

'This series seems to offer some support for the relationship of heterotopic ossification to trauma, either by passive movements or by the use of Stryker frames and turning beds, since all three patients who had unilateral movements in the non-swollen leg developed ossification, whereas the swollen leg which was not manipulated remained free of ossification'.

I thought that this theory would be rapidly debunked as time passed but it was not and when I re-examined the problem in 1993<sup>3</sup> in relating it directly to the passive movements in the lower limbs. I wrote:

'The incidence of HO was determined in 91 consecutive patients with traumatic lesions of the spinal cord who had been admitted to the National Spinal Injuries Centre for management and rehabilitation. Clinical data were analyzed. Clinically apparent HO occurred only in 10 of 56 patients in whom the start of passive movements to their paralysed limbs was delayed until 7 days or more from the time of injury. The findings of this study are consistent with the view that HO occurs as a result of trauma induced by passive movements carried out on joints where contractures have started to develop'.

Snoecx *et al*'s paper provides the missing link in the argument. When patients are admitted directly to a Spinal Unit and commence passive movements immediately, no contractures occur, there is no trauma and no heterotopic bone formation.

When there is a delay in admission, contractures occur and when passive movements start there is trauma as the contractures are broken down and the muscles tear and new bone develops.

JR Silver, MB, BS, FRCP Ed and Lond  
Consultant in Spinal Injuries  
*The Chiltern Hospital*  
Great Missenden  
Bucks, HP16 0EN UK

#### References

- 1 Snoecx M *et al*. Muscle trauma and heterotopic ossification in SCI patients. *Paraplegia* 1995; **33**: 464–468.
- 2 Silver JR. Heterotopic ossification: a clinical study of its possible relationship to trauma. *Paraplegia* 1969; **7**: 220–230.
- 3 Daud *et al*. The relationship of heterotopic ossification to passive movements in paraplegic patients. *Disability & Rehabilitation* 1993; **15**: 114–118.

#### Reply from Dr Snoecx

I reply to Dr Silver's comments on our paper 'Association between Muscle Trauma and Heterotopic Ossification in Spinal Cord Injured Patients: Reflections on their Causal Relationship and the Diagnostic Value of Ultrasonography' (Snoecx M *et al*. *Paraplegia* 1995; **33**: 464–468).

According to Dr Silver it is not clear from our paper what we consider to be the causative factor in the muscle tears. In a first stage we indeed found sonographic evidence of psoas muscle tears, which progressed to heterotopic ossification. However, neither the nursing staff nor the physiotherapists reported an acute trauma in these patients. Their history also was negative for traumatic events.

The sonographic studies always disclosed discontinuity, a sonographic finding consistent with a transverse tear of the psoas muscle. This is indeed suggestive of a (micro) traumatic lesion, but the exact nature of the trauma cannot be established by this method, nor can it be determined from the history. The patients were at that time undergoing intensive rehabilitation including daily ROM exercises, standing, training in wheelchair use and transfer activities.

Dr M Snoecx, MD  
*Department of Physical Medicine and Rehabilitation*  
University Hospital  
De Pintelaan 9000 GENT 185  
Belgium