swine rib cartilage as Han et al did. However, we failed to get that size because the swine rib cartilage was not wide enough. Instead, we could obtain 10 × 20 × 2-mm-sized blocks from swine scapular cartilage.

The aim of this article was to report the precise technical details to obtain a desired size and thickness cartilage model from swine scapular cartilage.

Swine scapular cartilage was obtained from a slaughterhouse (Fig. 1). The thickness was 3 to 6 mm, and the size varied depending on the animal’s weight. The harvested cartilage was gripped in a heavy-duty workshop vise (Moon Star Co, Seoul, Korea; Fig. 2). Two parallel blades (Ultra Cutter Blade; Peace Korea Ltd, Incheon, Korea) set at the desired gap (adjusted with a wooden spatula of 2 or 3 mm) were gripped with 2 Long Nose Locking Pliers (IRWIN Tools, Huntersville, NC; Fig. 3). The parallel blades were passed through the cartilage fixed with vise, and the cartilage was formed at the desired thickness. Finally, the margins were trimmed (Fig. 4).

An author described the scapulohumeral articulation of domesticated mammals, and he stated the scapula and humerus was separated by four-tenths to eight-tenths of an inch because the aponeurotic expansion was very thin and loose. Through his description, we could know that swine scapular cartilage could be thick at up to eight-tenths of an inch. In fact, we usually could get cartilage thicker than 5 mm.

Weinfeld introduced chicken sternal cartilage for simulated septal cartilage graft carving. He stated that the mean cartilage height, length, and thickness they measured were 2.36 cm, 6.13 cm, and 3.4 mm, respectively. However, it is thought that the thickness of the avian sternal cartilage is not even. Hence, it is difficult to get a desired size of even thickness. Compared with the chicken sternal cartilage, swine scapular cartilage is larger and thicker. Therefore, it is easier to get a model of nasal septal cartilage or auricular cartilage. The swine scapular cartilage model might provide increased practice opportunities for handling nasal septal cartilage or auricular cartilage.

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Role of 3-Dimensional CT Angiography for Vascular Assessment

To the Editor: In head and neck reconstruction, microsurgical free flap transfer is standard treatment. As proper selection of recipient vessels is very important for success of microsurgical reconstruction, preoperative assessment of recipient vessels is necessary in head and neck microsurgical reconstruction. Therefore, three-dimensional computed tomography (CT) angiography (CTA), which has been used to identify and select preoperatively recipient vessels, has been used to identify and select preoperatively recipient vessels. Although several authors have reported the utility of three-dimensional CTA in head and neck microsurgical reconstruction, preoperative vascular assessment of these reports is not sufficient in oropharyngeal cancer patients who had undergone prior operation, radiotherapy, and/or selective intra-arterial chemotherapy. Therefore, we describe the role of three-dimensional CTA for vascular assessment before head and neck microsurgical reconstruction after previous treatments.

Preoperatively, a 64-detector spiral CT scanner (Aquilion 64; Toshiba Medical, Tokyo, Japan) was used to identify the location,
size, length, and course of branches of the external carotid artery (ECA) and the transverse cervical artery (TCA). Nonionic contrast medium (100 mL) was injected at a rate of 4.0 mL/s through an antecubital vein with an automatic power injector. A bolus-tracking technique was used to select the individual start delay for the arterial phase. The scan volume included the superior margin of the aortic arch to the superior margin of the orbit for the arterial phase scan. Image processing was done on a workstation (ZIOSTATION; ZIOSoft, Tokyo, Japan) using the volume-rendering technique. Three-dimensional vascular models including the TCA in the neck can be visualized in this way preoperatively (Fig. 1). Rotation of three-dimensional CTA images and the ability to view the anatomy from any desired angle can facilitate preoperative assessment and planning. The branches of the ECA sometimes show rare variations, which are almost discovered incidentally during surgery. In our experience, preoperative three-dimensional CTA in a patient with recurrence of right mandibular gingival carcinoma revealed the thyrolingual trunk arising from the common carotid artery (Fig. 2). Without preoperative information on the origin of the lingual artery, the artery may be ligated needlessly during surgery. Understanding of the patterns of individual variability in the course of the ECA and its branches is very vital for neck dissection or microsurgical reconstruction. Furthermore, we have sometimes encountered oropharyngeal cancer patients with stenosis or calcification of the carotid artery, which are risk factors of complications such as cerebral infarction and free flap failure. Preoperative three-dimensional CTA findings of the stenosis and calcification can help to change treatment planning as well as avoid severe complications. Therefore, we routinely perform three-dimensional CTA as well as contrast-enhanced CT at once for vascular assessment before head and neck surgery.

Generally, the branches of the ECA as well as the superior thyroid artery or the facial artery are used as recipient arteries. However, prior radiotherapy and/or superselective intra-arterial chemotherapy can cause damage to the branches of the ECA, and these arteries might be resected by primary surgery. In double-free-flap reconstruction, not only the branches of the ECA but also the TCA are sometimes required as recipient arteries. When the branches of the ECA as recipient arteries cannot be used in microsurgical reconstruction after primary surgery, radiotherapy, and/or superselective intra-arterial chemotherapy, the TCA should be basically selected in the ipsilateral side because the TCA is generally spared during neck dissection and is relatively outside previously irradiated field. Furthermore, the TCA is less affected by atherosclerosis than the carotid artery. However, so far, several authors have reported three-dimensional visualization of only branches of the ECA before head and neck microsurgical reconstruction using CTA and showed no visualization of the TCA. Although Yu reported the TCA as recipient vessels in microsurgical reconstruction for previously treated head and neck cancer patients, there was no preoperative assessment of the TCA. Patients undergo more invasiveness if contralateral recipient vessels are used, when surgeons found intraoperatively that TCA cannot be used because of insufficient size or absence. We generally select the TCA first as recipient artery after preoperative vascular assessment using three-dimensional CTA for microsurgical reconstruction in oropharyngeal cancer patients with previous treatments, because the branches of the ECA after superselective intra-arterial chemoradiotherapy have severe damage, and reanastomosis from the branches of the ECA to the TCA is sometimes performed for insufficient blood flow.

Three-dimensional CTA allows the surgeon to reliably assess critical vascular anatomy in the neck. In addition, the simultaneous display of the internal and external jugular veins or bone is possible. To assess the location, size, length, and course of the branches of the ECA and the TCA three-dimensionally and decrease potential vessels injury or severe complications in oropharyngeal cancer patients who had undergone prior operation, radiotherapy, and/or superselective intra-arterial chemotherapy, we recommend the preoperative use of three-dimensional CTA, which carries no risk of cerebral infarction compared with digital subtraction angiography.

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Glomus tympanicum: An Unusual Cause of Epistaxis

To the Editor: A 72-year-old woman presented with a history of intermittent predominantly right-sided epistaxis of several months in duration. The patient was seen by an otolaryngologist surgeon

FIGURE 1. Three-dimensional CTA for vascular assessment before head and neck microsurgical reconstruction. Arrow indicates the TCA.

FIGURE 2. The thyrolingual trunk (arrow) arising from the common carotid artery identified by three-dimensional CTA.