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Autologous Bone Flap infection Following Craniectomy : Clinical Experience in a Referral Center

L. Adélaïde,1, 2 F. Valour,1, 2, 3 F. Signorelli,1 T. Jacquessons,1 F. Vandesch,1, 2, 3 F. Ader,1, 2, 3 J. Guyotat, E. Jouanneau, C. Chidiac,1, 2, 3 T. Ferry,1, 2, 3 Lyon BJStudy group

1 Hospices Civils de Lyon; 2 UniversitéClaude Bernard Lyon1; 3 Centre International de Recherche en Infectiologie, CIRI, Inserm U1111, CNRS UMR5308, ENS de Lyon, UCBL1, Lyon, France

Background

The autologous bone flap infection following craniectomy is a serious postoperative bone and joint infection (BJI). Very few data are available concerning its epidemiology and management.

Methods

Prospective study in a referral center including patients with autologous bone flap infection following craniectomy between 2007-2014. The acute infection was defined when the diagnosis of the infection occurred within 3 months following the reftitig of the bone flap. Otherwise, the infection was considered chronic. The data collected were analysed in order to determine a specific profile for each of those category (acute or chronic) and for the main bacteria found.

Clinical signs are rare. Most of patients (30 [59%]) had a fistula as only clinical sign of bone flap infection (figure 2). 14 patients (27%) had empyema at preoperative imaging, whereas only 1 had fever.

Bone flaps were mainly located in frontal or fronto-temporal (33 [64%]) areas, and 19 of them (37%) were >10 cm.

The mean time between the bone flap reftitig and the diagnosis of infection was 2.9 years (1.1-4.6).

The main bacteria found were S. aureus (21 [41%]) and P. acnes (19 [37%]). A polymicrobial infection was found in 22 patients (43%). S. aureus was found in 71% of acute infection, whereas P. acnes was found in 40% of chronic infection.

A transient postoperative discharge was reported in 16 patients (31%) during the month following the reftitig of the bone flap and was more frequently observed in patients with bone flap infection due to S. aureus (15/16 [93%]), in comparison with P. acnes (6/16 [37%]; p=0.012).

The management of bone flap infection mainly required a 2-stage approach: bone flap removal with prolonged antimicrobial therapy (41 patients [80%], followed by reconstruction with ceramic custom-made implant. In patients with such implant, no relapse was observed during the follow-up).

Conclusions

Autologous bone flap infection is a severe delayed BJI that requires a specific treatment strategy in referral centers: bone flap removal, prolonged antimicrobial therapy targeting the involved pathogens, and reconstruction with ceramic custom-made implant (figure 2).

Lyon BJ study group


Contact: tristan.ferry@univ-lyon1.fr