Laryngotracheal reconstruction update.

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Publication Date: 2001

Abstract:

Laryngotracheal reconstruction has become the standard therapeutic option for the management of different types of laryngotracheal abnormalities such as stenosis or tumor invasion. The surgical reconstruction of the laryngotracheal airway is an effective method for achieving decannulation, facilitating the normal development of communication skills, and producing normal quality voice. Various grafting materials, such as autogenous nasal, costal, auricular, or thyroid cartilage; homograft cartilages; hyoid bone; perichondrium; hydroxyapatite; or titanium have been used for airway lumen augmentation. Rotary door flap, muscle pedicle graft of hyoid bone, free flaps with bone or cartilage from iliac crest or rib, and segmental resection with primary anastomosis have been practiced in laryngotracheal reconstruction with different success rates. None of these techniques and graft materials, however, fulfills the basic requirements for establishing internal lining, support, and vascularization. Human laryngeal transplantation is another future option for severe or alaryngeal cases when the immunologic mechanism is completely understood and the host reaction problem is solved. Still, laryngotracheal reconstruction techniques require refinement, especially in graft selection, so future studies are needed.