

Pierre Delaere

Professor of ENT, Head & Neck Surgery
University of Leuven, Belgium

Tracheal Transplant - From Bench to Bedside

This presentation presents insights and advances that have been realized over the past 30 years from both experimental and clinical tracheal transplantation research. Our research, conducted between 1990 and 2001, has focused on experimental revascularization and transplantation of tracheas in rabbit models.

These studies have produced an important clinical application: patch tracheal allotransplantation to resolve long-segment stenoses and restenoses after segmental resections.

Since 2008, we performed airway reconstruction in fifteen patients with a vascularized tracheal allotransplant procedure involving sequential heterotopic and orthotopic grafting, mucosal autografting and temporary immunosuppression. We progressively refined the technique and a safe immunosuppressive withdrawal was obtained from patient 5 on with documentation of graft viability after ceasing of immunosuppressants.

After transplantation, patients had a normal breathing pattern without tracheostomy or stent.

The standardized tracheal allograft technique of indirect vascularization and temporary immunosuppression generates a chimeric and stable functional trachea after withdrawal of immunosuppression.