Thoracic outlet syndrome (TOS) is one of the most controversial conditions in vascular surgery. In its 3 forms it presents in different ways and to different groups of clinicians. It is management of the neurogenic form which remains the most controversial. The essential component of active intervention is decompression of the thoracic outlet. For understandable reasons, there are currently no randomised trials to guide us with management. In this issue Maru and colleagues describe a single centre series of cases in children and young adults. Based on their experience they argue for early diagnosis and consideration of operative intervention. Because TOS is a relatively rare condition few units will deal with large numbers of these patients. Maru and colleagues describe 12 patients under the age of 20 treated over a 14-year period presenting with all forms of TOS. The key message is that the rate of neurogenic TOS is less than in adults and that outcomes are better. However, only four of the patients had neurogenic TOS and any conclusions must be guarded. What is clear is that TOS can present in younger patients and that an aggressive approach to management may produce good results.

The anatomy of neurogenic TOS is complex and is probably best assessed by a combination of plain X-ray, MRI and duplex scanning. These will normally identify anomalies such as cervical ribs, abnormal 1st ribs and significant bands. It is tempting to believe that early onset TOS may be more often associated with anatomical abnormalities. However, TOS is still rare in patients with cervical ribs and many normal people have a positive Adson’s test. We believe that the diagnosis is still largely a clinical one as well as one of exclusion. In reality investigations are often of little help but are essential to exclude other conditions. Nerve conduction studies may also be helpful in this regard.

With no randomised data it is difficult to give clear guidelines as to management and we suspect large numbers of patients are still treated conservatively rather than interventinally in all forms of the TOS. There is certainly a need for a comparison of different modalities to evaluate the optimum management strategies but a clinical trial is unrealistic. At best it may be worthwhile establishing a TOS registry, which would record indications, outcomes and complications. Currently it seems reasonable to consider intervention in cases where the symptoms are typical and other diagnoses have been excluded especially if an anatomical cause is identified. Unfortunately these remain the minority of cases, which are seen in practice.

The difficulty with recommending more active treatment is the lack of certainty of diagnosis in many cases and clearly documented evidence of improvement after intervention. Overall there appears to be a benefit in most published series but many patents do not improve and some may worsen or develop complications. There is also a major risk of publication bias in this field, negative or poor outcomes will probably not be published. This has led to
a view by many surgeons that the patient needs "to earn their surgery", effectively reserving intervention as a last resort for many patients. Also it is unclear whether younger patients with TOS can improve as they grow and their anatomy changes making a more conservative approach appropriate.

Based on current knowledge, we would recommend that all patients are assessed and undergo treatment within the context of a multidisciplinary team experienced in TOS. It would also be very helpful if National or Society guidelines could be developed and relevant registries established. Currently it would be difficult to demonstrate to those funding healthcare the need for intervention based on the criteria most health services have adopted of effectiveness and cost-effectiveness.