Tissue-Sparing Uvulopalatopharyngoplasty for OSA: Conservative, Compassionate and Possibly just as Effective

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Abstract A common surgical treatment for obstructive sleep apnea (OSA) is uvulopalatopharyngoplasty (UPPP). Unfortunately, traditional UPPP can cause a foreign body sensation, chronic discomfort and in rare cases, nasopharyngeal stenosis or velopharyngeal insufficiency. Modifications to traditional UPPP have been developed over the years to help decrease side effects, while trying to maintain or improve OSA outcomes. Conservative, tissue-sparing UPPP techniques include preservation of soft palate tissues (muscle and/or mucosa), avoidance of plication or conservative plication of the uvula, partial instead of complete uvulectomy, and suture plication of the palatopharyngeus-

superior pharyngeal constrictor-palatoglossus muscles with complete preservation of surrounding tissues after tonsillectomy.

Keywords Obstructive sleep apnea · Sleep apnea syndromes · Uvulopalatopharyngoplasty · Tonsillectomy · Surgery

Editorial

We read with great interest the uvulopalatopharyngoplasty (UPPP) article by Baradaranfar et al. [1]. and the accompanying editorial, written by Mantovani et al. [2]. Specifically, the article by Mantovani et al. [2] brings to the attention of the readers whether UPPP should be performed at all in the setting of minimally invasive surgeries (Barbed Roman Blinds Technique [2]) and newer technologies such as hypoglossal nerve stimulators [3]. We do agree that because there are several surgical treatment modalities available [4], that surgeons should not reflexively select UPPP as the treatment of choice for all obstructive sleep apnea (OSA) patients. In appropriately selected patients, however, such as those with mild OSA, a normal tongue, large tonsils, elongated and thickened uvulas with a retro-displaced soft palate, a UPPP could be appropriate. It is known that tonsils contribute to lateral pharyngeal wall collapse and the soft palate can contribute to anteroposterior, lateral pharyngeal wall or circumferential collapse; therefore, in carefully selected patients, UPPP may be indicated. Tonsillectomy, resection of the inferior aspect of the soft palate and uvula are part of the traditional UPPP. However, overly-aggressive UPPP could lead to velopharyngeal insufficiency or nasopharyngeal stenosis. Additionally, side effects that patients complain of include

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Fig. 1 **a** Patient with a normal tongue, an elongated, thick uvula and grade 2 tonsils. **b** Traditional uvulopalatopharyngoplasty. **c** Modified uvulopalatopharyngoplasty with denuding of the anterior-inferior aspect of the soft palate and plication of the uvula to the soft palate. **d** Palatopharyngoplasty with partial resection of the uvula (The figure is an open source image which was deposited by the first author into Wikimedia Commons—irrevocably granting anyone the right to use the work under Creative Commons ShareAlike 4.0 license)

foreign body sensation and chronic throat discomfort. Several modifications to traditional UPPP have been developed over the years to help decrease these complications and side effects, while at the same time preserving the physiological effectiveness as treatment for obstructive sleep apnea [5]. Conservative, tissue-sparing UPPP techniques include preservation of soft palate tissues (muscle and/or mucosa), avoidance of plication or conservative plication of the uvula, partial instead of complete uvulectomy, and suture plication of the palatopharyngeus to the palatoglossus with complete preservation of surrounding tissues after tonsillectomy.

Figure 1a demonstrates the baseline appearance of a classic OSA patient who has a normal tongue, an elongated, thick uvula and grade 2 tonsils. If the decision to proceed with a UPPP has been made, then the surgeon and patient need to select the sub-type of UPPP which includes a traditional uvulopalatopharyngoplasty (Fig. 1b), a modified uvulopalatopharyngoplasty (similar to that described

by Powell et al. [6]) with denuding of the anterior-inferior aspect of the soft palate and uvula, followed by plication of the uvula to the soft palate (Fig. 1c), or conservative, tissue-sparing UPPP (Fig. 1d). The authors have had good outcomes with conservative, tissue-sparing UPPP, in which a bilateral tonsillectomy is performed with plication of the palatopharyngeus to the palatoglossus (and closure of dead space by imbricating the superior pharyngeal constrictor via suturing between the palatopharyngeus and palatoglossus, as described by Kwon et al. [5]) with a conservative resection of the uvula if necessary. Conservative, tissue-sparing UPPP techniques significantly open the retropalatal airway and at the same time provide patients with less discomfort, fewer side effects and possibly fewer major complications such as velopharyngeal insufficiency and nasopharyngeal stenosis. Additional studies are needed in order to better define the side effects, complications and overall effectiveness of tissue-sparing UPPP.

Compliance with Ethical Standards There is no case report, or case series or any patient information presented in this study, rather it is an editorial commentary.

Conflict of interest No author has any conflict of interest.

Research involving human participants and/or animals There is no research involving human participants or animals.

Informed consent There is no study, rather this article is an editorial commentary.

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