



Contralateral ulnar neuropathy following total hip replacement and intraoperative positioning

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Abstract Peripheral neuropathy is a rare but important complication of total hip arthroplasty (THA) and has previously been reported in the ipsilateral arm and associated with inflammatory arthritis.

The results of 7004 primary hip arthroplasties performed between January 1993 and February 2009 were retrospectively reviewed to identify patients who reported ulnar neuropathy symptoms, with ten patients identified at mean follow-up of 57 months (range = 3–195 months). Eight patients experienced unilateral ulnar nerve symptoms in the contralateral upper limb post-surgery, one patient experienced symptoms in the ipsilateral upper limb and one patient experienced symptoms in both upper limbs.

The incidence of post-THA ulnar neuropathy was 0.14%. All patients had a pre-operative diagnosis of osteoarthritis and none had diabetes, a previous history of neuropathy or inflammatory arthritis. All operations were primary arthroplasties and were performed under the care of a single surgeon in a single centre. Two of the ten patients (20%) had a general anaesthetic.

The pattern of symptoms reported, i.e. mainly unilateral affecting the contralateral side with variable resolution, contrasts with previous studies and suggests that intraoperative patient positioning may be an important factor influencing ulnar neuropathy following THA. Attention to support and positioning of the contralateral arm may help reduce the incidence of this complication.

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Editor comments

The prevention, recognition and management of actual and potential complications are a fundamental aspect of multidisciplinary orthopaedic and trauma care. The causes and risk factors are variable but are often related to the surgical event, tissue damage or immobility. In particular the surgical event itself poses more risk than many other aspects of care as is highlighted in this paper. Recognising those complications which are less common can be a significant challenge and it is important that members of the team who work in both perioperative and postoperative environments are aware of the pathophysiology, risk and symptoms as is highlighted in this paper.

JS-T

Introduction (and literature review)

Total hip arthroplasty (THA) is a well established surgical treatment for hip joint osteoarthritis. Common post-operative complications include dislocation, thromboembolism, infection and leg length discrepancy.

Peripheral neuropathy is a term for a group of conditions in which the peripheral nervous system is damaged. Peripheral neuropathy may be classified according to the number and distribution of nerves affected (e.g. mononeuropathy), the type of nerve cell predominantly affected (motor, sensory, autonomic) or the process affecting the nerves, e.g., compression (compression neuropathy). Ulnar neuropathy is characterised by numbness and tingling in the ring and little fingers and weakness of grip and may be due to compression of the ulnar nerve at the elbow during surgery (Winfree and Kline, 2005).

Peripheral neuropathy following THA is a rare but significant potential complication of surgery and has most often been reported on the ipsilateral lower limb associated with peroneal, sciatic, femoral and obturator nerve injury (DeHart and Riley, 1999; Farrell et al., 2005; Navarro et al., 1995; Schmalzried et al., 1991; Weale et al., 1996; Weber et al., 1976). There are fewer reports of upper limb neuropathy following THA surgery with an incidence of 6% (Lee and Espley, 2002), 0.22% (Posta et al., 1997) and 0.15% (Nercessian et al., 1994) reported previously. Postoperative neuropathies have not only clinical, but also medico-legal, implications (Brahams, 1984; Winfree and Kline, 2005). Although they account for a small proportion of medicolegal claims, they are difficult to defend, being essentially avoidable. Avoidance involves awareness of the problems associated with operative positions and careful positioning of the patient with appropriate padding. This should form part of standard anaesthetic care. Peri-operative nerve lesions can detract from a successful surgical procedure, leave a patient with a severe functional disability and the medical team facing possible protracted and unpleasant litigation.

The true incidence of peri-operative nerve damage remains unclear and, as a complication, it is probably under-reported. The presenting neurological symptoms may appear minor in nature to the attending surgeon, when compared with the arthritic hip that led to the initial surgical procedure. There is a belief that the lesion will be self-limiting with a full and spontaneous recovery, but this is often not the case. It is our impression that the incidence of these lesions is sufficient to warrant further study into their causation and prevention.

Patients' complaints (Table 1) of post-operative neuropathy can often be dismissed and some patients may be unaware of any peripheral neuropathy for some time following surgery due to powerful analgesia, residual anaesthesia and incisional pain (Winfree and Kline, 2005). Factors associated with peripheral neuropathies following THA include revision surgery, surgeon inexperience (Nercessian et al., 1994) and inflammatory arthritis (Posta et al., 1997).

This study was prompted in part by the development of persistent ulnar neuropathy symptoms in four patients since 2007. To the authors' knowledge there has been no previous study that reports ulnar neuropathy following THA in a single surgeon series.

Patients and methods

The clinical notes and database records (from the Belfast Orthopaedic Information System – BOIS) of 7004 primary hip arthroplasties carried out under the care of the senior author (DEB) between January 1993 and February 2009 were retrospectively reviewed to identify patients who reported ulnar neuropathy symptoms. This was a retrospective review of prospectively collected data. The data were being collected and entered on an outcomes database by Arthroplasty Care Practitioners. Some patients were contacted by telephone to assess their present status.

Arthroplasty Care Practitioners who were not members of the surgical team conducted the clinical reviews (collecting outcome scores, e.g. Oxford

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