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Advancement and acceleration in medico-legal practice:

what's it all about?

In 2013 we ran a session entitled, 'Pain, Percentages, Advancement/Acceleration and other nebulous concepts in medico-legal practice' at the BOA Annual Congress in Birmingham. The session was vastly oversubscribed with people sitting/standing in the aisles and over 50 attendees locked out by the fire safety officer. Speakers included a barrister, psychiatrist, pain specialist and an orthopaedic surgeon. The level of interest in this session emphasised the topicality of the issues under review. As I continue to read medical reports in personal injury claims where it is argued that such and such an injury has caused the onset of certain symptoms and disability to be advanced/accelerated by a certain period, I thought that it might be worth re-visiting the subject to consider its validity in these cases.

What do we mean by advancement or acceleration of symptoms? Effectively we are arguing that given the nature of the underlying condition (most commonly back pain), and our understanding of the epidemiology and pathophysiology of that condition, the injury or incident in question has brought forward what would invariably have happened in any event by a certain period of time. Clearly if a pedestrian is walking along the pavement and is struck by a car, it would be ridiculous to argue that this insult had brought forward the tibial fracture by a certain period. However, in a condition as common as back pain where most of the patients we see in clinical practice develop symptoms during the activities of daily living, rather than after a specific injury, it is frequently argued that such an injury or incident has triggered the onset of symptoms which would probably have come on at a later date in any event.

Why do we introduce the concept? The simple answer is that we are trying to help the legal profession (and ultimately the court) to quantify the damages payable to a claimant who has been injured in some way by a breach in the duty of care owed by the defendant. It is usually brought into the equation where the extreme positions of zero causation or total causation do not seem to be appropriate.

Does this proposition of advancement/acceleration of symptoms have any merit or scientific basis? What options does the orthopaedic expert have when giving a view on a back injury in the work place or after a motor vehicle accident? I believe that it is important to consider:

- The nature and magnitude of the trauma involved;
- The temporal relationship of the onset of symptoms to that trauma, bearing in mind that if there are other injuries there may be distracting pain;
- Corroboratory evidence of symptoms/injury from the GP, hospital, physiotherapy or chiropractic/osteopathic records;
- Past medical history of similar problems.

Armed with the above information, the orthopaedic expert can then consider the pathophysiology and epidemiology of the condition and decide that:

- The injury is causative of the ongoing symptoms and disability because the trauma was significant, there was an immediacy of symptoms corroborated in the medical records and the claimant had never had a history of similar problems in the past.
- The injury is irrelevant to the patient's ongoing symptoms because it was so trivial that it would probably not have caused a significant injury in its own right and the onset of symptoms at that time was purely coincidental.
- The accident, incident or work practice has caused a soft tissue injury, the effects of which were exhausted in a finite period of time (6 months, 12 months, etc).
- The injury has caused an aggravation/exacerbation of the symptoms because there is a strong past medical history and with that history it is likely that the claimant would have continued to suffer from the problem in any event, but it has been made worse for a number of weeks/months.
- The injury has brought forward what would have happened in any case because the condition occurs commonly as part and parcel of the constitutional degenerative change that occurs with ageing, and the trauma was not of such a degree that it would be expected, in its own right, to cause significant long-term problems.

The above positions do not take in to account psychological and pain magnification issues which may further complicate the situation and require expert opinion from specialists in those fields.

What do the legal profession want from us as expert orthopaedic surgeons? Eyre and Alexander (2015)[1] discuss the matter at some length in their guide to writing medico-legal reports in civil claims. Whilst they recognise that the use of the terms 'acceleration' and 'exacerbation' appear to be a way to humour lawyers, they also observe that, "the law also recognises the somewhat tenuous nature of the acceleration method for assessing future loss, but sees it as, in appropriate cases, a convenient and fair approach."

They outline the discussions that took place in the Smithurst v Sealant Construction Services Ltd case of 2011.[2] The claimant had suffered a disc prolapse after lifting heavy weights at work. The judge's preferred expert orthopaedic/spinal evidence indicated that given his history, the nature of the trauma and their understanding of the pathophysiology of disc prolapse that the claimant would have developed a similar disc prolapse by two years from the trauma in any event. The Court considered matters as follows: "The medical expert evidence supports the conclusion that the chances of Mr Smithurst suffering a very similar injury in the future existed as from the moment of the accident and rose progressively to near certainty by the end of two years. A detailed evaluation of the chances that Mr Smithurst would have suffered a similar injury at any given point in his working life might lead to a different award of damages but that does not mean that it is wrong to adopt the acceleration approach. The acceleration method would involve an element of swings and roundabouts, under which Mr Smithurst would recover damages calculated at the full rate over two years but nothing thereafter, rather than damages calculated at a rapidly diminishing rate over a longer period."

The point is made by Eyre and Alexander that acceleration is condoned by the courts as an unsophisticated and not unduly analytical approach to a common situation in injury claims. Therefore, because it has become enshrined in the medico-legal reporting vocabulary acceleration is now accepted by the courts but it still requires some explanation in the report so that the legal team are clear what the expert means.

If we use the term 'acceleration', we need to explain what we mean. The legal profession use the 'but for' test, that is they require a comparison of the likely situation that would have existed, *but for* the injury/incident compared to the situation as it is now and is likely to be in the future.

Is there any scientific validity to the use of advancement/acceleration of symptoms or injury? In truth, there probably isn't. Adams (2014)[3] gave some useful information on the nature of disc degeneration and disc prolapse, but believed that the concept of advancement/acceleration of disc degeneration and symptoms by an injury or work practice was "not quite compatible" with the process of disc degeneration that he proposed. He suggested that excessive mechanical loading did not influence the metabolic ageing process in the intervertebral disc but in fact diverted it from its normal ageing pathway to a separate 'degeneration' pathway involving structural disruption, distorted biomechanics and tissue metabolism. He further developed the theme when considering liability in medico-legal cases in the biomechanical context. The concept of trauma converting a disc from the normal ageing pathway to the degeneration pathway he believes is too simplistic to be used in establishment of causation in medico-legal claims because of the multifactorial nature of the processes of ageing and degeneration. He points out that even trivial mechanical loading can disrupt a very weak disc-the situation that we see all too frequently in clinical practice. Most patients with back pain +/- sciatica don't recall any specific injury or precipitating factor. The relative strength of the disc depends upon genetic factors and ageing. Therefore if discogenic pain or disc prolapse occurs with minor or zero trauma, the problem can be blamed on ageing and genetic inheritance.

However, if there is substantial mechanical strain then discogenic pain can be related with a greater degree of confidence to the mechanical provocation. Adams suggested that, "Liability should be apportioned according to the perceived relative importance of these predisposing and precipitating causes." He felt that the relative importance should be judged on a scale of 0 - 100% because "genetic susceptibility and age related weakening are both continuous variables so the affected disc cannot simply be judged normal or diseased."

Does Adams' position help in taking up a position on causation? There is no easy method of determining that 80% of the problem was down to the weakness/vulnerability in the disc and 20% due to the injury/work practice. The expert for the other side may equally argue the opposite. Eyre and Alexander outline the potential difficulties that the lawyers have with the use of percentages in the apportionment of blame for an injury. They make the point that, "While this could be said to address the issue of causation of injury, it wholly fails to address the difference the accident has made and therefore does not help the lawyers to establish a value for the claim." Therefore, whilst the biomechanical experts may favour percentage attribution the legal profession are not so keen on its use in that context.

So where does that leave us on the vexed and controversial question of advancement/acceleration of injury/damage/symptoms? If we return finally to Smithurst *vs* Sealant Construction Services Ltd, which went from the County Court to the England and Wales Court of Appeal before Sir Nicholas Wall, Lord Justice Rix and Lord Justice Moore-Bick . In this case the experts differed between total causation of disc prolapse to a maximum of two years' acceleration. The Court of Appeal judge's agreed unanimously after considering the expert evidence of the two orthopaedic surgeons that, "It is permissible nonetheless to adopt an acceleration approach in this case (indeed, I doubt whether it is practicable to do anything else). In my view the judge's findings fairly reflects the opinion of the expert witness whose evidence he preferred. In those circumstances I would dismiss the appeal".

Therefore it appears that the courts and legal profession give credence to the concept of advancement/acceleration in some cases. However, I believe that we still have to factor in the parameters described above balanced against our knowledge of the pathophysiology and epidemiology of the condition with which we are dealing. We need to give some justification for the position that we have taken. I don't think it's good enough to simply conjure a figure out of the air without some background discussion of why and how that position has been arrived at.

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