

Abstract

Otolaryngol Head Neck Surg. 2000 Jun;122(6):911-6. Links

Comment in: Otolaryngol Head Neck Surg. 2007 Jun;136(6):1010-3.

Cryopreserved, irradiated tracheal homograft transplantation for laryngotracheal reconstruction in human beings.

Kunachak S, Kulapaditharom B, Vajaradul Y, Rochanawutanon M.

Department of Otolaryngology-Head and Neck Surgery and Pathology, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand.

Subglottic tracheal stenosis is a common clinical entity. Management in severe cases is often problematic. Various techniques for tracheal replacement have been used with varying degrees of success. In this study we used cryopreserved, irradiated tracheal homografts, the use of which in human beings has not been reported previously. In a sterile setup, the tracheas were harvested from donor cadavers within 24 hours of death. The grafts were initially kept at 57 degrees C for 20 minutes; they were then placed in a -70 degrees C chamber for another 2 to 3 days or more and were irradiated to 25 kGy (2.5 million rad). Finally, the grafts were stored at -70 degrees C until usage. Seven patients underwent the surgery, but only 4 are presented here. In the remaining 3 patients, the follow-up time was too short to be evaluated. Four patients, 2 male and 2 female (aged 2-40 years, mean 16 years), with severe subglottic tracheal stenosis underwent segmental tracheal graft reconstruction. Immunosuppressant medications were not given to any patient. Follow-up ranged from 18 to 20 months. Three patients successfully underwent decannulation, and 1 patient had local infection and dislodgment of the intraluminal stent with subsequent restenosis. The postoperative tracheal lumen appeared to be near normal, with histologic evidence of normal respiratory epithelium at the grafted site. In conclusion, cryopreserved, irradiated tracheal homograft transplantation is a valuable alternative for subglottic tracheal reconstruction.