Kempe incision



The Ludwig Kempe hemispherectomy incision (Kempe) entails a T-shaped incision, one limb from the midline behind the hairline to the inion and the other limb from the root of the zygoma to the coronal suture. The authors' objective in this study was to define their implementation of the Kempe incision for DC and craniotomy, report clinical outcomes, and quantify the volume of bone removed compared with the reverse question mark incision.

Ragel et al. recommend the L.G. Kempe incision for blood supply preservation, large craniectomies to prevent brain strangulation over bone edges, minimal brain debridement, adequate brainstem decompression, and dural onlay substitutes for dural closure ¹⁾.

A retrospective review of a single-surgeon experience with DC in TBI and stroke was performed. Patient demographics, imaging, and outcomes were collected for all DCs from 2015 to 2020, and the incisions were categorized as either Kempe or RQM. Preoperative and postoperative CT scans were obtained and processed using a combination of automatic segmentation (in Python and SimpleITK) with manual cleanup and further subselection in ITK-SNAP. The volume of bone removed was quantified, and the primary outcome was percentage of hemicranium removed. Postoperative surgical wound infections, estimated blood loss (EBL), and length of surgery were compared between the two groups as secondary outcomes. Cranioplasty data were collected.

Results: One hundred thirty-six patients were included in the analysis; there were 57 patients in the craniotomy group (44 patients with RQM incisions and 13 with Kempe incisions) and 79 in the craniectomy group (41 patients with RQM incisions and 38 Kempe incisions). The mean follow-up for the entire cohort was 251 ± 368 days. There was a difference in the amount of decompression between approaches in multivariate modeling ($39\% \pm 11\%$ of the hemicranium was removed via the Kempe incision vs $34\% \pm 10\%$ via the RQM incision, p = 0.047), although this did not achieve significance in multivariate modeling. Wound infection rates, EBL, and length of surgery were comparable between the two incision types. No wound infections in either cohort were due to wound dehiscence. Cranioplasty outcomes were comparable between the two incision types.

Conclusions: The Kempe incision for craniectomy or craniotomy is a safe, feasible, and effective alternative to the RQM. The authors advocate the Kempe incision in cases in which contralateral operative pathology or subsequent craniofacial/skull base repair is anticipated ².

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