Fatal Cerebral Air Embolism in a Renal Transplant Recipient

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Dear Sir,

Paradoxical air embolism (PAE) is an uncommon but fatal complication which may occur in patients at risk for venous air embolism. Cerebral air embolism may occur if air passes through a patent foramen ovale or pulmonary vascular bed by unknown means [1,2]. Although central venous catheterization is an essential procedure for monitoring central venous pressure and fluid infusion in renal transplantation, it may cause fatal cerebral embolism. We report fatal cerebral air embolism in a 29-year-old renal transplant recipient with subclavian venous catheterization.

The patient received the graft from his mother. Preoperative routine studies including echocardiography were unremarkable. A central venous catheter was placed in the right subclavian vein for operation. After renal transplantation, his clinical course was uneventful. On the 13th hospital day, he suddenly fainted. Brain CT at the time showed hemorrhagic infarction with air bubbles (arrow) in the temporoparietal area (fig. 1). He expired on the 20th hospital day due to irreversible shock.

Several mechanisms have been postulated as the pathogenesis of central venous catheter-related PAE: (1) fracture of the catheter hub or detachment of the catheter; (2) piggyback intravenous infusion being allowed to run dry; (3) during introduction of the catheter; (4) air sucking along its tract after removal of the catheter; (5) the left plastic introducer sheath during removal of the catheter [2-4]. Although we could not define the cause of PAE in this case, the first two conditions seemed to be associated with it. In addition, long-term catheterization during the posttransplant period also seemed to have played a role.

In summary, fatal cerebral air embolism should be included as one of the causes of death in the early posttransplant period. Careful evaluation of catheter integrity and early removal of the catheter should be considered if renal function is stabilized.

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