Hemicraniectomy complications

Although decompressive hemicraniectomy with dural expansion and bone flap removal is a potentially life-saving procedure, concerns remain regarding the morbidity associated with this approach. Sughrue et al. noted the high rate of wound complications resulting from this technique, often associated with cerebrospinal fluid (CSF) absorption problems. They present the experience with an improved technique for wound closure after unilateral decompressive hemicraniectomy with a wide cruciate durotomy. Data for all patients who underwent a decompressive hemicraniectomy at our institution from October 2005 to October 2009 were gathered prospectively. Starting in mid-2008, we adopted an alternate approach to operative wound closure, which involved skin closure with a running Monocryl absorbable stitch, and prolonged subgaleal drainage. We compared the rates of wound complication using this approach with those obtained with earlier conventional closure techniques. Over a 1year period, we dramatically reduced the rate of wound complications in patients undergoing hemicraniectomy at our hospital using this new (Monocryl technique, 0% (n=29) compared to other techniques, 35% (n=98), chi-squared [$\chi(2)$] $p<0.001$). Patients closed using our new technique experienced markedly reduced rates of wound infection ($p<0.01$), and CSF leak ($p<0.05$), compared to other, more standard, techniques. Thus, attention to the closure of hemicraniectomy wounds can markedly reduce the rate of wound complications, thus improving the risk-to-benefit ratio of this procedure [1].

Hemicraniectomy with a diameter of ≤10 cm, especially in combination with sharp trepanation edges, has been associated with an increased incidence of shearing injury to the herniated brain [2].

see Hydrocephalus after decompressive craniectomy.

1)
Sughrue ME, Bloch OG, Manley GT, Stiver SI. Marked reduction in wound complication rates following decompressive hemicraniectomy with an improved operative closure technique. J Clin Neurosci. 2011 Sep;18(9):1201-5. doi: 10.1016/j.jocn.2011.01.016. Epub 2011 Jul 12. PMID: 21752652.
2)
Wagner S, Schnippering H, Aschoff A, Koziol JA, Schwab S, Steiner T. Suboptimum hemicraniectomy as a cause of additional cerebral lesions in patients with malignant infarction of the middle cerebral artery. J Neurosurg.2001;94:693–696