Double concentric craniotomy

2015

Many tumors can involve the skull. Meningiomas are one of the most common intracranial neoplasms and invasion of the bone was described in 49% of cases. Other neoplastic lesions that can arise in bone, or involve it, are metastases, hemangiomas, aggressive cutis carcinomas and sarcomas. Radical excision is the golden standard of treatment but elevating a bone flap when the tumor involves both the skull and the dura could represent a technical challenge. PRESENTATION OF CASE:

We report the technical details of our approach to remove a meningioma involving both skull and dura in a man aged 45. Patient underwent gross total excision and cranioplasty with PEEK custom made prothesis (Synthes™). DISCUSSION:

We describe a double concentric craniotomy (DCC) technique where the tumor involving the bone is before left in situ, exposing normal dura, to perform afterwards en-bloc excision with minimal traction of brain surface. CONCLUSION:

DCC is a safe and effective technique to remove tumor involving both skull and dural structures under direct vision [1].

2010

Craniocerebral penetrating injuries from nail-gun accidents are rare and usually are discovered immediately after the trauma. Several surgical procedures have been described to extract a foreign body that is infixed in the skull and has penetrated the surrounding structures; blind extraction, craniectomy, and craniotomy. CASE DESCRIPTION:

We report the case of a 25-year-old ex-carpenter who presented with jacksonian seizure at the left limb. Plain radiography of the skull revealed the unexpected presence of a nail hammered in the right parietal bone, penetrating the underlying structures of the frontoparietal area up to a depth of 3 cm. The patient was operated on; a small craniotomy (1 x 1 cm) just around the head of the nail, and a concentric larger frontoparietal bone flap, involving the first craniotomy, were performed. The larger bone flap was elevated first, whereas the small bone flap with the nail infixed was carefully elevated along the axis of the nail, under direct vision of the nail tract. CONCLUSIONS:

Double concentric craniotomy is the only technique that permits the removal of a foreign body that has penetrated both the skull and the brain, under direct vision, without transmitting any undue forces to the underlying structures. With this technique, control of bleeding can also be easily achieved [2].

1)
Fornaro R, Altieri R, Garbossa D, Zenga F, Tartara F, Ducati A. Double concentric craniotomy: Safe and effective technique to achieve an en bloc resection of tumor involving both skull and duraa. Int J Surg Case Rep. 2015 May 14;12:117-119. doi: 10.1016/j.ijscr.2015.05.017. [Epub ahead of print] PubMed PMID: 26057993.
2)
Spennato P, Bocchetti A, Mirone G, Savarese L, Squillante D, Rotondo M, Natale M. Double concentric craniotomy for a craniocerebral penetrating nail. Case report and technical note. Surg Neurol. 2005

Oct;64(4):368-71; discussion 371. PubMed PMID: 16231428.