

# Collaborative ankle arthritis networks

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## Why do we need a network?

Patients with end stage ankle arthritis have physical and mental disabilities equivalent to end stage hip arthritis<sup>1</sup>. However the surgical solutions are more varied because the ankle is not an isolated joint. One of the challenges in our specialty is that it is not always clear whether a Total Ankle Replacement (TAR) or an Ankle Fusion (AF) would better serve the patient, especially in the long-term.

**T**his is reflected in the variation of AF and TAR's offered in the UK. In 2018 the National Joint Registry (NJR) showed an eight fold variation in TAR activity per head of population by region<sup>2</sup>. Multiple NJR reviews have identified significant outcome variability in TAR survivorship between cases performed by a developer, an expert or an infrequent surgeon. It is also concerning that the majority of units performing TAR were low volume (<5 TARs per year) raising questions about patient outcomes and costs. Currently the lack of a national registry for AF makes it difficult to comment on longer-term outcomes between the two treatments.

In 2015, the Get it Right First Time (GIRFT) Programme was established to challenge variation in clinical practice, to improve outcomes and subsequently provide cost savings. GIRFT has already changed the orthopaedic landscape having been instrumental in the establishment of regional networks for hip and knee arthroplasty and supporting the re-establishment of hot and cold orthopaedic sites. GIRFT is now being rolled out across other surgical specialities. Early in this re-organisation Nottingham was established as the centre of the revision hip and knee

network in the East Midlands. It has demonstrated the benefits of GIRFT<sup>3</sup>. The principles developed by GIRFT are powerful and can be modified for the treatment of ankle arthritis.

It is difficult to ignore the increasing evidence confirming the importance of unit volume on outcome and survivorship in arthroplasty, especially in revision arthroplasty<sup>4-7</sup>. It follows that concentrating revision TARs into centres, working in collaboration with surrounding hospitals ensures that a high quality service is maintained.

BOFAS has proposed that an ankle arthritis network should be collaborative, so that it can both support local units who wish to offer and perform TAR in sufficient numbers and to allow centralisation of revision TARs<sup>8</sup>. This would optimise the outcomes from revision TAR surgery, which involves a range of rapidly evolving techniques. The network would also connect centres that perform more complex ankle fusions requiring deformity correction. Collaborative networks aim to offer the patient the most appropriate treatment tailored to that patient's specific needs and when possible, perform this close to the patient's home and rehabilitation services.

## Our experience

The establishment of multidisciplinary meetings (MDT) can be challenging because job plans and timetables rarely align. This form of collaborative working is novel and not all colleagues share the same interest in complex cases. These challenges are compounded when multiple units are involved. However, the experience we gained by the adoption of remote working during the pandemic has been invaluable and the IT infrastructure that was developed to maintain clinical services over the last two years has been instrumental in supporting the MDT.

The East Midlands Ankle Network covers a large geographical area, supporting a catchment of approximately 4.5 million people, including multiple large district general hospitals and several university teaching hospitals. Each hospital maintains its own MDT and complex case practices. Once a month, a centralised

meeting is arranged, to allow discussion of cases that might be suitable for referral between units and to give an update on the outcomes of previous procedures. The meeting is designed for the discussion of ankle arthritis cases but also allows for the discussion of challenging cases due to other conditions, such as those that might benefit from microbiology, vascular or plastic surgery services.

**“The numbers of AF and TARs continue to increase each year in the UK and with an aging and yet active population, the rates are likely to rise. Both TAR and AF are effective methods of treating end stage ankle arthritis but each have complications, failures and long-term sequelae.”**

The regional meeting is hosted in Nottingham University NHS Trust and MS Teams is used to link the peripheral sites. Regular attenders are the North West Anglia NHS Foundation Trust and Sherwood Forest Hospitals NHS Foundation Trust, the other regional hospitals

dial in with urgent cases for discussion as required. Cases are submitted in advance, to streamline the time for presentation and to allow more time for discussion.

In our experience, there are certain requirements which maximises and facilitates an effective MDT.

1. The IT and AV infrastructure needs to be robust. Although numerous solutions exist, we have found MS Teams to be the most widely available and easily utilised.
2. A dedicated meeting room with an adequate camera and microphone is also essential.
3. We found that lunchtime meetings were the easiest to coordinate and minimised disruption of clinical activity.
4. Organisational and administrative support is important to prevent ad hoc meetings which can easily become unreliable and untenable.
5. Documentation is essential and a record of the discussion is kept in the patient records. >>



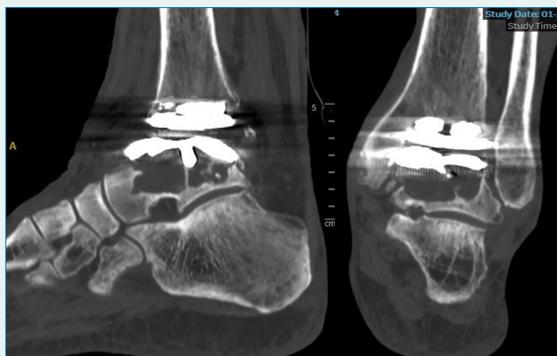


Figure 1: Pre-op CT scan of painful Left TAR with bone loss



Figure 2: After Revision to an Invision TAR



Figure 3: Left & Centre - Initial Radiographs; Right - MRI after Removal of Metalwork and Biopsy



Figure 4: Radiographs, 3 months after Second Stage Open Ankle Fusion with bone graft

Not all cases of ankle arthritis require discussion. The principle reasons for discussion in our network are:

1. Patient or clinician request.
2. Evidence of degenerative disease in any adjacent joint that might compromise a proposed ankle fusion.
3. Revision cases:
  - a) Painful ankle fusions.
  - b) Failed primary TAR.
  - c) Primary TAR with major bone loss.
4. Complex hindfoot deformity around an arthritic ankle.

### Illustrative cases discussed in the Collaborative Arthritis Network

#### Case 1: Failed ankle replacement

*Whether to revise to an ankle fusion or a revision ankle replacement?*

A 71 year-old retired office worker, who had a left total ankle replacement five years ago and had ongoing pain and swelling. The patient also had right-sided end stage ankle arthritis and was awaiting surgery. Clinical examination of the left ankle revealed minimal deformity, CT revealed large cysts in the talus and tibia.

The following questions and options were discussed.

- Would a revision to a fusion or an ankle replacement be best for the patient?
- Should surgery be staged to exclude infection?
- What type of revision ankle replacement system?
- If revision to fusion was the best option, is a nail or a plate most appropriate?
- Should the ankle be shortened, or use a femoral head allograft or 3D printed custom cage to prevent shortening?
- What about the impact on the right-side which was equally painful?
- What are the realistic expectations to advise the patient?

A decision was made to proceed with revision to an Invision TAR with bone grafting. Six months after the patient's surgery the outcome was reported to the network. The PROMS had shown significant improvement and the patient was walking independently with plans for a primary TAR on the right-side.

#### Case 2: Post-traumatic ankle arthritis

*What to do and where to do it?*

A 60 year-old lady presented to the local hospital, two years following an open ankle fracture due to a road traffic accident which had been treated with an initial ORIF at the regional MTC. There had been a rapid deterioration in the ankle joint with progressive avascular necrosis of the tibial plafond resulting in a failure of fixation.

Although this patient was never suitable for an ankle replacement, discussion in the MDT informed the initial treating institution of the complications following this complex case, and gave advice to the surgeons at the local hospital. She underwent removal of the metalwork with biopsy to exclude infection and then a secondary open ankle fusion with bone grafting. Receiving treatment closer to home had great benefits for the patient's rehabilitation.

#### The future

The numbers of AF and TARs continue to increase each year in the UK and with an aging and yet active population, the rates are likely to rise. Both TAR and AF are effective methods of treating end stage ankle arthritis but each have complications, failures and long-term sequelae.

Patients have an expectation that they will be given the best, most appropriate intervention. Low volume units are at risk of missing patients who might benefit from TAR and operating infrequently with inexperienced theatre teams, potentially leading to poor patient outcomes.

We believe that our patients, benefit from a collaborative network, because it allows for discussion of these complex cases. It drives forward best practice and allows us to audit our outcomes leading to improvements in patient care. Within the foot and ankle speciality we need to avoid excessive variation and be able to justify our practice in line with the GIRFT quality improvement metrics. It is hoped that the benefits of this will provide safer care, improved patient access, better outcomes and rationalisation of costs across the UK<sup>3</sup>. ■

#### References

References can be found online at: [www.boa.ac.uk/publications/JTO](http://www.boa.ac.uk/publications/JTO).