2. Fu, S.Y. and Gordon, T. (1995) Contributing Factors to Poor Functional Recovery after Delayed Nerve Repair: Prolonged Axotomy. The Journal of Neuroscience, 15(5): 3876–3885
3. Aydin, M. A., Mackinnon, S.F., Gu, X. M., Kobayashi, J., and Kuzon Jr., W.M. (2004) Force Deficits in Skeletal Muscle after Delayed Reinnervation Plast. Reconstr. Surg. 113: 1712
4. Cederna, P.S., Youssef, M.K.H., Asato, H., Urbanchek, M.G., and Kuzon, Jr., W.M. (2000) Skeletal Muscle Reinnervation by Reduced Axonal Numbers Results in Whole Muscle Force Deficits. Plast. Reconstr. Surg. 105: 2003

What Is the Lobular Branch of the Great Auricular Nerve? Anatomical Description and Significance in Rhytidectomy

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INTRODUCTION: Recent literature describes a distinct third branch of the great auricular nerve (GAN) named the lobular branch. Studies demonstrate preserving the lobular branch of the GAN has greater impact on sensory function at the auricle than preservation of the posterior branch during rhytidectomy. However, no methodology exists to efficiently and accurately determine the topographic location of the lobular branch. This study described the branching characteristics of the lobular branch and algorithmic surface markings to assist surgeons in preservation of this nerve during rhytidectomy flap elevation.

MATERIALS AND METHODS: The lobular branch was dissected bilaterally in 50 cadaveric necks. Measurements were taken from the lobular branch to conchal cartilage, tragus, and antitragus. The anterior branch was measured to its SMAS insertion and the posterior branch was measured to the mastoid process. McKinney’s point was marked and the GAN diameter was recorded. Branching pattern and location of branches within the Ozturk 30-degree angle were documented. Basic statistics were performed. A student’s t-statistic was used to compare male and female GAN diameter difference.

RESULTS: The anterior, posterior, and lobular branches were present in all specimens. In comparing nerve diameter between males and females a highly significant difference was identified (t=−2.780, p<0.01). The most common origin of the lobular branch was from a trifurcation with the anterior and posterior branches. The lobular branch always terminated in the lobular area, but may send accessory branches to the pre-auricular area or posterior inferior auricle. In 85% of specimens, the lobular branch resided directly inferior to the antitragus and in the remaining specimens it was located directly inferior to the tragus. Preoperative markings consisting of two vertical lines from the tragus and antitragus to McKinney’s point can be used to outline the predicated location of the lobular branch.

CONCLUSION: This study delineated the location of the lobular branch of the GAN. We translate these findings into a quick and simple intraoperative marking, which can assist surgeons in avoiding the lobular branch injury during rhytidectomy dissection.

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REFERENCES:
1. Hu J, Ye W, Zheng J, Zhu H, Zhang Z. The feasibility and significance of preservation of the lobular branch of the great auricular nerve in parotidectomy. International journal of oral and maxillofacial surgery. Jul 2010;39(7):684–689.
2. Zumeng Y, Zhi G, Gang Z, Jianhua W, Yinghui T. Modified superficial parotidectomy: preserving both the great auricular nerve and the parotid gland fascia. Otolaryngol Head Neck Surg. 2006;135(3):458–462.

Reconstructive Session 2

Vaginal Reconstruction with Interdigitating Y-flaps in Women with Transverse Vaginal Septa

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INTRODUCTION: Transverse vaginal septa are rare congenital disorders of sex development, whose surgical management involves varying degrees of vaginal reconstruction. While thicker septa require complex reconstruction with local flaps, muscle flaps, or bowel transposition, thin septa have traditionally been managed by simple excision of the septal tissue and anastomosis of the vaginal ends. This not only shortens the vagina, it also produces a circular scar, which
significantly increases the risk of postoperative vaginal stenosis. This paper proposes a simple technique for the reconstruction of thin septa, utilising two interdigitating Y-flaps. The authors also present their 7-year experience of utilising this technique. Custom made illustrations and serial intraoperative photographs will accompany the podium presentation in order to facilitate better understanding of the technique.

THE TECHNIQUE: The transverse vaginal septum comprises an external and internal fibrous lamella, with interstitial areolar tissue interposed between the two. An inverted Y incision is made on the external lamella and the three resulting flaps are raised onto the interstitial tissue all the way to the lateral vaginal wall. A second Y incision is then made on the internal lamella, at 180 degrees to the previous incision; this produces three internal flaps. Finally, the internal flaps are everted and interdigitated with the external flaps which are inverted, producing a zigzag scar.

RESULTS: The authors run a national service for disorders of sex development comprising plastic surgeons and gynaecologists. In the last seven years, eight patients with this rare condition have been identified, with mean age 18.5 years (±4.3y). All patients had the procedure described above. No major complications were reported. Mean follow up was 5.7 months (3–14 months). There were no cases of postoperative vaginal stenosis. One of the patients carried a twin pregnancy to term and had spontaneous vaginal delivery without problems.

CONCLUSION: The authors present a simple technique for vaginal reconstruction in patients with transverse vaginal septa, based on two interdigitating Y flaps from each septal lamella. This technique obviates the previous need for septal tissue excision, thus maintaining the vaginal length; it also produces a zigzag rather than a circular scar, which reduces the risk of postoperative vaginal stenosis. The authors’ 7-year experience with this technique has shown that it is safe and yields very good postoperative outcomes.

REFERENCES:
1. Williams, C. E., Nakhal, R. S., Hall-Craggs, M. A., et al. Transverse vaginal septa: management and long-term outcomes. BJOG: an international journal of obstetrics and gynaecology 2014;121:1653–1658.

Obturator Artery Perforator Propeller Flap for Scrotal and Vulvar Reconstruction

INTRODUCTION: The perforator of the anterior branch of the obturator artery is located at the uppermost gracilis territory. The perforator flap based on this vessel is thin and pliable, offering a good solution for loco-regional defects. In this study, we investigated the perforator topography of the anterior branch of obturator artery and propose a new flap, the obturator artery perforator propeller flap, for vulvar, vaginal or scrotal reconstruction.

MATERIALS AND METHODS: Identification and evaluation of the perforator at the uppermost gracilis territory was conducted during elevation of the gracilis flap, the obturator artery perforator flap or the profunda femoris artery perforator flap. Between January of 2011 and May of 2014, thirty-two thighs in 26 patients were evaluated. The distance of the obturator artery perforator from the ischiopubic ramus and the perforator types (musculocutaneous versus septocutaneous) were recorded. Among these, eleven patients underwent perineal reconstruction with the propeller obturator artery perforator flap(s), including a scrotal reconstruction and 10 vulvar/vaginal reconstructions. Patient age ranged from 22 to 85 years (mean, 66.1 years).

RESULTS: A single perforator from the anterior branch of obturator artery was found at the uppermost gracilis territory in all 32 thighs. The perforator was located at a mean of 1.1 cm (range 0.8 to 1.4 cm) lateral to the ischiopubic ramus; it was septocutaneous in 3 thighs (9.4%) and musculocutaneous in 29 thighs (90.6%). In 11 patients that underwent perineal reconstruction, seventeen obturator artery propeller perforator flaps were elevated. The flap area ranged from 4x7 cm² to 7x21 cm². The donor sites were primarily closed in all cases. Arc of flap rotation ranged from 90 to 180 degrees. All flaps survived completely. At a mean follow-up time of 5.1 months (range 3 to 10 months), all patients achieved normal daily activity with good functional outcomes.

CONCLUSION: The perforator of the anterior branch of the obturator artery is constantly present at the uppermost gracilis territory. The propeller obturator artery perforator flap is a versatile and reliable option for vulvar, vaginal or scrotal reconstruction.

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