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**Article. Version publiée - Published version.**

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**Citation APA:**

Saussez, S., Cuno, A., Urbain, F., Chantrain, G., & Lequeux, T. (2006). Reconstruction of circumferential oro- and hypopharyngeal defects with U-shaped pectoralis major myocutaneous flap. *Otolaryngology and head and neck surgery*, 134(5), 823-829. doi:10.1016/j.otohns.2006.01.004

**DOI: 10.1016/j.otohns.2006.01.004**

**Also available at: <http://hdl.handle.net/2013/ULB-DIPOT:oai:dipot.ulb.ac.be:2013/121778>**

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## ORIGINAL RESEARCH

# Reconstruction of circumferential oro- and hypopharyngeal defects with U-shaped pectoralis major myocutaneous flap

Sven Saussez, MD, Alexander Cuno, MD, Frédéric Urbain, MD, Gilbert Chantrain, MD, PhD, and Thomas Lequeux, MD, Bruxelles, Belgium; and Mons, Belgium

**OBJECTIVE:** The purpose of the study was to evaluate the effectiveness of a U-shaped pectoralis major myocutaneous flap (PMMF) to reconstruct a large circumferential defect involving the oro- and hypopharynx.

**STUDY DESIGN AND SETTING:** Retrospective case series.

**RESULTS:** Twelve patients with advanced oro- and hypopharyngeal cancer (stage IV) underwent surgery resulting in a circumferential defect of pharyngoesophageal segment (PES). Those defects were reconstructed using a U-shaped PMMF. Four pharyngocutaneous fistulas were observed postoperatively and healed spontaneously within 3 to 7 weeks. Eight patients were able to resume a regular diet. A voice prosthesis was functional in 5 patients.

**CONCLUSION:** This preliminary study shows that this technique is a simple and effective method with acceptable morbidity rate and satisfactory functional results. We demonstrate that this procedure allows the reconstruction of large defects involving the oro- and hypopharynx in irradiated patients. This technique could be an interesting alternative for surgical teams suffering from the absence of a microsurgical team.

**EBM rating:** C-4

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With the progressive development of ablative surgery for pharyngolaryngeal cancer in recent decades, the demand for an effective one-step pharyngoesophageal reconstruction has led to the development of a wide variety of tissue-transfer techniques. Squamous cell carcinoma of the

hypopharynx is one of the most aggressive malignant tumors of the head and neck area and has the worst prognosis.<sup>1</sup> In most cases, hypopharyngeal cancers require an extended radical resection consisting of total laryngectomy combined with partial or total pharyngeal resection. In those extended resections, a reconstructive procedure is required. Reconstruction of the pharynx after circular pharyngolaryngectomy has always presented a technical challenge. Many different solutions have been proposed.<sup>2</sup> The most commonly used procedures are microvascularized free flaps.<sup>3–6</sup> Most frequently, the pectoralis major myocutaneous flap (PMMF) has been used to reconstruct limited hypopharyngeal defect<sup>7</sup> or postsurgical stricture.<sup>8</sup> After circumferential pharyngolaryngectomy, the use of an entirely tubed PMMF was first described by Withers et al.<sup>9</sup> However, the tubed PMMF has some disadvantages (ie, its bulkiness and the risk of stenosis). Because of these problems, Fabian<sup>10</sup> described a procedure where the PMMF was used only for anterior and lateral hypopharyngeal wall reconstruction (in U-shaped) whereas dermal graft is used for the posterior wall. This procedure allowed to reduce the flap thickness and to obtain an adequate lumen caliber. In 2001, Spriano et al<sup>11</sup> described a simplification of this technique using the same procedure but without dermal skin graft for the reconstruction of the posterior wall. We have also used this procedure for carcinomas invading posterior and lateral walls of the oro- and hypopharynx. In those cases, we

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