Surgical site infection in cranioplasty

Cranioplasty (CP) is a routine procedure, but it carries a significantly higher complication rate over a standard clean cranial surgery. Surgical site infection (SSI) is the most common but severe complication. The risk factor of SSI is still under wide discussion.

A retrospective survey was conducted on the 155 cases of patients (≥16 years old) exclusively underwent customized titanium cranioplasty in the Department of Neurosurgery, Zhongshan city people's hospital, Zhongshan, Guangdong, China. from April 2014 to January 2017. Preoperative clinical parameters, surgeons' hemostasis technique, temporalis dissection, operative time and, intraoperative blood loss, postoperative catheter duration and drainage, postoperative hemorrhage and extradural fluid collection (EDC), and prophylactic antibiotics were recorded and compared between superficial SSI (sSSI) and non-sSSI groups.

The overall sSSI rate was 10.3%. Binary logistic analysis showed excessive hemostasis on scalp (OR=10.302, P=0.000), the presence of postoperative EDC (OR=12.740, P=0.003) and postoperative drainage >277ml (OR=10.302, P=0.000) were independent risk factors for sSSI. Patients received excessive hemostasis had a longer operation time (P=0.000). A flaccid cranial defect was a protective factor for postoperative EDC (OR=0.130, P=0.044), while presence of ventriculoperitoneal shunt could induce EDC formation (OR=9.598, P=0.020). Postoperative subgaleal drainage was correlated to the size of cranial defect (standardized β=0.347, P=0.000). The timing of cranioplasty and use of prophylactic antibiotics were not related to sSSI.

Wen-Jian et al. recommended that surgeons should lower the hemostasis standard for CP. It would promote wound healing and reduce operation time, which subsequently decreases SSI rate [1].

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Wen-Jian Z, Liang-Ming L, Zi-Hui H, Wei L, Qi-Chang L, Yong-Hua Z, Shao-Hua L. Excessive hemostasis on scalp increases superficial surgical site infection rate in cranioplasty. World Neurosurg. 2018 Aug 30. pii: S1878-8750(18)31955-7. doi: 10.1016/j.wneu.2018.08.172. [Epub ahead of print] PubMed PMID: 30172977.