**Figure Legends**

Online suppli. fig. 1. A representative case of cerebral hyperperfusion syndrome (CHS). The patient presented with dysarthria and sensory disturbance of the right upper limb 2–9 days postoperatively.

A, Photos of the brain surface before and after anastomosis (red arrows indicate the donor artery).

B, Oxygen saturation maps of the brain surface before and after anastomosis. The saturation value of the brain surface increased from 41.9% to 55.4% after anastomosis.

C, 123I-IMP SPECT images before surgery and at the day of onset of CHS. Focal increase of cerebral blood flow is seen at the lesion site (arrow).

A, anterior; P, posterior; R, right; L, left; 123I-IMP SPECT, 123I-iofetamine single-photon emission computed tomography

Online suppli. fig. 2. The receiver operating characteristic curve of the increase rate of oxygen saturation (SO2). If the increase rate of SO2 is >15%, cerebral hyperperfusion syndrome (CHS) likely occurs (sensitivity, 85.0%; specificity, 81.3%; area under curve [AUC], 0.871).