Stereotactic mesencephalotomy

Stereotactic mesencephalotomy is an ablative procedure which lesions the pain pathways (spinothalamic tract and trigeminothalamic tracts) at the midbrain level to treat medically refractory, nociceptive, contralateral pain. Sparsely reported in contemporary English language literature, this operation is at risk of being lost from the modern-day neurosurgical practice.

Case series

1992

Rostral mesencephalic reticulotomy (RMR) for pain relief was performed in 34 patients with intractable pain. Most of these patients have been followed for a long period of time postoperatively, the longest follow-up period being 11 years. Contrary to the commonly prevailed bias in the past that mesencephalotomy may be a surgical intervention with potential risk, these patients of RMR have continued to substantial improvement postoperatively in terms of their preoperative intractable painful dysesthesia after a long period of time. The results of pain relief for denervation pain as well as for nondenervation pain are surprisingly good even after unilateral procedures. There was no operative mortality. Postoperative disturbance of ocular motility has been reduced. RMR has its scientific basis in that the medial part of the reticular formation rather than the classical lateral spinothalamic tract has more significance in the central conduction of nociceptive impulses through the midbrain level, which was verified by intraoperative neuronal recording with a tungsten microelectrode. The present report emphasizes that stereotactic mesencephalotomy, if performed meticulously and precisely, is a safe surgical procedure for pain relief. Results of MRI and sensory manifestations of a patient 11 years after RMR are also presented [1)]

Case reports

2016

Ivanishvili et al. present a case report and brief review of the literature on stereotactic mesencephalotomy. A 17-year-old girl with cervical cord glioblastoma and medically refractory unilateral head and neck pain was treated with contralateral stereotactic mesencephalotomy. The lesion was placed at the level of the inferior colliculus, half way between the lateral edge of the aqueduct and lateral border of the midbrain. Results The patient had no head and neck pain immediately after the procedure and remained pain-free for the remainder of her life (five months). She was weaned off her pre-operative narcotics and was able to leave hospital, meeting her palliative care goals. Conclusions Cancer-related unilateral head and neck nociceptive pain in the palliative care setting can be successfully treated with stereotactic mesencephalotomy.

They believe that stereotactic mesencephalotomy is the treatment of choice for a small number of patients typified by this case. The authors make a plea to the palliative care and neurosurgical communities to rediscover this operation [2)]

1)
Amano K, Kawamura H, Tanikawa T, Kawabatake H, Iseki H, Taira T. Stereotactic mesencephalotomy

for pain relief. A plea for stereotactic surgery. Stereotact Funct Neurosurg. 1992;59(1-4):25-32. PubMed PMID: 1295043.

2)

Ivanishvili Z, Pujara S, Honey CM, Chang S, Honey CR. Stereotactic mesencephalotomy for palliative care pain control: A case report, literature review and plea to rediscover this operation. Br J Neurosurg. 2016 Jan 13:1-4. [Epub ahead of print] PubMed PMID: 26760110.