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Surgical treatment for neurological heterotopic ossification (NHO): Surgical principles and specific aspects of certain locations

P. Denormandie a,*, B. Combourieu a, A. Schnitzler a, E. Pansard b, F. Genet a
a CHU-Hôpital Raymond-Poincaré, 104, boulevard Raymond-Poincaré, 92380 Garches, France
b CHU de Lille, Lille, France
*Corresponding author.
E-mail address: philippe.denormandie@rpc.aphp.fr.

Keywords: Neurological heterotopic ossification; Surgery

Introduction. The only curative treatment for troublesome heterotopic ossification is surgery. We propose to identify the surgical principles, the specific aspects and notably risks of certain locations.

Materials et methods. The analysis of our database of 639 surgeries for NHO excision permits to precise and plan the surgical steps predetermined by the iconography, notably CT Scan (3D and assessment of the bone density). We use to follow five steps: – to display the basis of implementation; – to identify the joint capsule to control the epiphysis; – to control and release the vascular bundle and/or nerve bundle; – to perform an only functional excision; – to ensure a rigorous haemostasis.

Results. The preoperative planning was confirmed intraoperatively in all cases. Circumferential NHOs presented the most frequent exposure difficulties (two surgical approaches in one third of cases) with the hip anteromedial location. This respect of the capsular limits avoided perioperative fractures. The lateral ligaments were respected in all cases for the elbow and the knee (one elbow remained instable postoperatively). The cause of the limitation being extra articular, none arthrolysis were performed. In 30 cases, huge epiphysis lesions entailed a joint action: total arthroplasty, epiphysis resection. In all these cases, it concerned former (>33 months) and NHO with ankylosis. Sepsis was the main side effect (6.4%) and mainly for hip location (9.3% among 12.7% on anterior location), elbow (2.7%) and the knee (1.0%). Finally the higher sepsis rate was for paraplegic patients with an anterior hip NHO (19.0%). Multisite locations are frequent: 27% of patients had two locations and 5% three locations. For these cases, a multidisciplinary approach was necessary to assess the haemorrhagic risk, the rehabilitation constraints and the objectives for the patient.

Conclusions. Surgical excision of NHO improves the global function but enforce to a rigorous preparation: planning, side effects prevention (mainly sepsis) and a good experience of the medico-surgical teams.

References

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Neurological heterotopic ossification (NHO): Impact of the time for surgery

F. Genet a,*, A. Schnitzler, C. Jourdan, P. Denormandie
CHU-Hôpital Raymond-Poincaré, 104, boulevard Raymond-Poincaré, 92380 Garches, France
*Corresponding author.
E-mail address: francois.genet@rpc.aphp.fr.

Keywords: Heterotopic ossification; Recurrence; Time for surgery

Introduction. It is widely believed that the extent of the neurological aftermaths, the timing for surgery and the extent of the initial HO have an impact on NHO recurrence risk.

Materials and methods. Since 1993, we have been maintaining a database of patients who had surgery for troublesome HO after CNS lesions, named “BANKHO” [1]. It contained in 2009 data on 357 patients, including 539 first-time interventions for HO. We carried out epidemiological studies using this database in order to address the above questions.

Results. The impact of the operative delay: there were no recurrences of HO among the 181 surgical interventions which were performed during the first year after the CNS damage [1]. For those who underwent recurrenec, it was not associated with etiology, sex, age at time of CNS lesion, multisite HO, or “early” surgery (before 6 months). Moreover, a too long delay before excision leads to a negative cascade of events: risk of ankylosis, intra-articular lesions, bone loss in the femoral head and increase risk of fracture during or after surgery [2].

The impact of the extent of the neurological aftermaths and the size of the HO: case control studies with data from “BANKO” database were carried out. No association was found between recurrence and the neurological aftermaths neither between recurrence and the location around the joint or the Brooker status.

Discussion. We suggest that surgical excision of HO should be carried out as soon as comorbid factors are under control and the HO is sufficiently constituted for excision. Delayed surgery, allowing ankylosis to occur, increases the risk of fracture during or after surgery.

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New microsurgical nerve transfers in brachial plexus surgery

J.-N. Gouhier a,*, F. Teboul
Institut de chirurgie du plexus brachial, 92, boulevard de Courcelles, 75017 Paris, France
*Corresponding author.
E-mail address: jngouhier@gmail.com.

Keywords: Brachial plexus; Microsurgery; Nerve transfers

In patients with partial brachial plexus palsies, daily function is greatly limited. The goal of our study is to present the new microsurgical nerve transfers, in order to improve the quality of life of these patients.

Materials and methods. Twenty patients, 19 men and one woman, have been followed-up. In 95%, the brachial plexus palsy was secondary to a motorcycle accident. All patients have a partial palsy of brachial plexus with no shoulder elevation and elbow flexion. Five patients have no elbow extension, fingers and wrist extension. All patients have been operated with a double surgical team in a specialized institute. Seventeen patients have been operated before 6 months and three after 6 months. All patients have undergone two to four nerve transfers in order to recover shoulder elevation, elbow flexion and extension if necessary.

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