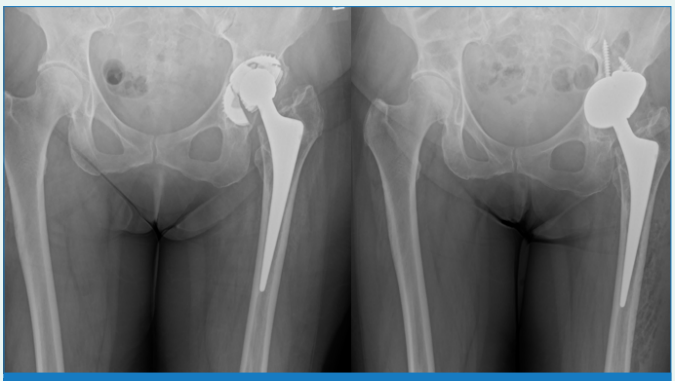

Figure 6: Failure of acetabular component of 28 year-old Spotorno hip replacement. Acetabulum revised by using a trabecular metal augment and implant.

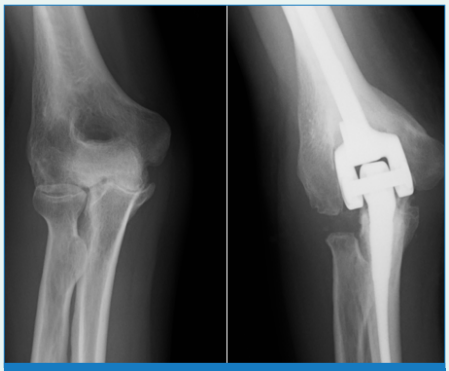

Figure 7: Rheumatoid elbow and Coonrad Morrey implant at seven years.

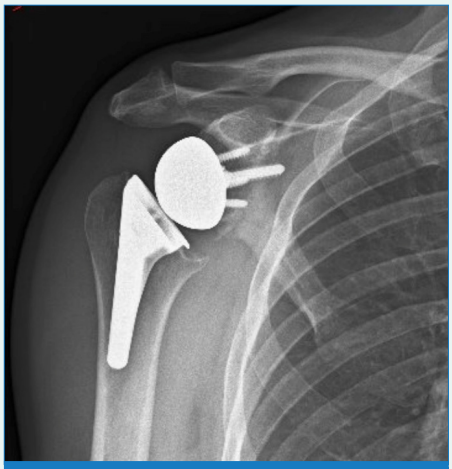

Figure 8: Reverse shoulder replacement.

Figure 9: The long finger metacarpal would have been more commonly used. Please note the anti-backout screw described by Quentin Cox[2].

Sometimes the very tiny bones of the patients who had juvenile RA had difficulty accommodating even the tiniest of implants. Shoulder replacements were marvellous at relieving pain, but disappointing at improving movement. In the 1980s and 1990s shoulder hemiarthroplasties were often thought to offer as good results in the RA patient as full replacements, but the deficient rotator cuffs often led to disappointing functional outcomes. Now, with the advent of the reverse shoulder, cuff deficiency can be overcome and remarkable results achieved.

When I think about the absolutely destroyed wrists we were presented with, often associated with deformed and completely eroded MP joints, it is little wonder that our goals were rather modest, with pain relief at the fore and improvement in function sometimes less achievable. A Steinmann pin through the long finger metacarpal introduced across the ravaged wrist joint and into the radius was sometimes all that could be achieved.

Locking wrist fusion plates with built in dorsal angulation made a vast difference although they required an open procedure. Swanson silastic wrist replacements were used historically, but often broke and had to be revised. Swanson knuckle replacements straightened digital deformities and relieved pain but didn't really improve function as much as we would have hoped. PIP joint arthrodesis were commonly carried out because soft tissue corrections for swan neck and boutonniere deformities were less successful too. Modern wrist replacements such as the Motec are far more successful than those previously used.

Nevertheless, the courageous patients were usually grateful and positive about whatever small improvement could be made. Forefoot arthroplasties were particularly pleasing, after excising the metatarsal heads and straightening the lesser toes, many would describe the post-operative improvement as 'walking on air'.

Bilateral procedures would be commonly performed. Severely bilateral valgus knee deformities needed to be corrected together whenever possible, as otherwise recovery was very difficult. The same logic would apply to severe ankylosing spondylitis patients with their bamboo spines, stiff flexed necks and diminished mouth opening.

The wonderful thing about rheumatoid patients is that they rarely complain. They are stoical, realistic about what to expect and sanguine in the event that things go wrong. Sadly, sometimes they succumb to complications of their illness or treatment. Every day must be a challenge which they meet with fortitude and good humour. Most manage to hold down demanding jobs. It has been a privilege to have known many of them and their families for decades and I have been very fortunate doing a job that I have loved for such a long time.

Acknowledgements

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References

1. Ledingham B. Current challenges in the surgery of Rheumatoid arthritis. BJJ News, Issue 10, 2016. Available at: https://issuu.com/boneandjoint/docs/bjj_news_issue_10.

2. Kumar K, Cox QG. Pin arthrodesis of the wrist--a modified technique. *J Hand Surg Br*. 2005;30(5):461-3.

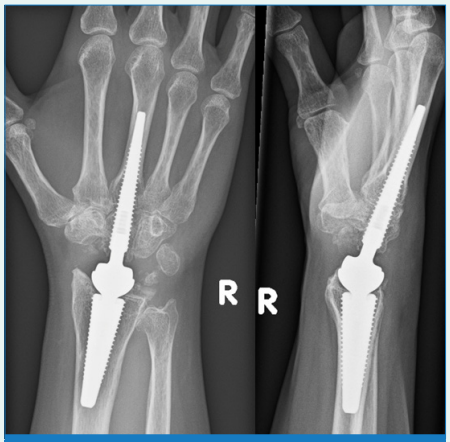

Figure 11: Motec wrist replacement.

Figure 10: Large irreparable cuff tear treated by reverse shoulder.

Figure 12: Classic rheumatoid forefoot. First metatarsal osteotomy and forefoot arthroplasty. The author may have been a little overenthusiastic in his fixation and the plates were removed after two years.