

## CO43-002-e

**Effectiveness and complications of percutaneous needle tenotomy with a large gauge needle for muscle contractures: A cadaver study**

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**Objectives** Twenty-two percent of institutionalised elderly persons have muscle contractures. Contractures have important functional consequences, rendering hygiene and positioning in bed or in a chair difficult. Medical treatment (such as botulinum toxin injections, physiotherapy or positioning) is not very effective and surgery may be required. Surgery is carried out in the operating theatre, under local or general anaesthesia but is often not possible in fragile patients. Micro-invasive tenotomy could be a useful alternative as it can be carried out in ambulatory care, under local anaesthesia. To evaluate the effectiveness of percutaneous needle tenotomy and the risks of damage to adjacent structures in cadavers. **Methods** Thirty-two doctors who had never practiced the technique (physical medicine and rehabilitation specialists, geriatricians and orthopaedic surgeons) carried out 401 tenotomies on the upper and lower limbs of 8 fresh cadavers. A 16G needle was used percutaneously following location of the tendons. After each tenotomy, a neuro-orthopaedic surgeon and an anatomist dissected the area in order to evaluate the success of the tenotomy and any adjacent lesions which had occurred.

**Results** Of the 401 tenotomies, 72% were complete, 24.9% partial and 2.7% failed. Eight adjacent lesions occurred (2%): 4 (1%) in tendons or muscles, 3 (0.7%) in nerves and 1 (0.2%) in a vessel.

**Discussion** Percutaneous needle tenotomy is an effective, low risk technique. Although this study was carried out on cadavers, the results suggest that it is safe to carry out on patients.

**Keywords** Contractures; Tenotomy; Needle; Cadaver

**Disclosure of interest** The authors have not supplied their declaration of conflict of interest.

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## CO43-003-e

**Tibialis posterior transfer in central palsy of foot levators: A propos of 17 cases**

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Tibialis posterior transfer in central palsy of foot levators: a propos of 17 cases.

**Aim** To evaluate, in spastic patients with a lack of tibialis anterior spontaneous contraction, the efficiency of the tibialis posterior transfer and the occurrence of adverse effects on the static foot posture.

**Patients and methods** Seventeen patients were evaluated retrospectively, on average 69 months after intervention (9–108). Mean age was 47 years (26–61). Seven patients presented stroke, 4 cranial trauma, 3 medullar trauma, 3 patients suffered respectively from cerebral palsy, cerebral tumor and cervical myelopathy. The tibialis posterior was transferred on the tibialis anterior in 9 cases, on the peroneus brevis in 5 cases, on the calcaneocuboid capsule once and on both tibialis anterior and calcaneocuboid capsule once. Three isolated talo-navicular arthrodesis and one triple arthrodesis were associated.

**Results** We found the need of orthosis decreased ( $P = 0,021$ ), 9 patients no longer needed their orthosis. The walking distance was significantly increased ( $P = 0,031$ ) in 9 patients. The average satisfaction score was 2.71/4 (0–4).

On average, the maximum active dorsiflexion reached the neutral position ( $-20$  to  $20$ ) with knee extended and  $6^\circ$  ( $-10$ – $20$ ) with knee flexed; the arc of movement averaged  $9^\circ$  (0–40) knee extended and  $16,2^\circ$  (0–40) knee flexed during analytic testing and  $2,8^\circ$  (0–10) when walking. Only half of the patients presented a tenodesis effect when walking. Dorsiflexion strength averaged 1,5 (0–5). Six patients had a normal plantar footprint, 8 a cavus foot and 2 a flatfoot, without any worsening compared to preoperative status. The Djjan angle averaged  $119,5^\circ$  (105–138) and the hindfoot alignment angle was  $7,7^\circ$  valgus. There was no significant difference with the non-operated foot.

**Discussion** The tibialis posterior transfer is effective in foot-drop in half of the patients, with a tenodesis effect that is not systematic in spastic patients. A flat valgus foot does not appear to be a long-term complication of this procedure.

**Keywords** Tibialis posterior transfer; Spasticity

**Disclosure of interest** The authors have not supplied their declaration of conflict of interest.

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## CO43-004-e

**Percutaneous needle tenotomy: Technique and first results**

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**Introduction** after central nervous system injuries or dementia, loss of muscle elasticity is common. This can major the difficulties for installation (to bed or chair) or for the nursing of severely disabled patients. To take no anesthetic and surgical risk in frail patients we have developed a technique of percutaneous muscle lengthening with a large Gauge needle.

**Method** Retrospective study of the years 2012 to 2014.

Percutaneous tenotomy under local anesthetic was performed with a 16G needle (1.6 × 40 mm). Tendon locating was performed by palpating the subcutaneous rope. Tenotomy was done 3 to 5 cm upstream of their distal insertions, the insertion depth of the needle did not exceed 1 cm. The tolerance of the procedure was assessed by visual analog scale (VAS) when it was possible for the patient. The functional purpose, valued at three months by the GAS (goal attainment scaling), denoted by  $-2$  (much worse) to 2 (exceeded target) was determined with the patient and his family. **Statistics** Comparison of T-scores of GAS without weighting of objectives ( $P = 0.3$ ), Wilcoxon test.

**Results** One hundred and thirty-six tenotomies (21% of the toes, 27% of knee, 13% of hip, 28% of the fingers, other 21%) were performed to treat 67 patients. The mean age was 71 years, 31% of patients had a history of stroke and 26% dementia. Seventy-four main objectives were determined (mostly nursing objectives) and 20 patients had at least a secondary objective. The pain could be evaluated for 43 patients, EVA average was 1.61 (min = 0 max = 8).